

Allan H. Meltzer

With a Foreword by Alan Greenspan

A HISTORY OF THE

Federal Reserve

VOLUME 1: 1913-1951



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WITH A FOREWORD BY ALAN GREENSPAN

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ALLAN H. MELTZER is the Allan H. Meltzer University Professor of Political Economy at Carnegie Mellon University and Visiting Scholar at the American Enterprise Institute, Washington, D.C. He is the author or coauthor of several books, most recently *Money, Credit, and Policy*, and served on the President's Council of Economic Advisers from 1988 to 1989.

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To Marilyn

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FOREWORD

Allan Meltzer, who undertakes projects that to most appear daunting, has delved deeply into the history of the Federal Reserve System, with a result that will add substantially to the discourse on the institution's role and development. He has reviewed the records of policy discussion at an extraordinary level of detail, and his analysis illuminates the contributions of the many fascinating individuals who shaped the Federal Reserve System we know today.

Beginning with a history of developments that underlay the initiation of America's most recent experiment in central banking, Meltzer carries the reader through the challenges of a developing institution faced with enormous economic upheaval, aptly describing the strong personalities that influenced both policy and culture in the System.

His work explores the Federal Reserve's inadequate response to the Great Depression and the struggle for dominance in the System. According to Meltzer, the struggle did not wholly preclude agreement in times of crisis; nevertheless, the well-known exhortations of Bagehot and Thornton that a central bank must act to counter a banking crisis and currency drain without regard for the gold reserve were ignored. In Meltzer's view, the System's adherence to the real bills doctrine, combined with a belief that the purging of speculative excess was necessary to set the stage for price stability, led to the failure of monetary policy to lessen the decline.

The book describes in detail the roles played by Federal Reserve bank presidents, which have evolved substantially over the years, as has the relationship between the reserve banks and the Board of Governors. The early dominance of the Federal Reserve System by Benjamin Strong, governor of the Federal Reserve Bank of New York, is an interesting episode.

Strong was credited more than anyone else with recognizing in the years after World War I the financial and economic impact of reserve bank purchases and sales of Treasury debt and the need to coordinate those transactions. Meltzer depicts Governor Strong's opposition to a 1926–27 congressional proposal to amend the Federal Reserve Act to make price stability an explicit policy goal. He describes Governor Strong's concern that the bill offered by another Mr. Strong—Kansas Republican congressman James A. Strong—would be interpreted to mandate the stability of individual prices, particularly of agricultural products. In a clear example of his willingness to take sides, Meltzer says here that had a mandate for price stability been approved, the Fed “could not have permitted the Great Depression of 1929–33 or the Great Inflation of 1965–80.”

Ultimately the Banking Act of 1935, largely adopting reforms proposed by Marriner Eccles, resulted with some subsequent refinement in the structure of the Federal Open Market Committee. Eccles had sought an FOMC wholly controlled by the Board rather than so-called private interests. However, Senator Carter Glass of Virginia and others were leery of monetary policy dominated by what they saw as “political interests.” The compromise that emerged mandated that monetary policy be conducted with a broader vision than if either Eccles or Glass had prevailed.

Meltzer's book covers with the same methodical illumination the events of more recent years, completing a work both stimulating and provocative. Readers will have substantial material for continued reflection and discussion.

Allan Meltzer has spent a lifetime inquiring into monetary economics, and he calls the evidence as he sees it. His combination of interests and experience makes him most qualified for this undertaking, and he brings to the endeavor a closeness of analysis that makes his conclusions both fascinating and valuable. Those of us who enjoy the debates he inspires will find much satisfaction in this book, as in his other important works.

Alan Greenspan

P R E F A C E

The project that eventually became this book began in 1963–64, when the late Congressman Wright Patman asked me to extend a study I had done for the Joint Economic Committee. That study described operations in the dealer market for government securities—the market in which the Federal Reserve conducts its open-market operations. When I explained that the problems that concerned him arose at the Federal Reserve and not in the market, he asked me to undertake a study of the Federal Reserve.

My former teacher Karl Brunner, later my friend and lifetime collaborator, joined the project. Together we wrote a lengthy study of Federal Reserve operations, emphasizing their use of free reserves as a target and indicator of the thrust of policy. We showed that these procedures were faulty—that the Federal Reserve’s analysis did not go beyond the money market to the broader objectives required by an efficient and effective monetary policy. We proposed an alternative framework.

The late Harry G. Johnson proposed to the University of Chicago Press that it republish the study. The original studies were hastily written to meet congressional deadlines. I started to rewrite several sections but decided instead to extend the analysis. One set of questions in particular warranted attention: Why had the Federal Reserve acted as it did? Why had it failed to respond to the Great Depression or the deep recession of 1937–38? Why was monetary policy often pro-cyclical?

This book tries to answer those questions. At various times in the late 1960s and early 1970s, I began to revise the manuscript to complete the history. Karl Brunner always expressed interest, but he never devoted any time to working on the manuscript or commenting on what I had written.

In the fall of 1994 I returned to work on this book while on leave from

Carnegie Mellon at Harvard University and the National Bureau of Economic Research. My thanks to Martin Feldstein for the hospitality and pleasant working conditions at the Bureau.

In the nearly thirty years since I first started on this project, both the Federal Reserve and my ideas have changed. Some of the ideas in the original study remain, but much of this material is new.

The most important influence on my thinking and conclusions has come from reading the minutes, correspondence, and other internal documents developed at the time. Records for the Federal Reserve Board and the Board of Governors became available as a result of the Freedom of Information Act in the 1970s. The cooperation of Chairman Alan Greenspan, the secretary of the Federal Open Market Committee, Normand Bernard, and the library staff went far beyond legal requirements. I am indebted to them, to Susan Vincent and Kathy Tunis at the Board of Governors library, and to Elizabeth Jones of the Board's staff for their helpful assistance.

I began by reading all the archival material. It soon became apparent that the amount was too great for one person to summarize the material and complete the manuscript in reasonable time. Several researchers have reviewed and summarized material, collected data, and assisted in other ways. I am particularly grateful to Randolph Stempiski, Sean Trende, Catherine Pharris, Matthew Korn, and Jessie Gabriel for their perseverance, diligence, and thoughtful selection of material.

To supplement their efforts, I continue to read and summarize materials at the Federal Reserve Bank of New York. The bank has collections of papers left by its governors and later presidents, Benjamin Strong, George Harrison, and Allan Sproul. These include memos, correspondence, and records of conversations. Lester Chandler used Benjamin Strong's papers for his biography of Strong. Instead of rereading all the Strong papers, I relied on the quotations in Chandler's biography. Where I differed on interpretation, I referred to primary sources.

The New York board of directors, or its executive committee, met weekly. The weekly minutes often have more detail than the daily minutes of the Federal Reserve Board's meetings. The New York archives directed me to topics in the board's records and conversely. The New York bank has been extremely helpful not only by providing access to materials but by offering pleasant working arrangements. Although not covered by the Freedom of Information Act, the bank provided materials without hesitation or restriction. I am indebted to President William McDonough for his assistance and to Rosemary Lazenby, the bank's gracious and ever helpful archivist and her staff.

Many people read and commented on parts of the manuscript. I am

grateful to all of them and particularly to Robert Aliber, Michael Bordo, Kevin Dowd, Milton Friedman, Alan Greenspan, Jerry Jordan, David Laidler, Athanasios Orphanides, Robert Rasche, and Elmus Wicker.

I owe a special debt to Anna Schwartz, who encouraged and prodded me. Anna commented fully and helpfully on each chapter from her vast store of knowledge. Bennett McCallum listened patiently at lunches over many years and commented with his usual economic insight. Alberta Ragan typed the several revisions and proofread the entire manuscript with her usual care, efficiency, and good humor.

Several readers have asked why I included the years covered in Friedman and Schwartz's now classic monetary history. In one respect this is a strange question: in the physical sciences, replication of experiments is the norm. No one appreciates their work more than I, but its quality and importance should encourage, not deter, replication.

There are additional good reasons for revisiting the early years. First, I had unlimited access to material that they did not have. To the extent that I reach the same conclusions, as I often do, my work strengthens theirs. Where I find differences, as I sometimes do, my work supplements theirs by giving a more complete or more accurate account. Second, I am interested in some different questions, such as those listed above and others.

To answer those questions, I let the Board members, governors, presidents, and others explain their actions in their own words. Although personal animosities and indecisiveness play a role, there is a remarkable consistency in the statements and explanations. Using the earlier studies for the House Banking Committee, I develop the framework that guided many of their decisions.

The research for this book required much time in Washington, D.C., and at National Archives II in College Park, Maryland. My continuing association as a Visiting Scholar at the American Enterprise Institute was invaluable. I am greatly indebted to Christopher DeMuth for his generous hospitality and assistance and to my colleagues there, especially Douglas Besharov, for support and encouragement. I am indebted also to Dean Douglas Dunn and others at Carnegie Mellon University. They have encouraged me through more than forty years of an active life.

The Sarah Scaife Foundation, the Lynde and Harry Bradley Foundation, and the Smith Richardson Foundation have given generously to finance the project. It has taken six years to get to this point. Without their backing, it might never have happened.

My largest debt is to Marilyn, my wife, whose support, encouragement, and love have always been there during a lifetime of often hectic but always absorbing activities.

Introduction

This book is the biography of an institution, the Federal Reserve System, much of it told by its principals. The Federal Reserve is now the United States' powerful central bank. The founders did not intend to create either a central bank or a powerful institution; had they been able to foresee the future accurately, they might not have acted.

Institutions, no less than individuals, change as they mature and as the conditions that led to their creation change. In 1913 the United States was a developing country, with agriculture its largest occupation. The enormous shift in political and economic power and responsibility toward the United States that occurred in the twentieth century was at an early stage. The founders did not design or contemplate the Federal Reserve System we have today. They hoped to reduce financial instability, improve the quality of financial services, and strengthen the payments system.

The leading central banks in 1913 were privately owned institutions vested with responsibility for such public activities as providing currency, maintaining domestic payments systems and international payments, and serving as lenders of last resort in periods of financial disturbance following threat of failure by major banks or financial institutions. Depositors were not insured against these risks, so the threat of financial disruption set off a shift from bank deposits to gold or currency issued by the government. The drain of gold and currency into private hands forced multiple reductions in bank assets and liabilities and threatened additional bank failures. Interest rates on short-term loans rose with the increased demand to borrow and the reduced supply of loans.

By the late nineteenth century, central bankers in principal countries understood that their responsibility to lend at times of financial panic

made them unique. Their public responsibility to prevent widespread failure of banks and financial institutions that would otherwise remain solvent had to dominate the private interests of their stockholders. Private interests would lead them to contract lending, call loans, and shrink their balance sheets. Such action would force unneeded bankruptcies and increase the risks the public had to bear.

In a well-managed panic under the gold standard, the government suspended the central bank's requirement to pay out gold or silver on demand. Relieved of the requirement to hold a fixed percentage of the note issue in metallic reserves, the central bank could expand the currency issue to satisfy any increase in the demand for currency. Privately owned banks with good collateral could borrow from the central bank instead of calling loans, reducing deposits, and forcing economic contraction and bankruptcies. When the system worked in this way, financial panics ended quickly. The additions to currency returned to the banks as deposits. Banks repaid their loans at the central bank. As the central bank's liabilities fell, the government could restore the requirement to pay out gold on demand.

This system of public-private cooperation, combining suspension of gold payments with a lender of last resort facility, did not survive the economic, political, and financial disturbances later in the twentieth century.¹ By the 1950s, privately owned central banks had disappeared. Governments looked to public institutions to manage money and credit.

Public control of money raised a new issue or, more accurately, reopened an old one—preventing governments from abusing their power to create money and credit for temporary political advantage. After a decade or more of rising inflation, central banks became more independent of political control. By the end of the twentieth century, principal countries accepted two organizing principles—public ownership and “independence.” The latter term has many different specific meanings; their common element is limitation of the government's power to use monetary policy to gain political advantage.

The structure of the early Federal Reserve System reflected these concerns about reconciling the public nature of the central bank's task with responsible control of money and credit. Writers and commentators at the time did not use terms like “public goods” and “central bank independence,” but they recognized the problem of designing an organization with proper incentives. Fears that a privately owned bank would place the bank's interest above the public interest had to be reconciled with concerns about empowering the government to control money. In addition, the new insti-

1. Reasons other than effectiveness played a role in this transformation.

tution was supposed to provide a currency with stable value, capable of expanding and contracting in response to demand; a payments system that efficiently transferred money and cleared checks in a growing national economy; and the services of a lender of last resort.²

President Woodrow Wilson offered a solution that appeared to reconcile competing public and private interests. He proposed a public-private partnership with semiautonomous, privately funded reserve banks supervised by a public board. The directors of the twelve reserve banks, representing commercial, agricultural, industrial, and financial interests within each region, controlled each bank's portfolio. The new rules sought to pool the country's gold reserves to strengthen the individual parts by making the total reserve available in a crisis. Reserve banks could lend gold to other reserve banks. No formal provision required coordination or cooperation of the various parts, however. In practice this meant that if the system was to serve as a lender of last resort, it would have to coordinate the actions of the semiautonomous reserve banks.

President Wilson was proud of his achievement.

It provides a currency which expands as it is needed and contracts when it is not needed, a currency which comes into existence in response to the call of every man who can show a going business and a concrete basis for extending credit to him, however obscure or prominent he may be, however big or little his business transactions. More than that, the power to direct this system of credits is put into the hands of a public board of disinterested officers of the Government itself who can make no money out of anything they do in connection with it. No group of bankers anywhere can get control; not one part of the country can concentrate the advantages and conveniences of the system upon itself for its own selfish advantage. (Wilson as quoted in Kettl 1986, 22)

LAW AND PRACTICE

President Wilson's compromise resolved the immediate political conflicts and established an institution, but it left major economic and organizational issues unresolved. The structure of the new system did not concentrate decision-making authority and responsibility. A struggle for power and control broke out early and continued until resolved by the Banking Act of 1935.

2. Wicker (2000) shows that perceptive writers understood the need for a lender of last resort by the 1860s, but attempts by the New York clearinghouse to provide the service often failed because of the conflict between the collective interest in system stability and the members' individual concerns for the safety of their own institutions.

Although the Federal Reserve was an independent agency from the start, in practice two political appointees—the secretary of the treasury and the comptroller of the currency—served as *ex officio* members of its board, with the secretary as board chairman.³ Before the 1930s, treasury secretaries rarely participated actively.

The 1935 act resolved this organizational anomaly by removing the secretary and the comptroller from the Federal Reserve Board. By that time the secretary took an active part in monetary policy and often influenced decisions. The legal change did not change the locus of decision-making power. The Treasury retained its strong influence until 1951.

The 1913 legislation did not ensure that the new system would respond to crises better than the old. On the recommendation of the officers, or on their own initiative, the directors of individual reserve banks could decide not to participate in System operations. The officers who headed the reserve banks were mainly bankers, the same types of individuals that had run banks or clearinghouses in the past. A change of location to the reserve banks was not enough to ensure that concern for financial stability would outweigh other interests. Some did not recognize that the lender of last resort had to place the interests of the financial system above the interests of the individual reserve banks.

Institutions both shape the society of which they are part and adapt to the dominant views in that society. Although the Federal Reserve was independent of the day-to-day political process, the public, acting through its representatives, could insist on structural changes or, without formally changing structures, demand that the Federal Reserve undertake new responsibilities or give up old ones. No institution can be independent of this pressure for change.

In the 1920s the reserve banks learned to coordinate actions that affected interest rates and the stocks of money and credit. A committee, led by the New York reserve bank, took responsibility for securities purchases and sales. The reserve banks adopted a formula for allocating the System's portfolio among the reserve banks. The reserve banks retained the right to reject participation.

The committee was an informal, extralegal arrangement. The Board, acting in its supervisory role, had to approve purchases and sales. The line between supervision and decision making was never clear, so the procedures irritated some Board members and became a source of friction. Friction increased as open market operations became the principal policy instrument.

3. The comptroller is a Treasury official responsible for regulating banks with national charters.

The Banking Act of 1935 resolved this conflict also. Board members became members of the Federal Open Market Committee for the first time and held seven of the twelve seats and chairmanship of the committee. New York lost its leadership role. The New York bank did not regain a permanent seat on the committee until 1942. Since that time, the president of the New York bank has served as the committee's vice chairman.

The 1935 act permanently shifted the locus of power to the Board. The Federal Reserve became a central bank. The twelve regional reserve banks lost their semiautonomous status and much of their original independence.

The history of the Federal Reserve is in part the story of how social, political, economic, and technological changes affected the institution. The Federal Reserve began operations not in the heyday of the gold standard but near its end. At the time, acceptance of the standard by bankers, economists, leading businessmen, and others, at home and abroad, was so great that the standard seemed to many the social manifestation of a natural order. The standard did not work in the smooth, orderly way that its proponents imagined, but it provided an internationally acceptable means of payment and store of value (Bordo and Schwartz 1984). Debts were settled and payments made without conflict. The movement of gold balances and their effect on domestic prices gave the standard the automaticity for which it is famous.

The gold standard required countries to use monetary policy to keep exchange rates fixed and thus to allow prices, output, and employment to vary as required by the movements of gold and the country's exchange rate. Debtor countries had to pay their obligations in gold even if the price of gold rose relative to commodity prices, and creditors had to accept gold in settlement if commodity prices rose relative to the price of gold. Exporters and importers had reasonable certainty about the payments they would make or receive, since the rate of inflation remained bounded except in wartime, when the standard did not operate.

Efforts at international monetary coordination in the 1920s and 1930s foundered on the conflict between a fixed exchange rate and goals for inflation or employment. The Federal Reserve worked actively to restore the international gold standard in the 1920s, first in Germany, than in Britain, France, Holland, Poland, and elsewhere. It sought to maintain domestic price stability also. The two goals were incompatible once other countries fixed their currencies to gold. Coordination could not resolve the conflict. In the end, the Federal Reserve failed to achieve either its domestic or its international goal.

Again in the 1930s, Britain, France, and the United States renewed ef-

forts to coordinate exchange rate policy. The new approach, known as the Tripartite Agreement, failed also. Countries would not subordinate domestic policy to the exchange rate goal.

The lesson drawn from these experiences by policymakers in Washington, London, and elsewhere was that previous attempts lacked effective mechanisms for enforcing coordination while achieving price stability. In 1944 the Bretton Woods Agreement sought to retain exchange rate stability as a goal of economic policy and to reconcile external and internal monetary stability. The agreement had fixed but adjustable rates in place of the rigid exchange rates under the gold standard. Countries did not have to reduce their price level to remove external imbalances. They could respond to permanent changes in competitive position by devaluing and could borrow from a central facility, the International Monetary Fund (IMF), when facing cyclical or temporary balance of payments deficits. The Fund would lend balance of payments surpluses to countries in deficit. In the early postwar years to 1951, the Fund did little. Most countries had wartime exchange controls and inconvertible currencies.

The Bretton Woods system of fixed but adjustable exchange rates, like the interwar gold exchange standard, tried to supplement the stock of gold by using foreign exchange—dollars and pounds—as reserve currencies. The two differed fundamentally. The stock of gold grew slowly; the stocks of dollars and pounds could grow without limit. Member countries accepted an obligation to treat the two alike. In practice this meant they had to accept inflation or appreciate their exchange rate.

The new system recognized a lasting change in beliefs about the responsibilities of government. As the population moved from rural to urban areas and from agriculture to manufacturing and service industries, governments assumed new responsibilities for social welfare and economic stabilization. The public in many countries would not accept the level of unemployment, deflation, or inflation needed to maintain the exchange rate. Adjusting the exchange rate seemed to be a less costly solution in 1944. At first the IMF had to approve exchange rate changes, but this restriction was not enforced.

President Wilson wanted the Federal Reserve to remain independent of government. Except for wartime and postwar subservience to the Treasury, independence developed in the early years and continued through the Harding, Coolidge, and Hoover administrations.

President Roosevelt and his treasury secretary, Henry Morgenthau, believed that the reserve banks represented bankers, many of whom opposed the president's programs. Devaluation of the dollar in 1934 gave the Treasury the financial resources to affect interest rates by buying securities,

and it did so. Also, the Treasury sterilized and desterilized gold, affecting the rate at which monetary aggregates rose.

The Federal Reserve chairman, Marriner S. Eccles, expressed concern about the Treasury's actions but felt powerless to prevent them. And faced with relatively large gold inflows, he wanted to prevent inflation. Equally, he believed that at the interest rates prevailing during the 1930s, monetary policy could do little to stimulate expansion.

The head of the fiscal authority favored an activist monetary policy. The head of the monetary authority proposed more activist fiscal policies. Secretary Morgenthau wanted interest rates to remain low so that he could finance peacetime deficits and much larger wartime deficits. Monetary policy had the important role in his scheme of keeping market rates from rising. Eccles wanted larger budget deficits during the depression and large surpluses after the war.

Eccles, like Morgenthau, did not respect Federal Reserve independence. Although he disliked Treasury interference in monetary matters, he did little to prevent it. He advised and testified on a broad range of government policies including budget, tax, and housing policy. At times he opposed Morgenthau's policies, and on one occasion he proposed an excess profits tax that differed from administration policy.

A most unusual breach of independence occurred in January 1951 when the entire open market committee met in President Truman's office. The president and Secretary John Snyder wanted the Federal Reserve to maintain the long-term interest rate on Treasury bonds at the wartime peg. The president did not ask for a commitment, and the committee did not offer one. Nevertheless, meeting the president in the White House to discuss monetary policy was a long way from the tradition of independence that President Wilson had tried to foster.

IDEAS AND DECISIONS

A history of the Federal Reserve is a history of the decisions made and the ideas that prompted them. The chapters that follow allow the participants to explain their actions, and the reasons for them, in their own words. These decisions produced very different results: a steep postwar recession in 1920–21, a period of stability in the 1920s followed by the Great Depression of the 1930s and, much later, the Great Inflation of the 1970s.

The men who made these decisions were not chicane or evil. They did not directly seek the outcomes that their decisions helped to bring about. They did not fail to stop the depression because they liked the outcome and wanted it to continue. They acted as they did because of the beliefs they held about their responsibilities and about the way their actions affected

the economy. Much of this history is about their reasons and their reasoning—what it was and how it changed in response to events and new ideas.

Men and women interpret events using the theories or beliefs they learned earlier. The beliefs or theories that guided the Federal Reserve were mostly mainstream beliefs at the time they were held. Individual leaders influenced decisions most effectively by introducing new or different ideas or new interpretations. Benjamin Strong in the 1920s recognized the need to replace the gold standard rules and the commercial loan theory, on which the founders based the Federal Reserve Act. Marriner Eccles believed monetary policy could do nothing in the 1930s when short-term interest rates were low, so he did nothing to lift the economy from the depression. Later he believed that the Federal Reserve did not have the political support to use general monetary policy to prevent inflation after World War II. He proposed selective credit controls to substitute for higher interest rates and slower money growth.

Individuals matter most when they are able to lead others to act in ways that do not fit comfortably within the prevailing orthodoxy. Strong led the Federal Reserve to support Britain's return to the gold standard in 1924–25. In 1927 he lowered interest rates and expanded money to help Britain maintain the gold standard. Allan Sproul led the Federal Reserve toward independence from the Treasury in 1950–51.

These and other episodes show that leadership was important at times. Events of this kind are rare. Most policy decisions and actions apply a framework or theory based on prevailing beliefs.

This volume starts with the founding of the Federal Reserve in December 1913 and ends with the Treasury–Federal Reserve Accord in March 1951. In many respects the accord marks the beginning of a larger, and greatly changed, institution. In 1913 the United States was an emerging economy. Great Britain was the financial power and the center of the international financial system. Approximately 30 percent of the labor force worked in agriculture. By 1951 only 11 percent remained in agriculture (U.S. Department of Commerce 1966, 178–79). The United States had become the financial leader, the dominant economy, and the technological and managerial leader as well.

In 1913 the London market financed most United States exports. Since the exports included mainly agricultural products, there was a large seasonal demand for financing in the fall, so interest rates rose each fall. United States bankers wanted to replace London bankers. They believed they were at a disadvantage, since they could not discount export credits at a central bank. Politicians wanted to reduce the seasonal fluctuation in in-

terest rates. A bank that could expand credit and reduce interest rates seasonally satisfied both groups.

Seasonal credit expansion was not the only reason for establishing the Federal Reserve. Recessions in 1893–94, 1895–97, 1899–1900, 1902–4, 1907–8, and 1910–12 averaged nineteen months, according to the National Bureau of Economic Research. In all, there were 113 months of recession from December 1895 to January 1912—55 percent of the time. Several of the recessions were severe. Financial panics, interest rates temporarily at an annual rate of 100 percent or more, financial failures, and bankruptcies were much too frequent. Other countries had a lender of last resort to ameliorate financial crises or even prevent them. The series of crises and financial panics increased support for creation of a new institution.

In the 1920s the Federal Reserve received credit for improving economic performance. It eliminated both the seasonal and the extreme changes in interest rates characteristic of financial panics. Although the economy continued to experience relatively large cyclical fluctuations and many banks failed, old-style financial panics did not return in the three recessions from 1920 through 1927.

THE ECONOMY 1913–51

In first quarter 1951, real GNP was nearly three times greater than at the start of System operations in 1914, a compound annual growth rate of 2.8 percent. Growth was far from uniform. Chart 1.1 shows the many cyclical swings. Quarterly values of annual GNP growth range from 20 percent to –20 percent, associated with war and the Great Depression, but many years show changes of 10 percent or more.

Stable growth was not part of the Federal Reserve's formal mandate in the early years. Most of the System's leadership would have denied any responsibility for economic activity or employment.

Chart 1.1 shows the main events and experiences that shaped the Federal Reserve and were shaped by it. Two postwar contractions followed the two wartime expansions. The three and a half years of contraction from 1929 to 1933 stand out, as do the recovery following devaluation of the dollar against gold in 1933–34 and the wartime expansions from 1941 to 1945.

Also, the price level in first quarter 1951 was approximately three times its early 1914 value. Prices rose at a compound annual rate of 2.8 percent a year. As chart 1.2 shows, wartime inflations contributed greatly to the average rate of change, so the average for the period is misleading. In both world wars, the Federal Reserve issued money, as required to support the Treasury's interest rate policy. After increasing in response to gold inflows

from 1914 to 1917, the price level fluctuated widely from 1917 to 1939 around a constant value. The price level was approximately the same in 1939 as in 1917, before the United States participated as a combatant in World War I. The price level then doubled between 1940 and 1951, a more than 6 percent annual rate of increase. Most of the increase occurred during World War II, but part of it appears after the war, when price controls ended.

In the early years, 1914–16, the Federal Reserve’s portfolio remained small. The Federal Reserve’s nongold assets were too small to offset gold

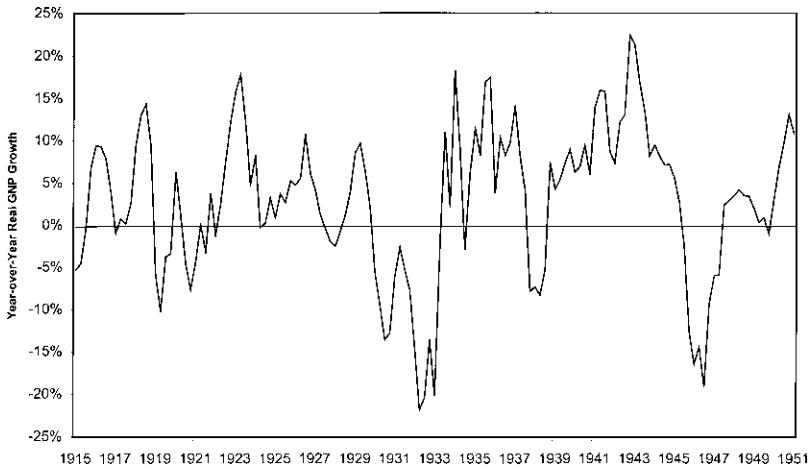


Chart 1.1 Year-over-year real GNP growth, 1915.1 to 1951.1.

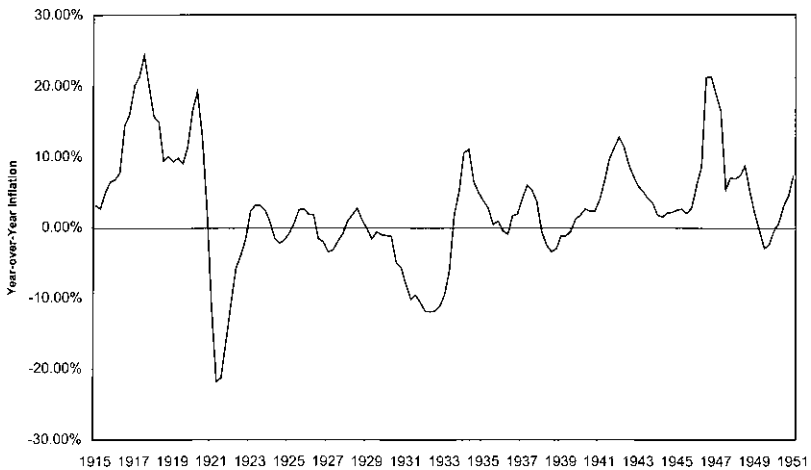


Chart 1.2 Year-over-year change in GNP deflator, 1915.1 to 1951.1.

Table 1.1 Federal Reserve Performance, 1917–51

TREASURY DOMINANCE	INFLATION OR DEFLATION	STABILITY AND LOW INFLATION
1917–20	1920–22	1922–29
1934–51	1929–33	

inflows. Since the United States was on the gold standard the rules required higher prices, so it is not clear that a larger portfolio would have been used at the time to cancel the effect of gold flows on money and prices. Principal gold standard countries had suspended the standard during wartime, but the belligerents and others used gold to pay for imports, and some foreigners sought safety in dollar securities.

Putting aside these early years, table 1.1 summarizes outcomes in the years 1917 to 1951. The table shows that in this period the country rarely experienced price and output stability. The Treasury dominated the Federal Reserve more than half the time. The seven years of stability, 1922–29, are exceptional, not the rule.

The founders of the Federal Reserve expected the new institution to follow gold standard rules. Gold movements would determine long-run price changes. Chart 1.3 shows that the stock of monetary gold rose in the 1920s, particularly from 1920 to 1925, when the dollar was the only major currency convertible into gold. Restoration of the international gold standard increased the demand for gold, contributing to the gradual fall in the United States price level after 1926. Federal Reserve officials worried that the gold flow would reverse. They were reluctant to monetize inflows or permit prices to rise. Despite the gold inflow, prices fell in the 1920s.

Chart 1.3 shows the dollar value of the monetary gold stock. The vertical line at the beginning of 1934 shows the revaluation of gold to \$35 an ounce (devaluation of the dollar against gold). At the \$35 price, gold flowed to the United States at a rapid rate that slowed during the 1937–38 recession but accelerated after the recession as Europe moved toward war.

The monetary gold stock increased nearly eightfold during the thirty-seven-year period, using troy ounces to abstract from the 1934 revaluation. At its start in late 1914, the Federal Reserve held 74 million ounces of gold, valued at \$1.5 billion. After 1934 United States citizens and corporations could not own gold. Only the Treasury held gold. At the peak in 1949 the Treasury held more than 700 million troy ounces, valued at over \$24 billion.

The main contribution to this growth came between 1934 and 1939, following the revaluation. The rising gold stock was the dominant force increasing money and credit, keeping nominal interest rates low, and promoting economic expansion with modest inflation. Rising income, rising

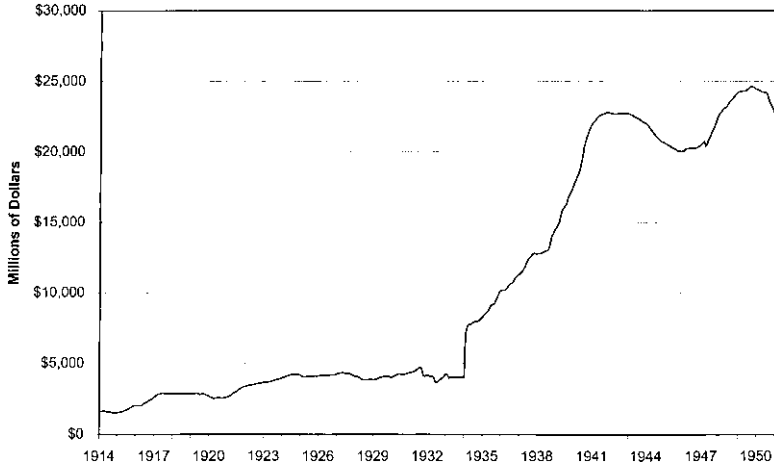


Chart 1.3 United States monetary gold stock, January 1914 to March 1951.

stock prices, low inflation, and concerns about a European war sustained the gold inflow until 1941.

Potential inflation, driven by gold inflows, was the Federal Reserve's main concern in the 1930s. Gold certificates representing the monetary gold stock became the largest asset on the System's balance sheet. Bank reserves rose rapidly; banks held large stocks of excess reserves. As in 1914–17, the Federal Reserve was concerned that its nongold assets were too small to counter the inflationary effects of the gold inflow. In 1936 it persuaded the Treasury to sterilize the gold inflow, ending the increase in reserves. And at about the same time, it used its newly acquired power to double reserve requirement ratios over a nine-month period in 1936–37. These actions contributed to a new, severe recession in 1937–38.

Chart 1.4 shows the sudden reduction in monetary base growth in 1936–37 resulting from these policy errors. The rate of base growth fell from 19 percent in December 1935 to –11 percent a year later. As chart 1.4 shows, the reversal, when it came, was just as sudden and sharp. The Federal Reserve reversed part of the increase in reserve requirement ratios, and the Treasury stopped sterilizing gold inflows. The only declines comparable to the 1937 experience came in 1920–21 and in 1946. Both contributed to severe postwar recessions.

The monetary base is the amount of reserves and currency supplied by the Federal Reserve.⁴ The principal counterparts or sources of the base are gold and Federal Reserve credit, the latter consisting mainly of member

4. Reserves are adjusted for changes in reserve requirement ratios.

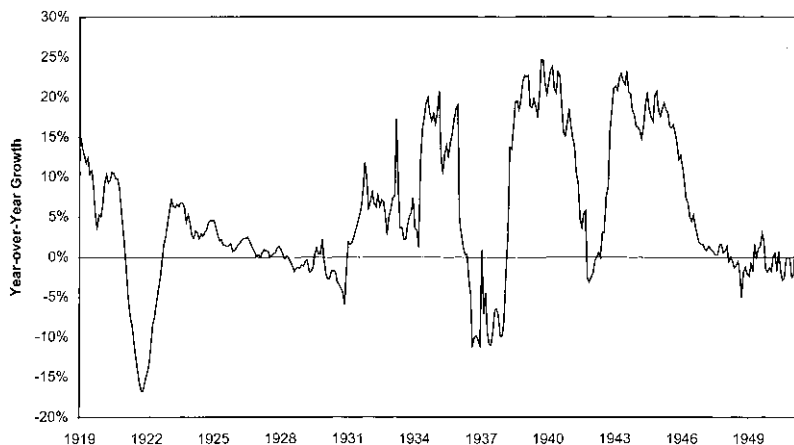


Chart 1.4 Year-over-year growth, nominal adjusted St. Louis monetary base, January 1919 to March 1951.

bank discounts and Federal Reserve purchases of government securities. Growth of the monetary base shows the monetary actions that the Federal Reserve permits or takes.

The data in chart 1.4 suggest the central role of monetary actions in this period. As noted, the economic contractions of 1920–21 and 1937–38 followed monetary contractions. Although committed to restoration of the gold standard in the 1920s, the Federal Reserve followed a deflationary policy that drained gold from other gold standard countries. In the first half of the 1940s, the Federal Reserve helped to finance World War II by purchasing government securities at fixed interest rates. It continued this policy after the war ended. Although the Federal Reserve complained that it had become an “engine of inflation,” the monetary base fell in the early postwar years. By late 1948 the economy was in recession with falling prices, as shown in earlier charts.

Interest rates are the more conventional way to describe monetary policy actions. Chart 1.5 shows short- and long-term interest rates for most of the period. Long-term rates decline over the entire period with brief interruptions, notably in 1931, following Britain’s departure from the gold standard. Most subsequent movements are relatively small.

Both short- and long-term rates are highest in 1920–21. This was the Federal Reserve’s first attempt to use monetary policy to control inflation. High interest rates were very unpopular with Congress and large parts of the public. The Federal Reserve did not raise rates to this level again for a generation.

Changes in short-term rates from 1922 to 1930 show the beginning of

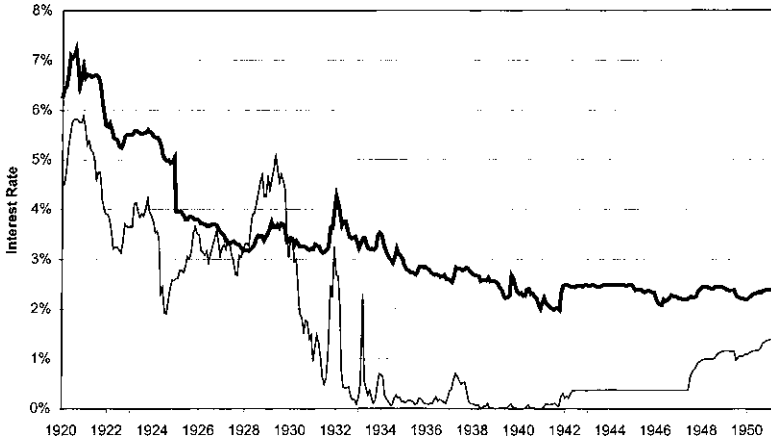


Chart 1.5 Long- and short-term interest rates, January 1920 to March 1951: — long rate
 — short rate

active monetary policy. Short-term rates are highest at the peak of expansions in 1923, 1926, and 1929 and lowest near business cycle troughs in 1924 and 1927. The modest reductions in interest rates in 1927 took on importance well beyond the size of the change. Under the influence of Benjamin Strong, the Federal Reserve lowered interest rates, in part to help Britain remain on the gold standard. Critics within and outside the System blamed the reduction for the subsequent stock market boom and the depression that followed.

Policy changed after 1932. With interest rates near zero, Federal Reserve officials believed that policy was “easy” and that additional monetary ease would not contribute to expansion. During World War II the short-term interest rate remained at 0.375 percent until November 1947. The Federal Reserve would not change rates without Treasury approval until the March 1951 accord.

The Treasury’s reluctance to let interest rates rise after World War II was the traditional reluctance of a large borrower to experience an increase in interest cost. The Federal Reserve had the same problem after World War I. To the treasury secretaries in both periods the debt seemed very large, and it was compared to their previous experience.

Andrew Mellon became treasury secretary after the 1920 election. During his term of office, he retired debt and reduced tax rates. Government debt declined from 34 percent to 16 percent of GNP and from \$25 million to \$16 million. By 1932 the debt to GNP ratio was above its wartime peak, mainly the result of a decline in GNP. Chart 1.6 shows these data.

New Deal deficits seemed large to contemporaries accustomed to Mel-

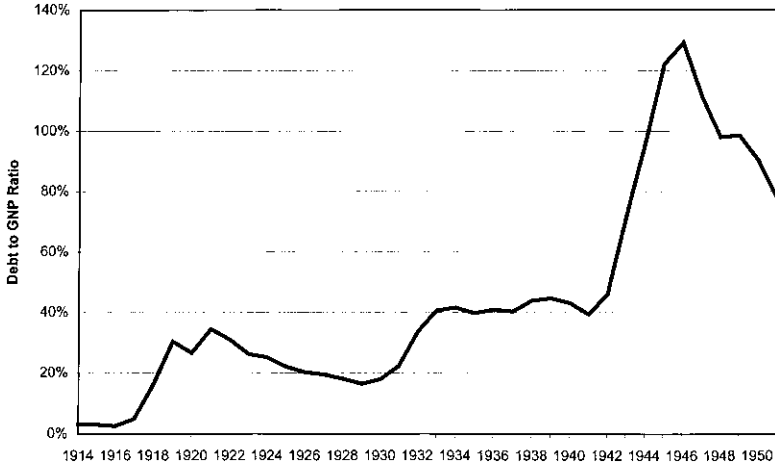


Chart I.6 Ratio of public debt of the federal government to GNP, 1914–51.

lon's policy and earlier peacetime policies. The chart shows that the debt to GNP ratio was approximately constant from 1933 to 1941 at about 40 percent. Wartime finance brought the debt to nearly \$300 billion by the end of 1946, a peak of 129 percent of GNP. The large outstanding stock of debt raised new fears about the operation of monetary policy. A large literature claimed that higher interest rates would cause losses to creditors (debt owners) and that such losses would have severe negative effects on the economy. Arguments of this kind became popular in government, but not just in government. This literature neglected to mention either the gains that debtors received or the losses that creditors would experience if inflation resulted. The argument became part of the case against higher interest rates and an end to the wartime pegging policy.

PLAN OF THE VOLUME

Central banking institutions developed and spread in the nineteenth century. Understanding of the role of money and monetary institutions followed. Chapter 2 traces major developments in central banking and monetary theory using the work of Henry Thornton, Walter Bagehot, and Irving Fisher. If the Federal Reserve had followed the policies these authors advocated, it would have avoided the most serious and socially costly errors.

The rest of the volume divides the thirty-seven-year history into five chapters. Each chapter covers a major event and the environment in which it occurred. Chapter 3 treats the founding of the System and the early years. The conflict over political versus financial control that delayed the Federal Reserve's founding began almost immediately. Problems of war finance

soon took precedence. During the war, the Treasury's financial demands controlled monetary policy. After the war, the Federal Reserve faced the problem of freeing itself from Treasury control. Once freed, the System raised interest rates to end inflation. It was more than successful, but at a high cost. Prices and output fell sharply in the 1920–21 recession.

The 1920–21 recession and deflation constituted an important milestone. The severe contraction was costly economically and politically. The severity of the decline raised doubts about the applicability of the operating principles in the Federal Reserve Act. Chapter 4 traces the development of a new framework and the beginning of a more activist role. Instead of depending on banks' decisions to discount or repay borrowings, the new approach used open market operations to force banks to borrow or repay.

Open market operations required the reserve banks to work together. Portfolio decisions remained with the directors of the individual reserve banks, but the New York reserve bank, aided by a System committee, guided and implemented System decisions to purchase and sell. The Federal Reserve Board had supervisory responsibility only.

The new procedures radically changed the System's original structure. The reserve banks sacrificed part of their autonomy to the System committee. Control of operations shifted toward the New York bank. Members of the Board resented New York's increased authority, but they were powerless to combat it. These substantive differences combined with personal antipathies to heighten conflict between Benjamin Strong of the New York bank and members of the Board, particularly Adolph C. Miller. After Strong died, the conflict contributed to the delay in responding to the rapid expansion in the first half of 1929.

Chapter 4 ends at the start of the Great Depression. Chapter 5 follows the decisions and reasoning from meeting to meeting during the depression. It shows why the Federal Reserve remained passive through most of the decline and why it undertook major purchases in 1932 but stopped purchases before recovery was under way. The chapter ends with the financial collapse in March 1933.

President Franklin Roosevelt took office at the climax of the financial collapse. The new administration transformed many institutions, including the Federal Reserve. At the time, the dominant explanation regarded the depression as an inevitable consequence of speculation financed by speculators' easy access to credit. Legislation separated commercial and investment banking and gave the Federal Reserve authority to set stock market margin requirements. In these and other ways, Congress absolved the Federal Reserve of responsibility for the debacle.

Legislation also corrected deficiencies in the 1913 Federal Reserve Act.

That act barred the use of government securities as collateral for the currency. In 1932 the Glass-Steagall Act ended the prohibition as a temporary measure that later became permanent. The Banking Act of 1935 settled the long dispute over the locus of power by greatly increasing the Board's power and by giving the Board a majority on the open market committee. The act ended the reserve banks' ability to control their portfolios independently, creating the structure we know today.

Treasury requirements and gold inflows were major influences on money growth and interest rates from 1933 to 1941. The Federal Reserve's main decision was to double reserve requirement ratios in three steps between August 1936 and March 1937. These actions, along with the Treasury's decision to sterilize gold inflows, produced a steep monetary contraction. The 1937–38 recession followed.

Chapter 6 reports these events and the reasoning that produced them. The chapter also develops the attempts to reestablish an international financial system at the London Monetary and Economic Conference in 1933 and in the Tripartite Agreement of 1936 to limit exchange rate changes.

President Roosevelt called his programs the New Deal. Economic policy did not follow a consistent strategy. Before World War II, New Deal programs and actions had not restored prosperity or ended high unemployment. Wartime expansion achieved what New Deal policies did not.

The war and early postwar years (chapter 7) bring the volume to 1951. As in World War I, the Federal Reserve took an active part in administering wartime regulations and selling bonds. Its pledge to maintain a "pattern of rates" in effect fixed maximum rates at all maturities. The pledge ended any possibility of using monetary policy to control wartime or postwar inflation. In the postwar years to 1951, Federal Reserve officials became increasingly unhappy with the fixed pattern of interest rates, but they did not believe they could change policy without Treasury consent or support in Congress.

Chapter 7 also traces the development of postwar domestic and international legislation such as the Full Employment Act of 1946, the Bretton Woods Agreement establishing the International Monetary Fund and the World Bank, and the United States decision to finance European recovery. The chapter ends with the financing of the Korean War and the threat of renewed inflation that pushed the Federal Reserve into open conflict with the Treasury and brought about the March 1951 accord.

The concluding chapter summarizes the main findings and the lessons for monetary theory and policy.

Central Banking Theory and Practice before the Federal Reserve Act

Modern central banking theory began to develop in the eighteenth and nineteenth centuries under the gold standard. Because of the dominant position of England in trade, finance, and economic theory, much of the development took place either at the Bank of England or in response to its actions. The designers of the Federal Reserve System accepted a theory of central banking and a framework for policy operations that reflected the prevailing practices of European central banks, particularly the Bank of England. More important, the developers of the Federal Reserve System in the 1920s imported many of their aims and much of their understanding from the pre–World War I Bank of England. The blending of these imported elements with practices or principles from United States experience created the broad framework that guided Federal Reserve policy operations at its start and for many years after.¹

It would be comforting to find in the history of central banking a record of steady progress and orderly development from earliest antecedents to present knowledge. The facts are different. The discussion reached a high point very near its start in the first decades of the nineteenth century. Thereafter, the level of discussion drifted lower. Some of the subtle points were lost and, more important, the focus of the discussion shifted.

At the start of the nineteenth century Henry Thornton, building on his own earlier work and pieces of analysis taken from Smith, Locke, and Hume, developed some guiding principles for the conduct of monetary

1. This refers to the economic framework, not the political and administrative framework. The latter is perhaps uniquely American in its blend of public and private enterprise, of centralism and decentralism. A brief description of some of the domestic political forces shaping the Federal Reserve Act is in Dunne 1963.

policy from an analysis of the relation of money, economic activity, prices, and balance of payments under fixed and flexible exchange rates. This framework was lost between David Ricardo's emphasis on long-run comparative statics and the concern of men of affairs with short-term fluctuations in market variables. After two nineteenth-century experiments with what they regarded as the essential principles of Ricardian monetary theory, bankers and men of affairs became skeptical about the applicability of economic theory to their problems. Early work was ignored or lost.

At their best, as in Walter Bagehot's *Lombard Street*, the discussions by men of affairs of the principles by which monetary policy should be conducted reached a very high level. Strict adherence to these principles would have avoided some of the worst errors of monetary policy in later years. Nevertheless, neither Bagehot nor those who followed his lead attempted to combine the theory of central banking or monetary policy with what is now called macroeconomic theory, as Thornton had done. Until Wicksell, Fisher, Marshall, Hawtrey, and later Keynes and Friedman reopened the discussion, very little was done to extend Thornton's analysis or to develop an alternative framework connecting monetary policy to output, employment, prices, and balance of payments. Monetary policy—or bank rate policy as it came to be known in England—was assigned the task of regulating the gold flow.²

Why did Thornton's rich and promising analysis degenerate first into a Bank of England policy of using bank rate mainly to protect the gold reserve and later into the Federal Reserve's concern for short-term market interest rates and money market conditions? Three reasons appear to be important. First is the "automatic" gold standard. The gold standard gave monetary policy a clear and definite objective. Writers such as William Jevons and Alfred Marshall wanted to make improvements in the standard to eliminate or reduce procyclicality of money, but they paid little attention to implementation. Second, much of Thornton's analysis considers an economy with an inconvertible currency. After the return to the gold standard, the continued relevance of other parts of his work was overlooked. Third, Ricardo and many of his followers not only failed to address the questions uppermost in the minds of the practitioners but failed to make clear that they were not addressing these questions. Ricardo's analysis is almost entirely long-run comparative statics, and his policy recommendations consisted mainly of a set of rules for restoring and maintaining convertibility of pounds into gold at a fixed exchange rate. Important as is his

2. A similar idea returned in the 1960s, when monetary policy was "assigned" to control the gold flow or balance of payments under fixed exchange rates.

work for economic theory, it gave very little guidance to the Bank of England on the issues of greatest concern to its directors. The governors and directors of the Bank of England were concerned with the profits of the bank, the avoidance of panic, and the appropriate response to short-term changes—for example, an increased demand for borrowing by the country banks or from banks abroad.

The wide gap between monetary theory and the practice of monetary policy, familiar to observers of the contemporary discussion of policy, had opened by the 1830s. The most able economists of the period participated in the discussion, and though they focused mainly on the longer-run consequences of policy actions and ignored short-term effects, they did not hesitate to recommend policy actions. Those bankers and economists whose writings show greatest interest in and knowledge of short-term operations and practices neglected, for the most part, the longer-run consequences of the policies and procedures they espoused. They tended to concentrate on the initial effects of policy actions and to ignore the longer-term consequences.³

In the history of economic thought, the participants in these discussions are grouped into schools known as bullionists and antibullionists for the first quarter of the nineteenth century and into currency and banking schools for the second quarter and into the third. While the groupings may be useful for certain purposes, they suggest more direct confrontation of ideas than appears to have taken place or than could have taken place given that one side was concerned much more with ultimate effects, the other mainly with initial effects.⁴ Indeed, the “disputants” most often failed to agree on the subject under discussion or even to mention whether they were concerned with short- or long-run consequences. One main result is that the link between short- and long-run effects of policy remained unanalyzed (Viner 1965, 139–40).

A second reason for the decline in the level of the discussion is related to the first. Throughout monetary history, the belief recurs that monetary policy has very limited effects on employment, expenditure, and output. Lacking an explicit theory of the transmission of policy changes, it was easy for the men who guided the Bank of England to mistake initial effects of a

3. Viner's 1965 discussion of Ricardo's analysis brings out this point and its importance for the policy discussion of the time.

4. A central issue returns many times in monetary history: What is to be included as money? Bullionists and the currency school chose narrow definitions. The bullionists argued that the stock of gold (or silver) bullion determined the price level and the exchange rate. The currency school emphasized the note issue. They wanted a rule tying the note issue to the Bank of England's gold reserve. See Schwartz 1987a.

change in bank rate for the ultimate effect. Many of the writers in the so-called banking school, and many others in later generations, contributed to this belief by equating the effect of monetary policy with the change in the supply of “funds” in the money market. No reader of the discussions or interpretative accounts of nineteenth-century (or twentieth-century) monetary theory and policy can fail to be impressed by the frequency with which the idea reappears that any effect of monetary policy on the real economy is adventitious, the result of a particular and special conjuncture of forces that was either unlikely to be repeated or unlikely in the future to spread the effect far beyond the money market. Or if monetary actions had short-term consequences for the real economy, the effects were limited to specific sectors. Arguments about the “ineffectiveness” or noneffectiveness of monetary policy on the real economy became the official view of the working of policy.⁵

Ricardo’s dominant position and his failure to build on Thornton’s analysis of the ways in which the effects of monetary policy spread from the money market to economic activity, prices, and balance of payments meant that most of Thornton’s analysis was neglected. A century after Thornton’s promising start on a theory of money, his analysis leading to a statement of the principles by which monetary policy should be conducted to stabilize the economy had degenerated into the three main rules or principles for setting bank rate. These rules were accepted as basic at the start of the Federal Reserve System. First, there was the core principle of the gold standard: the central bank must raise or lower the discount rate as required to protect the gold stock and the exchange rate. Second, the central bank served as lender of last resort by offering to lend in a panic when markets did not function. Third, the central bank was to accommodate the needs of trade and agriculture by discounting only (or mainly) commercial paper, a principle known as the productive credit or real bills doctrine. This principle prevented purchases of government securities, mortgages, other long-term debt and the use of these instruments or equities as collateral for borrowing from the central bank.

The details of doctrinal history are less important than their consequences for the theory and practice of central banking. A number of excellent summaries of the literature of the period are available: Bagehot 1962, Clapham 1945, Hawtrey 1962, Keynes 1930, Rist 1940, Sayers 1957,

5. Laidler (1992, 4) argues that Thornton was perhaps the only classical economist to recognize that monetary impulses contributed to a business cycle, not just a “credit” cycle. Several earlier writers discussed the transitional real effects of monetary changes on real output. Indeed, analyses of monetary effects are among the oldest propositions in economic theory. See Hegeland 1951.

Schumpeter 1955, Thornton 1965, Viner 1965, and Wood 1939. Since many of the issues that arose, and their solutions, reflect the economic events of the period, the chapter begins with a description of the background events. The rest discusses three major contributions to monetary and central banking theory that were ignored, at great cost, during most of the twentieth century. First is Henry Thornton's analysis of the control of money and credit under either a fluctuating or a fixed exchange rate. Second is Walter Bagehot's discussion of the responsibility of the central bank as lender of last resort. Third is Irving Fisher's distinction between real and nominal interest rates. Thornton's work was not well known. Bagehot's work was well known at central banks, and Fisher was active until the middle of the twentieth century. Yet none of the three had a major influence on the conduct of policy. If they had, monetary history would have been much different.

The main issues in dispute during the period are familiar to contemporary economists. Can the monetary system be controlled? If so, which variables should be controlled, and how should this be done? What are the consequences of alternative systems of control? Did the central bank have an opportunity to exercise discretion, or is the real stock of money constant, so that central bank policy ultimately determined only the division of the real stock of money between gold (foreign exchange) or specie and paper? Should the central bank protect its own reserve, or is its main responsibility to protect the financial system in time of crisis? How could either or both of these ends be achieved? The answers to these and other questions given by central bankers and economists reveal the way the theory of central banking developed in the nineteenth century and the state of the art in the early twentieth century when the Federal Reserve was founded.

BACKGROUND EVENTS AND ARRANGEMENTS

During most of the eighteenth century the main policy actions involved the choice of standards, the establishment of *de facto* or *de jure* rules, and the provision of currency. By the end of the century England was on a *de facto* bimetallic standard at a ratio that undervalued silver, so full-weight silver coins did not circulate, and the currency consisted of gold, underweight silver coins of small denomination, and note issues of the Bank of England and other banks.⁶ Bills of exchange had come into use, and in some areas endorsed bills served as a medium of exchange. Usury laws restricted interest rates, including the rate on advances from the Bank of England

6. The Bank of England received its charter in 1694 to assist in the financing of war with France. See Dowd 1991 for a brief history of the bank and Clapham 1944 for a detailed history.

(bank rate), to a 5 percent maximum. Bank rate for inland bills was put at 5 percent in 1746. The rate on foreign bills rose from 4 to 5 percent in 1773 and did not change again until 1822.

In 1697 the Bank of England was granted a charter to operate as a joint stock bank, but until 1826 other banks could not have more than six partners. The restriction of joint stock banking meant that partners were required to pledge their personal fortunes in periods of crisis. Consequently there were numerous small individually owned banks and very few branch banks.⁷

The main business of a banker consisted in issuing notes and discounting bills of exchange.⁸ Since a large number of country banks accepted bills and issued banknotes, and since many of the bills were drawn by small local merchants in payment for merchandise, it became common for country bankers to develop correspondent relationships with London bankers to provide information and clearing arrangements. This tendency strengthened because the supply of bills of exchange did not grow at a uniform rate throughout the country. London became the financial center through which deficit areas were able to sell bills to surplus areas. Country bankers held deposits with their London correspondents and purchased or sold bills. The continued increase in the number of country banks during the early nineteenth century made it increasingly difficult for London bankers to clear the bill market by operations between correspondents. A new institution, the bill broker, arose in London to perform part of the market clearing function.

The growing importance of the bill broker resulted also from the arrangements prevailing at the time. First, the usury laws prevented the London banks from changing rates to attract a larger volume of Bank of England notes and gold from country banks and to reduce the supply of bills. Second, the Bank of England adopted rules designed to reduce the demand for discounts from country bankers. To be eligible for discount at the Bank of England, bills had to be endorsed by two London names, one of which was the merchant or manufacturer accepting the bill. Many of the bills originating in the country did not meet this requirement.

As the system functioned at the start of the 1790s, the country banks

7. There are a number of estimates for the earlier years. After 1808, country banks required a license to issue notes, so the number of licensees gives a more accurate estimate. The number rose from approximately 700 in 1809 to a peak of 940 in 1814. Thereafter the number of country banks declined, at first because of losses from deflation and after 1826 because of the growth of joint stock and branch banking. By 1842 the number had fallen to 429. See Wood 1939, 14.

8. Bank of England notes did not become legal tender until 1833. London banks stopped issuing notes in 1793.

maintained deposits and bought or sold bills from correspondent bankers in London. Bill brokers operated in the market in much the same way that a federal funds broker operates in the present New York money market. When the quantity of money demanded in London (bills supplied to London) exceeded the quantity of money supplied, bill brokers searched for buyers in the sections known to have surplus reserves. Just as the present-day federal funds market redistributes reserves from surplus to deficit banks, the bill brokers and correspondent banking system of the time drew bills and money to and through the London money market. The Bank of England participated in the market process as a banker. In addition, the bank absorbed gold and its own note issues as the market required and, without formally committing itself to do so, functioned as lender of last resort by advancing to banks on eligible paper.⁹

The system had an obvious flaw. With the rate of discount set at the maximum permitted under the usury law of 1714, the bank could not keep the market price of gold equal to the mint price of gold, maintain convertibility, and discount all of the eligible paper offered in periods of expansion. The reason is that the bank had only one means, and that a very ineffective means, of limiting or reducing the rate of monetary expansion: using qualitative controls or eligibility requirements to reduce the amount of discounts. After 1793 the government chose to finance the budget deficit incurred to wage the Napoleonic Wars by borrowing from the bank, so the bank's notes and deposits increased. The monetary expansion and deficit spending generated an increase in private expenditure. Under the prevailing payments system, this meant an increase in the number of bills of exchange drawn, including bills eligible for discount at the bank.

From 1790 to 1795 the bank saw total securities (private and public) rise from approximately £8 million to £16 million and bullion reserves decline from £8 million to £4 million. The price index (base 100 in 1821–25) started to rise in 1793. Between 1792 and 1795, prices increased by 30 percent, a 9.9 percent compound annual rate of increase (Gayer, Rostow, and Schwartz 1978). To stem the gold outflow, the bank attempted to reduce the size, or perhaps the portfolio's growth rate, by restricting the banks' right to discount. Any step of this kind, however, raised fears that the resources

9. After the crisis of 1825, there were two changes in the arrangements just described. The responsibilities of the Bank of England were more widely recognized, although not acknowledged officially, and bill brokers performed many of the market functions previously performed by London banks, especially the function of absorbing and holding or supplying bills as the market demanded. In recognition of the changed roles of brokers and banks, by 1830 the Bank of England accepted deposits and made advances to the largest brokers. As the system evolved, the London banks no longer borrowed from the Bank of England; instead, the bill brokers borrowed, often for months. See Scammell 1968, 134–42.

of the financial system would prove inadequate to redeem outstanding bills at the fixed rate of interest. The policy of controlling the quantity of discounts by rationing, exhortation, and eligibility requirements failed on this occasion, as on many subsequent occasions. With the gold reserve reduced to less than £1.5 million, the bank asked the government to order an end to convertibility. From 1797 to 1821, the pound was an inconvertible currency.

LESSONS FROM RESTRICTION AND RESUMPTION

The events of the next twenty-five years and the analysis they engendered make the period known as Restriction and Resumption a remarkable epoch in the histories of money, monetary theory, and of particular interest here, the theory and practice of central banking. A key figure in the early discussion is Henry Thornton, whose contributions to monetary and banking theory reveal an understanding of monetary process and policy that is far better than can be found in much of the professional writing a century or more after his death.

Thornton's contributions fall into five main areas. First, he provided a thorough discussion of the way the monetary arrangements of his day worked in practice and discussed some of the main implications of alternative arrangements and alternative monetary standards, including an inconvertible paper currency. He recognized that money produced by the banking system, paper credit, was part of the (circulating medium) means of payment. The effect of bank deposits on prices was the same as an increase in currency or gold. Second, he analyzed the monetary aspects of international exchange. David Hume had developed the basic flow analysis of monetary changes acting on home prices relative to foreign prices, thus on gold flows. Thornton for the first time used this analysis to explain the effects of actual price changes on international currency movements and the domestic economy. His discussion of currency movements is superior to the work on the same subject for the next century. Third, he saw clearly the difference between nominal and real interest rates, distinguished expected from actual rates, and offered an explanation of the rise in interest rates during an unanticipated inflation that is superior to the discussion in many later textbooks.¹⁰ In his testimony of 1797 and in his book, he at

10. Hawtrey (1962, 16) argues that Thornton failed to recognize the time dimension in real rates of return (or mercantile profit). This conclusion is based on an incomplete examination. In a speech on the Bullion Report, Thornton (1965, 336 and elsewhere) computes a net rate of return with dimension dollars per dollar per year in the course of his explanation of why an unanticipated inflation increases the realized profits of the borrower. Speaking of the merchants during an inflation, he wrote (336): "There was an apparent profit over and

tacked both the usury law and a fixed rate of discount on the grounds that by fixing the rate the bank relinquished control of money (the circulation). He argued that the discount rate had to be changed to raise or lower the cost of borrowing when the (anticipated) rate of return to real assets changed (Thornton 1965, 253–54). Thornton saw that the absolute level of the rate was not a proper criterion. The nominal rate had to be judged relative to the nominal rate of profit or, in modern usage, the return to capital. Fourth, his contributions do not appear as vague suggestions or dimly perceived truths occurring in the midst of an otherwise flawed argument. They are part of a carefully articulated explanation of the relation of money, prices, output, interest rates, credit, and balance of payments.

An important key to Thornton's analysis is the distinction between the demand for bank credit (indebtedness to the banking system) and the demand for money. At the start of an (unanticipated) inflation, the demand for bank credit and the demand for money move in opposite directions. These movements reflect a common cause, changed anticipations of the return to real assets and the rate of change of prices. Increases in the stock of money, resulting from an issue of paper or a gold inflow, increase the demand for goods, raising the prices of the goods demanded and encouraging borrowing by businessmen, whose sales and prospective profits rise. Velocity increases—the demand for money falls—not only because (some) businessmen are for a time more optimistic and velocity depends on “confidence” (ibid., 96), and thus on anticipations of the future, but also because inventories decline (237). These are short-term cyclical effects, but for a time they persist and generate additional increases in the demand for credit and in velocity. One reason the demands persist is that not all prices adjust at the same rate. Some are fixed by contract in nominal

above the natural and ordinary profit on mercantile transactions. This apparent profit was nominal, as to persons who traded on their own capital, but not nominal as to those who traded with borrowed money, the borrower, therefore, derived every year from his trade, not only the common mercantile profit . . . but likewise the extra profit which he [Thornton] had spoken of. This extra profit was exactly so much additional advantage, derived from being a trader on borrowed capital *and was so much additional temptation to borrow*. Accordingly, in countries in which currency was in a rapid course of depreciation, supposing that there were no usury laws, the *current rate of interest was often, . . . proportionably augmented*. Thus, for example, at Petersburg, at this time, the current interest was 20 or 25 percent, which he [Thornton] conceived to be partly compensation for an expected *increase of depreciation of the currency*” (italics added). Thornton then gave examples of the working of this principle from the experiences of Russia, Sweden, France, and America. In his book, (1965, 254) Thornton wrote: “The temptation to borrow, in time of war, too largely at the bank [of England] arises, as has been observed, from the high rate of mercantile profit. . . . [C]apital, by which the term *bona fide* property was intended, cannot be suddenly and materially increased by any emission of paper. That the rate of mercantile profit depends on the quantity of this *bona fide* capital and not on the amount of the nominal value . . . [is] easy to point out.”

terms and rise or fall more slowly than others. Thornton used money wages as an example of a price that was fixed in nominal amount and argued that, as a result, real profits rise and real wages fall in periods of (unanticipated) inflation. Once real balances adjust to their desired level, total wealth is “nearly the same,” but there has been a once and for all redistribution from workers and other creditors to debtors (189–90).¹¹

Thornton saw that short-term monetary disturbances had no lasting real effect. Money is neutral in the long run. One of his main reasons for short-run nonneutrality is that it is difficult to distinguish between permanent and transitory changes when they occur.¹²

In contrast to Ricardo, Thornton argued that replacing a convertible currency with inconvertible paper causes the market price of gold to rise above the mint price even if the nominal amount of paper money remains unchanged. His reasoning is that if money holders anticipate a decline in the purchasing power of money, they attempt to shift out of money. This argument makes the demand for money and short-run price changes depend on the anticipated rate of price change.¹³

Thornton's fifth contribution to the theory of central banking is a part of his theory of money and in this respect also stands in marked contrast to much of the literature on monetary theory and policy that followed. By combining short-run and long-run adjustment, he was able to deal with issues that Ricardo neglected or dismissed. In all important respects, his analysis of the long-run consequences fully anticipated Ricardo's.¹⁴

Neglect of Thornton's work and reliance on Ricardo's meant that the di-

11. On the following pages, 97–100, Thornton offers as one example the panic of 1793 when “many country banks failed. The stock of Bank of England notes, at the start, were not fewer than usual,” but the number became “insufficient for giving punctuality to the payments.” The effect was “to lessen the rapidity of the circulation of notes on the whole, and thus to increase the number of notes wanted.” The remedy was found in issuing Exchequer bills discountable at the Bank of England. Thornton points out as a “fact worthy of serious attention” that the crisis was started by a demand to convert country notes into gold but was brought to an end by an issue of paper (Exchequer bills) that could be turned into banknotes or gold and that “created an idea of general solvency.” In this passage Thornton anticipated Bagehot's 1962 work on the lender of last resort.

12. See also Thornton 1965, 236–41, where he traces the consequences of an injection of new money for the borrower and for the community. See especially 239 for a brief statement relating the fall in real wages during inflation to forced saving.

13. The idea appears several times. He discusses (1965, 119) the greater variance of nominal prices than of nominal wages that leads agents to regard a fall in price as temporary. The same misperception of a permanent change is used to explain the real effect of currency depreciation. In this case Thornton also invokes misperception of relative and aggregate changes (340).

14. See Viner 1965, 134, for a comparison of Thornton's views and those of his contemporaries. Keynes was apparently unaware of the extent to which Thornton anticipated his discussion of the demand for money.

rectors of the Bank of England, after periodically facing large changes in gold stocks and several threats to convertibility at the fixed exchange rate, concluded that Ricardian theory was inapplicable or useless. They therefore abandoned monetary theory as a basis for monetary policy and substituted ad hoc notions about money markets. These notions are at their best in the brilliant essays of Walter Bagehot and perhaps at their worst in the writings of central bankers during and after the depression of the 1930s. But either at their best or at their worst, the principles and practices of monetary policy became divorced from any analysis of the mechanism linking changes in money to short- and long-run changes in output and employment.

As part of his development of the price-specie flow mechanism, Thornton analyzed the effects of price changes on the gold stock of the Bank of England under convertible and inconvertible paper standards. Although he recognized the short-term effects of anticipations on the demand for money, he placed responsibility on the Bank of England for long-run inflation and any permanent divergence of the market from the mint price of gold. In a lengthy discussion of the relation of the country banks to the Bank of England, he argued persuasively that the expansion of country banknotes depended on expansion by the Bank of England and that the expansion of money was a necessary condition for inflation. But unlike the currency school, he emphasized that neither the total stock of notes in circulation nor the price level rose and fell in direct proportion to the note issue of the Bank of England (Thornton 1965, 219–29). If some resources are idle, the Bank of England can increase their employment by increasing the note issue, but “the increase of industry will by no means keep pace with the augmentation of paper,” and inflation results (239).

The three duties of the Bank of England were to protect the gold reserve, function as lender of last resort, and control the note issue. These duties were best performed, Thornton thought, by keeping the market price of gold equal to the mint price, limiting the note issue by discount rate policy, except in periods of crisis when the bank must expand the note issue and lend more freely. Any attempt to limit the note issue by rules controlling the quality of credit as proposed in the real bills doctrine was to lend “countenance to the error . . . of imagining that a proper limitation of bank notes may be sufficiently secured by attending merely to the nature of the security for which they are given” (*ibid.*, 244 and elsewhere in chap. 10).¹⁵ The

15. The “real bills” notion, that credits advanced for productive purposes could not be a cause of inflation, had been proposed by several writers including James Stewart and had been used unsuccessfully to limit the note issue of the Bank of England before the Restriction. Mints (1945, 1) finds the real bills doctrine in writings during the 1770s. He notes (48)

appropriate policy for the bank was to change the discount rate so as to control the quantity of money. In Thornton's words, the policy should be

to limit the total amount of paper issued, and to resort for this purpose, whenever the temptation to borrow is strong, to some effectual principle of restriction; in no case, however, materially to diminish the sum in circulation, but to let it vibrate only within certain limits; to allow a slow and cautious extension of it, as the general trade of the kingdom enlarges itself; to allow of some special, though temporary, increase in the event of an extraordinary alarm or difficulty, as the best means of preventing a great demand at home for guineas; and to lean on the side of diminution, in the case of gold going abroad, and of the general exchanges continuing long unfavorable; this seems to be the true policy of the directors of an institution circumstanced like that of the Bank of England. To suffer the solicitations of the merchants, or the wishes of government, to determine the measure of the bank issues, is unquestionably to adopt a very false principle of conduct. (259; italics added)¹⁶

The bank did not accept Thornton's prescriptions. From 1797 to 1815, the securities portfolio of the Bank of England increased threefold, and in the next seven years it declined as much as it had risen in the previous fifteen.¹⁷ At the end of the period as at the beginning, the Bank of England's portfolio was approximately £15 million.¹⁸ Most of the increase in money during 1800 to 1810 resulted from the increase of commercial paper at the Bank of England. At its maximum of approximately £23 million in 1810, the bank's portfolio of "private securities" was larger than at any time in the next hundred years. From 1810 to 1815, by far the largest part of the increase in money resulted from the bank's acquisition of government securities to finance wars with France and the United States. The Gayer, Rostow, and Schwartz (1978) price index shows that the price level (December 1790 = 100) follows a similar course. Prices rose to 198 in May 1813, then fell to 94 in mid-1822.

that even the earliest statements of the doctrine relate real bills to "elasticity" of the stocks of money or credit and to effective limitation of the note issue.

16. Note Thornton's careful distinction between credit (borrowing) and money. This distinction was neglected by most writers until Lauchlin Currie wrote in the early 1930s. Notable also in his monetary policy are the principles that the stock of money should grow as the economy expands and that the bank should make temporary advances when there are internal drains. The complete argument of his book makes clear that by the "general trade" he means real output, not "real bills."

17. Suspension of convertibility came in 1797 following France's attempt to land troops in Wales. See Dowd 1991.

18. Data in this and in the next several paragraphs are from Wood 1939, 191, and Viner 1965, 174. Viner uses price indexes developed in Silberling 1923, 232–33. I use the data from Gayer, Rostow, Schwartz 1978 instead.

There are several important developments for central banking theory and practice during the period.¹⁹ One is that bankers found, as Thornton had insisted, that the Bank of England had no effective means of limiting its portfolio and the rate of monetary expansion in a period of inflation. With prices doubling from 1790 to 1812, the average rate of inflation is 5 percent, but at times it was much higher.²⁰ Since the usury law fixed the discount rate at 5 percent, the realized cost of borrowing was zero on average. There was no previous experience with managing a paper currency and, even neglecting the usury law, no tradition of limiting the volume of discounts and allowing the market to determine the rate on bills of exchange. The bank, in an early application of the “real bills” approach, attempted to control the quantity by controlling the “quality” and restricted commercial discounts to short and “sound” bills. The policy failed on this occasion, as on many future occasions.

At the end of the Napoleonic Wars, the government deficit declined from £35 million in 1814 and 1815 to £2 million in 1817. After 1816 the Treasury retired debt, and the bank's holdings of public securities declined. The monetary base measured as the sum of gold and total securities appears to have fallen after 1815. At first the bank's holdings of private securities continued to rise, presumably because the anticipated cost of borrowing remained far below the anticipated rate of return on real assets after fifteen years of inflation. But the anticipations probably changed quickly. From mid-1814 to late 1815, the price index fell about one-third, and the bank's holdings of private securities dropped to the low levels of the early 1790s. By March 1816 the Treasury was able to issue exchequer bills below the 5 percent usury rate. In the severe postwar deflation, the bank accumulated gold and lost earning assets. Thus it came to recognize a second problem of monetary management, a problem that was in fact the mirror image of the first. As long as the discount rate remained above the market rate, the bank could not take action to expand its portfolio. It eventually resolved this problem. Under pressure from the prime minister, it lowered the discount rate to 4 percent in 1822, the first change in fifty years. For a time the bank's holdings of private securities, the note issue, and the bank's deposit liabilities expanded.²¹

The third main problem of monetary management that the bank faced during these years was the restoration of convertibility, or Resumption. As

19. For the developments of the theory of money see especially Viner 1965, chaps. 3 and 4.

20. The peak rate of inflation is 20 percent a year compounded from 1798 to 1800. Prices fell an astonishing 20 percent in 1801.

21. The reduction of bank rate was not the only action taken. The gold standard became the legal (*de jure*) standard in 1821. Also, the bank's holdings of government securities ex-

early as 1810, the Committee on the High Price of Bullion, under the influence of Thornton, who was a member of the committee, and of Ricardo, who was not, urged a resumption of cash payments at the price of gold that had prevailed in 1797. Since prices had increased, the market price of specie was above the former mint price. To resume specie payments at the old mint price, the Bank of England had to engineer a deflation. On May 1, 1821, Britain returned to the gold standard at the historical mint price.

A century later, the Bank of England faced a similar problem and made a similar decision. Both decisions were followed within a few years by severe and prolonged depressions. The decision to resume specie payments (1819) allowed for a four-year delay and came after a deflationary policy had been in effect for six years. After the decision to resume cash payments was announced, gold flowed into the Bank of England. Much of the gold inflow occurred because the deflationary policy had pushed the price of silver and the exchange rate for the paper pound close to the mint price.²² Between 1821 and 1824, the bank's holding of gold never fell below £10 million.

The years from 1820–24 are one of the more interesting episodes in early monetary history. The Bank of England's holdings of bullion tripled in the brief span of seventeen months and reached £12 million, the highest level attained to that time. Prices continued to fall until 1822, then rose, on average, 8 percent a year for the next three years. Part of the rise was the result of an agreement between the bank and the Treasury calling for the bank to advance £13 million to the Treasury in exchange for a forty-four-year annuity, known as the Dead Weight debt. These and other special advances combined with the gold inflow to increase the bank's deposit liabilities and note issue. Private borrowing expanded, and with bank rate reduced to 4 percent in 1822, the bank acquired bills and issued money.

Throughout the period, the government ran an almost constant budget

panded and the bank lengthened the maturity of eligible private bills from sixty-five to ninety-five days.

Some indication of the effect on the bank of the changes in activity during these years is given by its income from discounts. Scammell (1968, 145) shows the following:

<i>Year</i>	<i>Bank of England Income from Discounts</i> (in thousands of £)
1795–96	147
1809–10	914
1815–16	646
1820–21	150
1925–26	303

The figures are, of course, nominal values and therefore overstate the size of the changes in the bank's real income.

22. See Viner 1965, chart 1 and table 1, 143–44. For Ricardo's views on devaluation of the pound see Viner 1965, 204. The Gold Standard Act of 1816 repealed bimetallism in England.

surplus of £3 million to £4 million per year and used the surplus to retire debt. The net effect of the Treasury's debt retirements and the special issues to the Bank of England was the same as would have occurred had the bank engaged in open market purchases. The expansive effect of the open market operation on the monetary base and the economy was not entirely unexpected. The prime minister, Lord Liverpool, informed the bank in 1822 that he wanted to increase the circulation, and it is likely that the bank's purchases of Dead Weight debt were part of a plan to expand the stock of money and slow or stop the fall in (agricultural) prices. There is additional evidence that the idea of using open market operations to expand the note or monetary liabilities of the bank was understood, though the term open market operation was not used. At about the same time the bank purchased exchequer bills in the market at the request of the Treasury.²³

Judging from the increase in the bank's holdings of private securities from 1822 to 1824 and particularly in the latter year, the economy expanded. The data are not sufficiently accurate to conclude that the expansion of the economy and the return of inflation can be attributed solely to the rise in the monetary base and the reduced discount rate at the Bank of England. However, the timing and direction of changes are consistent with the hypothesis that the deflationary policy before 1820 (1) induced a subsequent inflow of gold that increased spending, (2) thereby raising realized returns in agriculture and trade above previously anticipated rates, (3) stimulating additional borrowing, and (4) resulting in a further expansion of the monetary base. The reduction in bank rate and the open market purchases added to this process by increasing the growth rate of the base.

Ricardo had urged that paper money be kept in circulation. He recommended that bullion be held in ingots at the bank and the mint or held by private owners when demanded. The directors of the bank preferred bullion to paper for coins and notes of small denomination. English notes of less than five pounds, issued during the Restriction, were withdrawn from circulation after the Resumption. The effect was to raise the demand for gold in England and increase both the resource cost of maintaining the money stock and the rate of deflation required to restore convertibility at the previous fixed rate. By the winter of 1823–24, the bank's gold stock reached a maximum and started to decline. The decline continued throughout 1824, accelerated in 1825, and reached a trough early in 1826. At the trough, the bank held only £2 million pounds after suffering a drain of £12 million in two years.

23. The government's budget surplus and deficits are from Wood 1939, table 6, 74–75. A brief discussion of the Dead Weight debt and open market operations is Wood 1939, 80–83.

To stem the decline and protect the gold reserve, the bank refused to discount eligible paper, but it did not at first raise bank rate. Hawtrey (1962, 14–15) argues that raising the rate would not have been effective because short-term interest rates rose above 70 percent per annum. He overlooks the fact that before this occurred the crisis had intensified for several months and had become a panic after the bank restricted its loans. Bagehot, in a graphic passage, describes the money market in December 1825.

In the panic of 1825, the Bank of England at first acted as unwisely as it was possible to act. By every means it tried to restrict its advances. The reserve being very small, it endeavored to protect the reserve by lending as little as possible. The result was a period of frantic and almost inconceivable violence; scarcely anyone knew whom to trust; credit was almost suspended; the country was, as Mr. Huskisson expressed it, within twenty-four hours of a state of barter. Applications for assistance were made to the Government, but . . . the Government refused to act. (1962, 98)²⁴

In previous crises, such as 1793 and 1811, the government had issued exchequer bills to the merchants. Sir Robert Peel believed that issuing bills would help only if the bank agreed to purchase them from the market. Since “intervention would be chiefly useful by the effect which it would have in increasing the circulating medium, we [Peel] advised the Bank to take the whole affair into their own hands at once, to issue their notes on the security of goods, instead of issuing them on Exchequer Bills, such bills being themselves issued on that security” (*ibid.*, 99). With the government’s guarantee in hand, the bank raised the discount rate to 5 percent and resumed lending. Bagehot describes the turnaround:²⁵

“We lent it,” said Mr. Harman, on behalf of the Bank of England, “by every possible means and in modes we had never adopted before; we took in stock on security, we purchased Exchequer bills, we made advances on Exchequer bills, we not only discounted outright, but we made advances on the deposit of bills of exchange to an immense amount, in short, by every possible

24. William Huskisson was a director of the bank and had been president of the Board of Trade. He was an active reformer who opposed mercantilism and favored the reforms advocated by Smith and Ricardo.

25. Bagehot called this turnaround “classical” and liked the example so well he repeated much of the passage (1962, 99). Among the many bank failures of the period was Henry Thornton’s bank, Pole, Thornton, and Company, in which his son remained active after Thornton’s death in 1815. Bagehot’s analysis is, of course, similar to Thornton’s discussion of the panic of 1793. See note 11 above.

means consistent with the safety of the Bank, and we were not on some occasions over-nice. Seeing the dreadful state in which the public were, we rendered every assistance in our power." After a day or two of this treatment, the entire panic subsided, and the "City" was quite calm. (*Ibid.*, 25)

The crisis, coming at the end of a period of alternating inflation, deflation, expansion, and depression that characterized the first quarter of the century, provided the impetus for an examination of monetary arrangements and produced some major changes in banking and central banking practices. Repeal of the usury law (1833) permitted the bank to raise the discount rate on short-term bills above the 5 percent limit, a very important step for the future development of central bank policy. Other changes made to improve the functioning of the banking system included the opening of branches of the Bank of England, the extension of the joint stock form of organization to commercial banks, and the granting of legal tender status to Bank of England notes. The latter changes show the tendency of governments (repeated on many subsequent occasions) to adopt new arrangements after a crisis even if there is little reason to believe that the previous arrangement was a major contributing cause of the crisis.

As is often the case, changes in informal arrangements were far more important than the new laws. Of particular interest here are the changes in central banking practices, since they reveal the attitudes and understanding of the directors. But there were also important changes in the practices of bankers and bill brokers.

The Bank of England was forced to accept, or at least to share, the responsibility for maintaining the payments mechanism and to function as lender of last resort to the economy. The bank did not publicly acknowledge the responsibility, and during the crisis the government had been forced to prod the bank and offer guarantees. A tradition was established thereby, and the bank was able to demand and get similar guarantees in later crises. The bank's caution was partly a consequence of private ownership, as was alleged at the time, and perhaps partly of bureaucratic slowness resulting from its monopoly position, but it was partly lack of understanding of the responsibility of a central bank to serve as lender of last resort.

The basic cause of the crisis, however, was the bank's inability or failure to slow the rate of monetary expansion in 1823–24. Many of the bank's directors believed that the expansion had been partly the result of "speculation" and the panic a result of "overspeculation." Influenced by the real bills doctrine, some directors attributed the start of speculation to the bank's purchase of government securities, that is, the purchases of Dead Weight

debt and other issues. But most of the directors recognized that the problem arose because of the expansion of the circulation or, as some of them put it, the reduction in interest rates.²⁶

The experience led many of the directors to conclude that the bank had been too ambitious when it agreed in 1822 to assist the government in a policy of reversing the price level decline. The bullion reserve had been at one of the highest points in the bank's history when the policy started, but even so large a reserve had proved insufficient to satisfy the demand for bullion during the crisis. The experience seemed to support the extreme bullionist view that the combined circulation of gold and paper currency had to be kept equal to the amount of gold that would otherwise have circulated. Any excess would raise the price level in proportion to the excess issue, causing a fall in the exchange rate and a loss of bullion. This point was well known because Ricardo had stressed it in his writings and testimony, and it had become a main point of emphasis for the writers in what came to be known as the currency school. By accepting this point from Ricardo and the members of the currency school, the directors in effect rejected Thornton's earlier stress on the effect of business conditions on confidence and of confidence on the demand for money. Neglect of Thornton's promising start on an analysis that combined short- and long-run consequences of a change in gold or money closed off one of the few opportunities in a century to develop a general equilibrium analysis of money, bank credit, output, prices, and balance of payments.

The wave of bank failures profoundly affected London bankers and bill brokers, just as a similar experience was to affect their American counterparts a century later. Innovation and changes in practices followed. The risks inherent in the previous practice of holding very low ratios of reserves to deposits and relying on the sale of bills, or in some instances advances from the Bank of England, had proved larger than anticipated. The banks were partnerships at the time, so failure often meant the loss of a personal fortune. For a time the banks increased their reserve ratios by increasing their holding of bullion and deposits at the Bank of England relative to their deposits. They no longer relied on the purchase and sale of bills of exchange to adjust portfolios but held bills to maturity and adjusted port-

26. Very similar views about speculation are repeated in the Great Depression of the 1930s. Wood (1939, 83–84) presents a number of quotations from the parliamentary hearings of 1832 to show that the predominant view at this time was that it made very little difference whether the bank increased the circulation by a purchase of Treasury bills or by discounting commercial paper. This view contrasts with the views held by the bank's directors earlier and criticized by Thornton and the views held by members of the Federal Reserve Board in the 1920s.

folios by making or calling loans to bill brokers. As the banks withdrew from the bill market, some of the larger brokers accepted many of the functions the banks had performed. They bought and sold bills from their portfolios instead of acting as brokers (Scammell 1968, 133). Others continued a brokerage operation as before the panic.

Just as the United States banks in the 1930s virtually stopped all borrowing from the Federal Reserve, after 1825 English banks no longer relied on advances from the Bank of England. To increase cash, banks reduced call loans to the bill brokers. After 1830 the brokers were allowed to discount at the Bank of England, and they did so when the banks reduced call loans.

Some may find in these developments the origin of a “tradition against borrowing.” Wood (1939, 90–104) points out that the facts do not support that hypothesis. Generally the bank’s discount rate was a penalty rate, above the rate on bills of highest quality, the only type eligible for discount. London banks did not borrow even in periods of crisis but relied on call loans to adjust their cash position. When the banks’ demand for cash assets increased, the country banks sent more bills to the bill brokers and surplus areas purchased fewer. London banks reduced call loans, and the bill brokers borrowed from the Bank of England. The so-called tradition against borrowing by banks should be seen, therefore, as a tradition of borrowing by the bill brokers and dealers who supplied reserves to the banks.

Furthermore, there were other ways the bank’s rate policy affected the market. There were seasonal swings in the volume of exchequer bills. If the market refused to absorb the bills at existing rates, the bank was asked to lend to the Treasury or purchase bills in the open market. By raising bank rate, the bank induced the market to hold more bills. With the usury law repealed, the bank experimented with the use of bank rate as a means of controlling base money.

FROM PALMER’S RULE TO PEEL’S ACT

By the 1830s the main features of the monetary system were in place.²⁷ A money market had developed, and the principal institutions had accepted distinctive roles. The Bank of England had a set of social objectives, some partial understanding of the steps required to achieve these objectives, and glimmerings of an understanding of the short-run consequences of its actions. Both the market and the bank realized that the bank’s responsibilities went beyond those of an ordinary bank to include the role of lender of

27. Bordo and Schwartz 1984 has a thorough discussion of the operation of the gold standard in Britain and other countries during the nineteenth century.

last resort. Moreover, the bank accepted responsibility for maintaining specie payments at a fixed pound price of gold and had become familiar with the traditional central banking control techniques—discount rate changes, qualitative restrictions, and in a limited sense, open market operations.

In 1827 the bank added a rule of procedure to guide policy actions, known as Palmer's rule after the governor who announced it at the parliamentary hearings of 1832. John Horsley Palmer saw the rule as a means of reducing the variability of the quantity of money in circulation and the exchange rate, and he apparently regarded such smoothing operations as part of the responsibility of a central bank.

Palmer's rule attempted to tie the liabilities of the Bank of England to the stock of bullion. When the exchange rate was at par, the sources of the monetary base were to consist of one-third bullion and two-thirds securities. Except for seasonal adjustments, discussed below, the security portfolio would be kept constant, and the bank would increase or decrease the note issue as gold flowed in or out.

Every monetary rule is based on a theory of the monetary process, Palmer's rule no less than those that came later. The theory behind the rule was the Hume-Thornton-Ricardo theory of the long-run consequences for prices, gold stock, and the exchange rate of changes in money. The rule accepts two propositions from that analysis. One, emphasized during the Restriction, is that depreciation of the exchange rate is evidence of an excessive issue of notes. The second is that the gold reserve is held against the bank's notes and deposits, not just notes as the currency school proposed (Mints 1945, 83).²⁸

The main defects of Palmer's rule as a guide to operating policy bring out some differences between the monetary theories of Thornton and Ricardo. First, Thornton accepted proposition one as a long-run proposition, but he argued at length that, in the short-run, changes in the demand for money (or monetary velocity) cannot be neglected. Such changes occur when new substitutes for money appear or their use expands. Thornton was clear that "paper credit," which is to say bank deposits, differs from gold but that both are part of the "circulating medium" and both affect the price level. Second, Thornton urged the Bank of England to expand the monetary base with the long-run growth of trade. Third, he stressed the effects on money, output, and prices of temporary changes in the demand for currency. Under Palmer's rule, expansion and contraction of money

28. The modern version is known as the monetary theory of the balance of payments.

(currency and deposits) were tied to gold flows. However, the rule made no provision for changes in the amount of currency produced by country banks and no provision for changes in the distribution of the liabilities of the Bank of England between government deposits and base money.

The members of the currency school attacked Palmer's rule on two grounds, both familiar. The rule allowed the bank discretion, not only because it had been adopted voluntarily but because in practice the rule was sufficiently complex that the bank could abandon it or make exceptions whenever it wished. A second, and more frequent, criticism concerned the definition of money. Palmer's statement of the rule allowed the bank's total liabilities—deposits and currency—to rise and fall with gold movements. Since the bank offset the effect of quarterly fluctuations in Treasury deposits on the base, it had to raise or lower the monetary base as gold flowed in and out. The currency school defined money as the sum of currency (notes) and bullion but excluded deposits. It argued that gold movements would have their expected effect on the price level and exchange rate only if changes in currency matched the changes in gold, and it urged the Bank of England to operate as if the source of the monetary base consisted entirely of bullion.

Some of the issues raised by the currency school have had a long life. The issues resurface periodically when there are changes in the types of financial institutions or their activities. One part of the currency school position is that the price level depends on the type of liabilities or assets issued and repurchased by the central bank. These writers understood that money was neutral in the long run, but they emphasized a narrow definition of money. To maintain stable prices they believed the central bank should limit currency issues. The modern statement of the proposition usually assigns importance to a broader definition of money that includes checkable deposits and often time and saving deposits as well as some additional items.

From 1827 to 1836 bank rate remained constant (at 4 percent), and the base fluctuated with market forces. The stock of bullion varied between £4 million and £12 million and the security portfolio between £20 million and £34 million, both narrower ranges than in the previous decade. For this reason the rule might be regarded as a partial success. Some small portion of the fluctuations consisted of seasonal movements resulting from continuation of the bank's practice of offsetting seasonal fluctuations in market interest rates caused by differences in the timing of Treasury payments and receipts. Apparently Palmer's rule was never intended to apply to short-term portfolio changes of this kind, because neither Palmer nor

most of the other directors believed at the time that short-term fluctuations in money (however defined) had a permanent effect on the exchange rate. The bank had not yet accepted the state of the money market as an indicator of bank policy, but it had started a move that would bring it to that position within a decade (Wood 1939, 45).

Wood (1939, 102–3) argues that Palmer adopted the rule because he did not believe discount rate changes provided an effective means of controlling the bank's portfolio, a point that Hawtreys repeats (1962, 14–15). These writers neglect that the rule was promulgated in 1827 and announced in 1832 when the bank still operated under the usury law.²⁹ Whatever Palmer's earlier views on the effectiveness of rate changes may have been, the bank under his leadership changed the discount rate seven times between the summer of 1836 and the winter of 1839–40 in response to a series of crises, first in the United States and later in Belgium. Equally important, the bank raised the discount rate above 5 percent, first to 5.5 and then to 6 percent, to stem the outflow of gold in 1839. By changing the rate and borrowing abroad to increase its bullion holdings, the bank was able to maintain specie payments throughout the period despite the loss of two-thirds of its bullion in 1839.

The experience convinced most observers that monetary problems had been exacerbated by the defects of Palmer's rule. The bank lost gold when deposits were withdrawn, and although currency remained unchanged, it had acted to increase security holdings so as to restore deposits despite the loss of gold. The currency school and the bankers drew very different conclusions, however. Anticipating a dispute that continued for the next century and beyond, Palmer and the group of writers known collectively as the banking school, generalizing from their experience with the rule and the events of the previous half century, concluded that no set of rules could guide the bank adequately. To the extent that they proposed solutions, they favored changes in the discount rate, to be made at the discretion of the bank, as required to protect the bullion stock and the exchange rate. The currency school, on the other hand, blamed the failures of the rule on the exercise of discretion by the bank and particularly the failure of the bank to keep a constant stock of gold and notes.

The proponents of rules triumphed over the advocates of discretion. With the passage of Peel's Act in 1844, the currency principle was established as the governing principle of the monetary system.

29. The belief appears to rest on statements like the one by Palmer that a 5 percent rate was an offer to lend as much as the market wished to borrow at that rate. Under the usury law, the bank could limit borrowing only by imposing quantitative restrictions once bank rate was at 5 percent.

NEW LESSONS FROM RENEWED CRISES

The Bank Charter Act of 1844 (Peel's Act) accepted a main point in Ricardo's plan for a central bank: separation of monetary operations (the control of the note issue) from banking operations (control of deposits and lending). The bank was to have two departments, an Issue Department and a Banking Department. The Issue Department carried out the monetary operations under a formula that tied the note issue to the stock of gold, as the currency principle required. The bank's maximum note issue was set at £14 million plus the stock of gold coin and bullion held by the Issue Department. The bank gained a monopoly of the note issue.³⁰

The Banking Department was expected to function in much the same way as any other private bank. Its reserves consisted of the notes of the Issue Department and a small stock of gold held to facilitate exchange of notes and deposits into gold. Whenever the Banking Department accumulated more notes than it wished to hold, the Issue Department redeemed them by paying out gold. The proponents of the act expected the bank to compete for discounts and to hold deposits for other London banks, and they saw no conflict of interest in these functions. The custom of country banks' keeping deposits in London and of London banks' keeping deposits at the Bank of England was well established. More important, the proponents of the act denied that deposits were money.

The bank apparently welcomed its new freedom of action. Prices had fallen 20 percent in four years, and the gold stock had increased by £11 million to £12 million. It reduced bank rate from 4 percent to 2.5 percent within the month that the act passed, and the bank aggressively competed for discounts in London and at its branches. From the low level of £2.6 million in 1844, the discount portfolio jumped to £18.5 million in 1845, £34 million in 1846, and £38 million in 1847 while the bank's income from discounts rose from £80,000 to £380,000 (Wood 1939, table 9, 137; Scammell 1968, 145).

With the decline in British prices, gold had come to England at a steady rate during 1842 and 1843, increasing the bank's gold holdings and expanding the monetary base. The 1844 act required the bank to follow the currency principle by issuing or withdrawing currency (notes) as gold held by the Issue Department rose and fell. The Banking Department could use all the gold it acquired to expand deposits. As a result the directors, for a time, took no action to control deposit expansion. Bank rate remained at the market rate of discount on bills of highest quality, whereas before it had

30. Outstanding country notes were counted as currency for the first time. Further issues were banned, and outstanding issues had to be retired and replaced by Bank of England notes (Wood 1939, 111).

served as a penalty rate. Prices started to rise in the second half of 1845. The gold flow reversed, so the bank raised the discount rate to 3.5 percent. The following year the rate was reduced to 3 percent, where it remained during the fall while gold flowed out.³¹ Between 1844 and 1847, prices rose by more than 20 percent, with much of the increase in 1847.

The panic of 1847 is in many respects similar to the panic of 1825.³² The bank raised the discount rate, first by steps of 0.5 percent and in April by 1 percent. When gold continued to flow out, the bank limited discounts and called advances. The brief panic that ensued ended when the gold flow reversed. During May and June the bank accumulated about £1 million of gold, and the reserves of the Banking Department increased by £3.5 million. In July the gold drain resumed. The bank met the new threat by raising bank rate to 5.5 percent and again placing restrictions on the type of discounts it would accept. A series of bank failures called forth new restrictions, and although the bank did not refuse to lend, it raised substantial doubt about its intentions by announcing that after October 15 bills could be discounted only at rates to be decided at the time of application. The currency drain intensified and produced a new wave of bank failures. The internal and external drain of £1 million pounds in the following week reduced the reserves of the Banking Department to £2 million and raised the fear that the bank would soon be unable to issue notes or accept deposits.³³

The bank looked to the government for assistance, just as it had in 1793, 1811, and 1825. This time assistance took the form of a letter indemnifying the bank for damages arising from violation of the 1844 act and empowering it to expand its discounts provided it raised the minimum discount rate to 8 percent. The bank quickly adopted the policy later known as “lend freely at a high rate.” Within a few days, the panic ended; bank rate was lowered to 7 percent within a month, and by late December it was back to 5 percent.

The panic was mainly a monetary crisis, as that term is now understood, brought on by the tardy and hesitant actions of the Bank of England during the period of rising prices after 1844, followed by a very restrictive policy in 1846–47. The bank seems to have recognized that its policy had either caused or contributed to the crisis. During the next few years the se-

31. The price increase and gold flow were not entirely monetary in origin. The famous Irish potato blight required increased food imports, at higher prices, draining the gold stock.

32. A thorough analysis of the 1847 panic is Dornbusch and Frenkel 1984.

33. The act of 1844 required the bank to publish a weekly statement showing the principal assets and liabilities of the Issue and Banking Departments separately, so the bank's situation was known within a few days.

curities portfolio fluctuated much less than in the past, and the bank was able to reduce the discount rate in a series of steps to 2.5 percent by 1849. At the time the bank had £17 million in gold, and the Banking Department had £12 million in reserves and only £25 million in securities.

The panic helped to resolve some disputes about the role of a central bank. The currency school argued that before the act there was no effective limit on the note issue. The Bank of England was not required to maintain a fixed gold reserve ratio, and the regional banks could issue notes in response to demand. The currency school claimed that, as a consequence, money growth was procyclical in the early stages of an expansion. The increase in currency raised the price level, causing a loss of gold and a crisis.

The so-called banking school differed about the importance of currency and did not rely on any of the monetary aggregates. Its proponents wanted the bank to discount only real bills, and they claimed that a real bills policy would prevent over- and underissue of money and credit. To the extent that they had a uniform view, they emphasized real events at home or abroad as the principal cause of crises. In their view, the role of the Bank of England was to serve as lender of last resort to the financial system. This distinguished the bank from other banks. (See Laidler 1988, 100–102.)³⁴

The crisis showed that the system had not worked as the currency school predicted. The Banking Department had not been able to operate as an ordinary bank. At the beginning of the expansion, as in 1824–25, the bank held a stock of gold that was much larger than the stock usually held. Yet the gold stock and the reserve of the Banking Department had proved insufficient, and the bank had been forced to appeal to the government to suspend provisions of Peel's Act. The currency school interpreted the crisis of 1825 as the consequence of the bank's failure to keep note issue tied to gold. Prominent members of the banking school, who had opposed the act of 1844, interpreted the crisis of 1847 as evidence of the failure of the currency principle. These writers now urged the bank to adopt a more effective means of maintaining the exchange rate, protecting the gold reserve, and avoiding crises.

Evidence of the change in policy and in the approach to policy is shown by the variability of the discount rate. Between 1793 and 1844 the bank changed the discount rate only eleven times, and except for a brief period in 1839, the rate was never less than 4 percent or more than 5 percent. Between 1844 and 1849 the rate changed sixteen times and varied between 2.5 percent and 8 percent, eight of the changes occurring in the crisis year 1847. During the quarter century beginning in 1850, bank rate changed

34. Hetzel (1987) finds references to the lender of last resort function as early as 1797.

more than 225 times, an average of once each five or six weeks. There are only three years from 1844 to 1914 in which the discount rate did not change. In two of them, 1895 and 1896, the rate remained constant at 2 percent, a rate that tradition had by that time established as a minimum.

If the act of 1844 was a victory for the currency school, the victory was short-lived. We do not know the precise date on which the bank's policy changed from reliance on the currency rule to reliance on discretion, but there can be no doubt that it pursued a less aggressive lending policy and a more variable bank rate policy after the panic. Bank rate remained above the market rate, and the bank's stated policy was "to follow the market" (Wood 1939, 138). Attention shifted away from the theoretical issues raised by Thornton or Ricardo and toward the solution of so-called practical, or managerial, questions about how best to operate under the gold standard and how to avoid suspension and inconvertibility. The bank learned to use the discount rate to attract balances to London from country banks and from abroad or, when required, to send balances to the country or abroad. Gradually, the bank accepted responsibility for maintaining convertibility at the fixed mint price of gold and relied on changes in bank rate to attract and repel balances.³⁵

Thornton had described the relation between capital movements, exchange rates, and demand for gold and pounds. He recognized also that changes in the quantity of gold affected the monetary base, the volume of currency and deposits, expenditure, and prices. Most writers accepted the general framework, but many failed to emphasize the effects of gold movements on the prices of goods, on output, and on the price level that Thornton had stressed.

By the 1850s most discussions of central bank policy that mentioned long-run (or general equilibrium) effects acknowledged that increases or decreases in money (however defined) changed prices in the same direction. However, many policy discussions ignored long-run effects and emphasized short-run changes in the money market and short-term capital flows. Effects of relative price changes on the balance of trade were said to operate slowly and as a consequence received much less attention than they had earlier. Critics of these orthodox views raised many of the objections that have been repeated ever since. Announcement effects and destabilizing speculation are common in the writing of the period. Some claimed that an increase in bank rate encouraged a withdrawal of gold from England because speculators anticipated a further increase; others claimed

35. At about the same time, the Bank of France also began to change the discount rate more frequently.

that monetary policy was counterproductive because exports had to be financed at a higher interest rate, whereas imports were not reduced until later, so gold was withdrawn (Wood 1939, 125–26; Viner 1965, 278–79).

Hawtrey (1962) notes that bank rate policy was more variable from 1860 to 1880 than after 1880. He explains the greater variability during the earlier period as a consequence of the interaction between the bank and the market and argues that during this period a change in bank rate had a substantial effect on the balances country bankers held in London. A rise in bank rate restored the bank's reserve by drawing balances from the country and permitted it to lower the rate. Once the bank lowered the rate, the balances went back to the country, forcing it to raise the rate again. The process continued until the bank's reserve was restored. According to Hawtrey (xii), London banks acquired many of the country banks as branches after 1880 and centralized reserves at the head office, so a rise in bank rate drew fewer balances to London and a fall drew fewer balances out.

The argument is of interest for two reasons. First, Hawtrey's argument that institutional changes weaken the effectiveness of monetary policy returns many times. Second, his argument is opposite to the argument, frequently made in the United States, that a decentralized banking system is less responsive to interest rate changes. Most arguments of this kind confuse levels and changes. If banks holding negative excess reserves are penalized or incur a loss of utility greater than the cost of adjusting (by borrowing or by other means), on average each bank will hold positive excess reserves. Centralizing the banking system reduces the average level of reserves. Neither centralization nor decentralization, however, implies that the response to a change in the discount rate is larger before or after the change, only that variations take place around a new level. Moreover, the evidence for the period does not support Hawtrey. His argument requires the time series on bank rate to show advances followed by declines more frequently in the earlier years than in the later years. Most of the changes are unidirectional movements in both periods, contrary to Hawtrey's hypothesis.

A more plausible partial explanation of the higher variability in the ten to fifteen years before 1880 than after 1880 is that trade expanded and in the 1870s several countries accumulated gold to prepare for a resumption of specie payments. Gold production was considerably smaller and more variable than it had been in the decade following the discoveries of gold in California and Australia. The growth in world demand for gold meant that the Bank of England had to either pursue a more deflationary policy than in earlier years or let its reserve ratio of gold to monetary liabilities decline. The bank chose the latter course. The monetary base, deposits and notes at

the Bank of England, rose relative to gold during the sixties and seventies. As a result, a given change in gold both permitted a larger expansion and required a larger contraction in the monetary base and the stock of money.

The variability of the bank's policy meant that the economy had to adjust frequently to large swings in monetary policy. Table 2.1 gives the data on the size and frequency of changes in bank rate. When reading these data, it is important to keep in mind that the changes were always made in a series of steps; most often the rate increased in steps of one percentage point and decreased in steps of one-half point. The data understate, to a considerable extent, the frequency with which the economy had to adjust to changes in bank rate.

A key difference between the earlier and later policies appears in the data at the end of table 2.1. After 1873 bank rate remained within a narrower range than before. More often than not, the rate was between 2 and 6 percent, and until 1907 it did not exceed 6 percent again, and then only for a short time. There is little doubt that the Bank of England's discount policy became less variable. The reason is that between 1876 and 1886 the price level fell at a compound rate of nearly 4 percent a year. Since the bank did not set bank rate below 2 percent, the economy had to undergo enough deflation to equilibrate the balance of payments and maintain the bank's reserve position. When economic expansion took place and gold was withdrawn, the bank raised the rate by steps of 1 percent just as it had done during the period of inflation. The bank did not recognize that a 5 or 6 percent bank rate was a much more restrictive policy with 4 percent average deflation than during years with positive average inflation. A short period with bank rate above 5 percent brought contraction, renewed deflation, and an inflow of gold. During the last quarter of the nineteenth century as a whole, bank rate remained above 5 percent a combined total of only twenty-six weeks.

The bank failed to recognize the effect of inflation on interest rates or to distinguish between market rates and real rates of interest. Thornton's recognition of this distinction was lost. For the next century, during wars, depressions, inflations, and deflations, central bankers used the absolute value of market rates to judge whether rates were high or low and monetary policy tight or easy. Many of their most serious mistakes resulted from this error.³⁶

We can only speculate on other reasons for reduced variability, but one

36. The belief that the gold standard maintained price stability may have contributed to the error, but that would not explain why the error persisted. I am inclined to the view that central banks, influenced at first by the real bills doctrine and later by habit, looked mainly at money market responses and ignored longer-term effects of their actions.

Table 2.1 Main Swings in Discount Rates of the Bank of England, 1853–79 (percent)

LOW POINT		HIGH POINT	
LEVEL	DATE	LEVEL	DATE
2.5	January 1853	5.5	May 1854
3.5	June 1855	6	October 1855
4.5	June 1856	7	October 1856
5.5	July 1857	10	November 1857
2.5	December 1858	4.5	May 1859
2.5	July 1859	5	April 1860
4	May 1860	8	February 1861
2	July 1862	5	January 1863
3	April 1863	8	December 1863
6	February 1864	9	May 1864
6	June 1864	9	September 1864
3	June 1865	10	May 1866
2	July 1867	4.5	May 1869
2.5	August 1869	6	August 1870
2	July 1871	5	October 1871
3	December 1871	5	May 1872
3	June 1872	7	November 1872
3.5	January 1873	7	June 1873
3	August 1873	9	November 1873
2.5	June 1874	6	November 1874
2	August 1875	5	January 1876
2	April 1876	5	October 1877
2	January 1878	6	October 1878
2	April 1879		

Source: Hawtrey 1962, 281–88.

plausible reason is that the variable policy was followed by a series of disturbances and some crises. In 1857, 1866, 1873, 1878, and 1890 the Bank of England was forced to respond to an internal, external, or combined internal and external demand for gold. These disturbances to financial stability were by no means wholly a result of the bank's policy. In 1857 the expansion of the economy was brought to an end by an external drain to the United States to satisfy the demand for gold during the United States panic of 1857. The disturbance was made worse by the failure of a large discount house, Sanderson and Company. In 1866 a crisis occurred, intensified by the failure of several banks and discount houses—including the largest discount house, Overend, Gurney and Company—a failure often attributed to poor management but no doubt intensified by the balance of payments deficit of 1865. In 1873 there were drains of gold to Germany, Austria, and the United States owing to crises in those countries, and in 1878 the failure of a large Scottish bank—the City of Glasgow Bank—induced an internal demand for gold and Bank of England notes as well as a series of bank failures. The

problem in 1890 involved one of the largest and most prestigious merchant banks, Baring Brothers (see Schwartz 1987b, 272–74).

During the crises of 1857 and 1866, the bank relied entirely on bank rate until the government announced that it would indemnify the bank against issuance of currency in excess of its gold holdings. As table 2.1 shows, the rate was raised from 3 percent or 5.5 percent to 10 percent. During the Baring disturbance the maximum rate was 6 percent, and this rate remained in effect only four weeks. A considerable part of the difference in the discount policies of the two periods is explained by the alternative policies the bank developed. On receipt of the news that Baring would have to suspend payments, the bank increased its gold reserves by borrowing abroad, as it had done in 1839, and by purchasing gold. The governor of the bank then organized a syndicate of leading London banks to guarantee Baring's liabilities. The disruption was short, and the sizable reduction in output that occurred several years later cannot be attributed to the Baring crisis.

Several important changes in the bank's policies took place after the panic of 1847. In the panics of 1825 and 1847 the bank attempted to restrict the volume of loans. In 1857 and again in 1866 it made large loans at ever higher rates and made no attempt to restrict the volume. Within a few weeks of the start of the 1857 panic, the bank's discounts doubled. The loss of gold was so great that it was forced to make use of the temporary power to issue notes without gold backing, that is, to temporarily suspend the provisions of the act of 1844. At the start of the 1866 panic in January, the bank had a larger reserve and did not have to suspend the act until March.

A second important change occurred between 1857 and 1866. The bank sold government securities during the crisis of 1857 in an attempt to reduce the growth of its portfolio. By 1866 the bank recognized the role of lender of last resort more clearly; it increased "private securities held" by a larger amount than in 1857 and made no attempt to sell government securities. Bagehot, a major critic of the bank's directors, congratulated them for at last recognizing that the Banking Department was not an ordinary bank but the protector of the country's reserve and the lender of last resort for the financial system.³⁷

The series of panics from 1847 to 1866 also contributed a classic to the

37. See Bagehot 1962, 80–81 and appendix D. Bagehot recognized that as lender of last resort, the bank should not sell at a time of panic. Exactly one hundred years later, the Federal Reserve at last recognized similar responsibilities. Faced with the prospect of failures by savings and loan associations, the System authorized the reserve banks to lend to the associations if required to prevent failures. The Federal Reserve came to recognize its role as lender of last resort to the entire financial system and thus to the economy. For the contrast with System thinking in 1929, see below, chapter 5.

banking literature: Walter Bagehot's book *Lombard Street: A Description of the Money Market* (1873). The book gives a clear description of the institutional arrangements of the time and proposes rules for the conduct of monetary policy. Bagehot did not criticize the bank for failing to respond to crises. Long before economists emphasized anticipations and policy credibility, Bagehot criticized the bank for failing to announce its policy in advance. A main point of the book is that directors of a central bank must publicly acknowledge their responsibility as lender of last resort and prepare for future crises under a commodity standard by holding a larger reserve than ordinary banks. Failure to do so creates and intensifies panics. In the course of the argument, Bagehot reveals a clear understanding of fractional reserve banking.

Like Thornton, Bagehot distinguished between the appropriate response to an internal drain and an external drain. If an internal drain increased the demand for gold or Bank of England notes and there was no reason to be concerned about the exchange rate, the drain should be met by substantial loans from the bank. But if large amounts of gold went abroad, the crisis was external and should be met by raising the lending rate of the Bank of England. A rise in bank rate encouraged foreign lenders to buy bills in London and, by reducing internal demand and the price level in England, encouraged exports and reduced imports: "The rise in the rate of discount acts immediately on the trade of this country. Prices fall here; in consequence imports are diminished, exports are increased, and, therefore, there is more likelihood of a balance in bullion coming to this country after the rise in the rate than there was before" (Bagehot 1962, 23).³⁸ Later the gold attracted by the higher rate reversed the decline in domestic demand and the price level.

Bagehot recognized that if the bank allowed an external drain to persist, it would face an internal drain as well. The domestic public, seeing the decline in the gold reserve, would exchange deposits and the note issues of country banks for gold and Bank of England notes. If the two drains occurred together, the Bank of England must discount willingly at a high rate.

Before we had much specific experience, it was not easy to prescribe for this compound disease; but now we know how to deal with it. We must look first

38. Bagehot (1962, 22) referred to evidence of the effect of interest rates on short-term capital movements: "If the interest of money be raised, it is proved by experience that money *does* come to Lombard Street, and the theory shows that it ought to come . . . as soon as the rate of interest shows that it can be done profitably" (italics in the original). Bagehot did not offer comparable evidence of the effect of price changes on the balance of trade, although he discussed some related matters on 69–78 and suggested there that the effect on prices would be delayed.

to the foreign drain, and raise the rate of interest as high as may be necessary. Unless you can stop the foreign export, you cannot allay the domestic alarm. . . . And at the rate of interest so raised, the holders—one or more—of the final Bank reserve must lend freely. Very large loans at very high rates are the best remedy for the worst malady of the money market when a foreign drain is added to a domestic drain. Any notion that money is not to be had, or that it may not be had at any price, only raises alarm to panic, and enhances panic to madness. (*Ibid.*, 27–28)³⁹

Throughout his book, Bagehot (1962, 31–32, 79–82) made it clear that by “very large loans” he meant the absolute volume and not the volume of loans relative to the gold reserve.

Lombard Street is a clear and definite statement of some important principles of central banking. Consistent application of these principles would have avoided many of the worst consequences of monetary policy in the century that followed its publication. The book is a high point in the statement of the banking school view of the role of a central bank and its responsibilities.

The weakness of the book is the weakness of the bankers’ approach. Bagehot’s analysis of the relation between the operations on the money market and their consequences for the economy never reaches the level of Thornton’s. Throughout his book he shows an awareness of the feedback and response between monetary policy and the economy, but his astute observations never produce an incisive analysis of these effects to stand beside and supplement his analysis of the money market. Nowhere in the book does he attempt an analysis of the relation between discount rate and market rate that would be required to carry out his policy of increasing the gold reserve of the Bank of England. Nowhere does he mention that his policy of increasing the gold reserve at times requires deflation, although he was aware of this possibility. The appearance of the book before the start of a long period of deflation helps to explain this lack of attention, but examination of the many proposals to increase the bank’s reserve ratio, produced in response to his book, shows no recognition of the deflationary effect of the policies required to increase the bank’s gold reserve.

Bagehot’s book makes it clear that bankers and the banking school did not regard the international gold standard as a completely self-regulating system, and the data in table 2.1 show that their actions were consistent

39. Note that Bagehot assigns priority to maintaining the exchange rate. See also Thornton 1965, 93–99, for a similar argument and analysis of the crisis of 1793. Charles Rist (1940, 404–6) quotes several Frenchmen (Thiers, Burdeau, Vuitry) who recognized, in the middle of the nineteenth century, the role of a central bank as lender of last resort and holder of the reserve and also recognized some of the policies required to carry out these functions.

with their views in this respect. The bank was expected to regulate the money market. Indeed, the views of the period erred far more on the side of minimizing or ignoring the consequences of variability for the economy than of overlooking the role of a central bank in keeping the exchange rate between the gold points.

By automaticity of the gold standard, bankers most often meant that in the long run a central bank could not both keep the exchange rate fixed and prevent prices from rising or falling. Virtually every English nineteenth-century writer on banking understood that inflation or deflation must be accepted as the cost of keeping the market price of gold equal to the mint price. The statements of United States bankers and world central bankers during the 1960s on the importance of “discipline” and “confidence” could just as well have been made by English writers a century earlier.

The series of panics and disturbances after 1857 silenced any remaining adherents of the currency school view. Although the act of 1844 remained on the statute books, the Bank of England accepted de facto responsibility for controlling the reserves of the Banking Department and the broader responsibility for the functioning of the international monetary system. After 1870, world demand for gold rose as other countries joined England on the gold standard. The Bank of England accepted the resulting deflation as the price of maintaining convertibility, just as it accepted deflation after 1815 and 1919 as the price of restoring convertibility at the previous mint price.

The actions of the Bank of England after 1844 make it clear that the bank gradually accepted money market rates as the principal indicator of current monetary policy. Bank rate was set in relation to money market rates, and without any distinction between nominal and real rates. In both the inflation of the 1850s and 1860s and the deflation of the 1870s, 1880s, and early 1890s, the bank kept 2 percent as the minimum rate of discount. Neither the bank's management nor the economists of the period recognized that under the gold standard, the bank's refusal to lower the discount rate below 2 percent meant that the only equilibrium was at an anticipated rate of deflation equal to the actual rate. Alfred Marshall's testimony before the Gold and Silver Commission of 1887–88 shows him to be struggling toward such an explanation without reaching it.⁴⁰

One aspect of the act of 1844 that should not be overlooked is that the

40. Rist (1940, 291–97) and Hawtrey (1962, 227–31) discuss Marshall's testimony but fail to see clearly the distinction he tries to draw between nominal and real rates. In the *Treatise*, Keynes also admits to finding Marshall's statement to the commission unclear (Keynes 1930, 1:191–92). Fisher (1930b, 1:43 n. 7) recognizes Marshall's proposition as a weak association between inflation and nominal interest rates.

Bank of England was forced to respond to internal as well as external drains. The bank did not—and could not—ignore the series of bank failures and the internal drains as the Federal Reserve did in the 1930s. Any failure or hesitation to assist the banks by refusing to lend or restricting discounts increased the demand for loans, gold, and Bank of England notes. Wood (1939) summarizes the period up to 1858: “The principle was thoroughly engrained in the minds of the business community that good bills were convertible into Bank funds and, regardless of the state of the reserve, there were only two occasions (1825 and 1847) when the principle was called into question. On these occasions the Bank’s action was quickly reversed after an understanding with the Government.”

The bank’s understanding of its responsibilities during crises improved so much after 1858 that it organized the banking community and participated in the guarantee of Baring’s assets in 1890 in full knowledge that these were illiquid. “Good bills” were, of course, preferred, but the bank showed by this action that convertibility could be maintained and the crisis ended if it acted promptly and did not refuse to lend.

FISHER ON REAL AND NOMINAL RATES

At the end of the nineteenth century, Irving Fisher (1896) analyzed the relations between real and nominal interest rates using a number of examples to illustrate his argument. He repeated and extended the argument in subsequent work. His economic writings and policy campaign for a stable standard of value recognized that stable purchasing power of money would remove most of the problem.

Fisher’s discussion (1930b) is much clearer than Thornton’s.⁴¹ He distinguishes between perfect and imperfect foresight. Under perfect foresight, expected appreciation or depreciation of purchasing power is fully reflected in the market rates (39, 41–42). People do not anticipate correctly: “When the cost of living is not stable, the rate of interest takes the appreciation and depreciation into account to some extent, but only slightly and, in general, indirectly.” Fisher does not fully explain why the public always underestimates the rate of price change.⁴²

Fisher’s explanation of the relation (1930b, 439) is similar to Thornton’s:

41. I use his last complete statement (Fisher 1930b), but the argument is not very different from his 1896 tract or his 1907 book. The same argument is made in Fisher 1920, 56–58.

42. The conclusion rests partly on correlation between interest rates and price changes reported later in his book (Fisher 1930b, 410–11) and partly on his finding that nominal rates are less variable than calculated real rates (413–15). His empirical work does not take account of the constraint on sustained inflation imposed by the gold standard.

“Rising prices increase profits both actual and prospective, and so the profit taker expands his business. His expanding or rising income stream requires financing and increases the demand for loans.”

Fisher was not an obscure author of unread economic tracts. He was the leading American academic economist and an active participant in policy discussions. He worked hard to get his ideas about money and monetary standards adopted. In the 1920s a citizens' league promoted his ideas. Congress considered legislation to mandate his monetary standard. Yet I have found no mention of the distinction between real and nominal interest rates in Federal Reserve minutes during the deflation from 1929 to 1933 or until late in the inflation of the 1960s and 1970s. In both periods, and in many others, the Federal Reserve (and other central banks) used an absolute standard to judge whether interest rates were high or low and associated high and low market rates with tight and easy money.

Why was the distinction between nominal and real interest rates lost? Central bankers seem generally to have regarded Fisher as a bright but annoying crank. The Federal Reserve Board was dominated throughout the 1920s and early 1930s by advocates of the real bills doctrines who, like their predecessors, denied any relation between their actions and inflation or output. They ignored Fisher's emphasis on the role of money, much as the banking school dismissed the arguments of the currency school without meeting them.

Further, Fisher often minimized the empirical relevance of the distinction between real and nominal rates. He viewed foresight as typically poor, so that interest rates did not reflect anticipations very accurately, if at all. But lack of foresight does not eliminate the importance of the effect of inflation on interest rates. The more myopic the public is, the larger are the losses and gains, and the effects on realized returns, when inflation or deflation occurs.

Fisher's writings are also exemplary for the clear distinction he makes between permanent effects and temporary, transitional changes. Chapter 4 of his *Purchasing Power of Money* (1920) is concerned entirely with transitional effects. The same is true of his paper later in that decade relating inflation to unemployment. This insightful work had no influence on or meaning for adherents of the real bills doctrine, so it had no influence on policy decisions in the first twenty-five or thirty years of the Federal Reserve's history. Later much of the staff and many of the policymakers adopted a type of Keynesian analysis that emphasized short-term or transitional effects and ignored long-term, permanent effects.

MONEY, CREDIT, VELOCITY, AND INTEREST RATES

Perhaps the most disconcerting aspect of the nineteenth-century discussion is that as central bankers improved their understanding of the effects of their actions, the techniques of central banking, and the responsibilities of the central bank during crises, their understanding of how their actions affected economic activity declined. The distinction between nominal and real magnitudes is more carefully observed at the beginning of the century than at the end. There is a clearer analysis at the start than at the end of the effect of substituting one means of payment for another. The distinction between money and credit blurred during the century, and most of the now familiar arguments about the “ineffectiveness of monetary policy” appeared. Although these issues returned to the academic literature at the end of the century, there is no evidence that academic writing had much influence on central banking. The gold standard and the real bills doctrine dominated policy action.

During the course of the century, the Bank of England (and others) learned to offset panics by serving as lender of last resort, to prevent large inflations or deflations by adopting the gold standard, and to manage short-term demands for credit by adjusting the discount rate to limit or increase the amount of discounts. Twentieth-century concerns about employment and economic growth were heard but had little effect.

Much of the academic writing failed the operational test that central bankers required. Definitions were not tight. There was little agreement and, with a few exceptions, no attention to the distinctions between temporary and persistent or transitional and permanent effects.

Ricardo, a leader of the bullionists, argued that the depreciation of the paper pound during the early years of the century could not be explained by the actual increase in paper money. The relevant change was the increase or decrease in paper money over the amount that would have circulated had there been convertibility. For this reason he tended to deny the validity of any simple comparisons between changes in paper money and changes in exchange rates. His argument, of course, allows for an effect of changes in the demand for money arising, as in Thornton, from changes in confidence and anticipated changes in the volume of transactions. Ricardo denied that these factors had operated between 1797 and 1810, however, and he offered no other explanation of changes in the demand for money. Further, like Thornton, Ricardo recognized that a change in the stock of money does not immediately affect prices and exchange rates, and he criticized his opponents for expecting immediate effects (Viner 1965, 135–42). Some of the other bullionists ignored these subtleties and wrote as if they too expected a very prompt and close adjustment between

changes in money and changes in prices and exchange rates. A century later, rational expectationists also erred by understating the time required for the price level to respond to money.

By extension, the name bullionists is given to another group, those willing to extend the definition of money to include paper currency issued in fixed proportion to the stock of gold or specie. The Ricardians and their intellectual descendants in the currency school presented both views, and they inspired Sir Robert Peel, the author of the act of 1844. When writers in this tradition referred to deposits at the Bank of England or at other banks, they did not use the term money; they talked about means of payment, bills, credit, and sometimes the circulating media.

The group known as antibullionists generally denied that there could be an excess issue of paper money if banks restricted issues to the amount issued as part of the process of discounting commercial paper—at the time, bills of exchange. The core of their argument is that as long as the sources of the monetary base consist of gold and commercial paper, money cannot be overissued. The explanation they gave is that “no one would borrow at interest funds he did not need” (*ibid.*, 148). If by chance a bank overexpanded notes or deposits, the excess issue would return to the bank either to reduce loans or, under convertibility, to acquire specie.⁴³

The central argument of the antibullionists reappears periodically and had a powerful influence in the early days of the Federal Reserve System. The influence has become a less important cause of errors in policy, but it still survives in two distinct ways. One is the belief that some increases in “credit” are productive while others are “speculative,” a belief that in its milder form generates periodic concern about the “quality” of credit as an independent factor. The second is the notion that the monetary base is demand determined, an argument that has been used at times to absolve central banks of responsibility for their errors and even for their policies.

The antibullionists, and all later adherents of the real bills doctrine, failed to distinguish between propositions that superficially appear similar. The first is the proposition that in the long run there can be no infla-

43. After praising central bankers' decisions for their “singular judgment and moderation,” Bagehot calls their responses to questions about why they acted as they did “almost classical by their nonsense.” Bagehot (1962, 86) quotes from testimony of the bank's directors in 1810: “I cannot see how the amount of bank-notes issued can operate upon the price of bullion, or the state of the exchanges; and therefore I am individually of the opinion that the price of bullion, or the state of the exchanges, can never be a reason for lessening the amount of bank-notes to be issued. . . . Is the Governor of the Bank of the same opinion which has now been expressed by the Deputy-governor? Mr. Whitmore: I am so much of the same opinion, that I never think it necessary to advert to the price of gold, or the state of the exchanges, on the days on which we make our advances.”

tion if the stock of money grows at the growth rate of real output. The second is that changes in output induce changes in the demand for bank credit and the stock of money but that if the credit is limited to the change in output, expenditures cannot increase more than output and therefore inflation cannot result.

Thornton was the first to distinguish these two arguments and to recognize that the fallacy in the second argument resulted from the failure to differentiate nominal quantities and rates of interest from real quantities and rates of interest. The error, said Thornton, was the error of John Law, who “considered security as everything and quantity as nothing.”⁴⁴ Under an inconvertible paper currency, real bills provide no effective limitation of the currency and no defense against depreciation of the exchange rate. With a convertible currency the situation is no better, because the bank could not maintain convertibility if it allowed the base to be determined by the demands of the merchants. Thornton’s argument against the usury laws, discussed above, is a trenchant criticism of the real bills doctrine for the failure to distinguish between nominal and real rates. The antibullionists never replied to this argument.

Neither the antibullionists nor other proponents of the real bills doctrine recognized that it is the total quantity of notes, not their backing, that affects the price level. Commodities are sold and resold; each sale gives rise to a real bill. In the limit, there may be one increase in output backing many real bills.

As long as the payments system remained relatively simple, there was very little discussion of the definitions of money and the monetary base. Disputes about the definition start after the development of a market for bills of exchange and their use as a medium of exchange, the growth of deposit banking, and the increased use of banknotes in place of specie. Many of these disputes came to the fore during the Restriction period. Under convertibility, the requirement to pay gold on demand limited the quantity of money. The use of inconvertible paper raised questions about the effect of paper money on prices and exchange rates. In fact several different, but related, questions arose. One was whether the deposits at the Bank of England were money, and if they were money why they differed, if at all, from deposits at any other bank. To some writers it seemed obvious that because one liability is a substitute for another, there is no reason to draw fine distinctions between types of liabilities. A related issue is the possibility of controlling the stock. Those who emphasized substitutability generally

44. See Viner 1965, 150–51, for the quotation in the text, the comparison of Thornton and Ricardo on this point, and the views of the directors of the Bank of England.

concluded that efforts to control the stock of money, however defined, were a waste of time. Others focused on the gold stock and currency, items they believed to be money. Other items they regarded as part of the “circulating medium.” Related to these issues were disputes about the appropriate indicator of Bank of England policy—exchange rates, gold stock, gold flows, interest rates, or balance of payments—and about the variables that determined prices and exchange rates.

One long-lasting source of confusion in the monetary literature can be traced to the absence of accepted definitions. Since money originally meant gold or bullion, an increase in paper money was described as an increase in velocity. The reasoning was that the gold was held as a reserve by the issuer of notes, who thereby increased the “circulation” of the reserves he held (see Schumpeter 1955, 319). The source of this confusion lies in the origins of the banking system, particularly the “goldsmith” principle, under which goldsmiths could hold gold but could not increase its “circulation” by issuing claims in excess of the amount held. When the definition of money broadened to include notes as well as specie, the definition of monetary velocity changed also. Velocity included the “turnover” of notes, including the notes that might have been issued had bankers not elected to hold deposits at the Bank of England. The spread of deposit banking was often described, therefore, as an increase in monetary velocity.

Adding to the confusion was the practice of referring to an increase in deposits as an increase in credit, or sometimes as an increase in bank credit, and the related practice of referring to the stock of deposits as a stock of credit. For example, when Hawtrey discusses currency and credit, he means what is now called currency and deposits. Many of the writers who wrote that velocity declined secularly meant the same thing that others meant when they wrote that in the long run the ratio of currency to deposits declined with habits of payment.

A difficulty with any attempt to interpret parts of the discussion is that writers who denied that some asset or group of assets should be labeled money often did not make it clear whether they meant there was no point to defining the assets that serve as medium of exchange or that prices and the exchange rate did not depend on the quantity of money, however defined. Thomas Tooke, an early and prolific writer of the banking school, appears to have believed that the bank could affect the price level and exchange rate by changing market interest rates. But he also believed there was no need for interference by the Bank of England if bankers discounted real bills and notes and deposits remained convertible. For him the world price level was determined by the world’s gold stock, but he offered no explanation of English prices and denied that money, credit, or base money

bore any consistent relation to prices. Most Federal Reserve officials remained in this tradition in the 1920s. They denied that their actions affected prices. A modern version of Tooke's argument is found in Sayers 1957, 5, which argues that "to label something as 'money' . . . is to build on shifting sand."⁴⁵

Later writers in the banking school tradition (Bagehot, for example) believed that the exchange rate and gold flows could and should be regulated by the bank. Bagehot emphasized that the bank had to regulate reserves, but a main reason for his emphasis is that the point was often denied. Under the act of 1844, currency issues were tied closely to gold movements, and it seems likely that if the currency issues were not regulated, Bagehot would have argued for control of both uses of the base—reserves and currency. Viner (1965, 243–44) points out that many in the banking school thought of banknotes and bank deposits as money, meaning mediums of exchange, even if they were vague about the effect of money on prices.⁴⁶

All of this was a far cry from Thornton, who recognized that the "possession of a right to draw [deposit] obtained in the one case, is exactly equivalent to the possession of the note [banknote] obtained in the other" (1965, 134). But few later writers saw that both reserves and currency affected market rates, money, and prices; most did not or, if they did, were inclined to emphasize one type of money rather than another.

The two points that the banking school emphasized most were the determination of interest rates in the money market and the determination of the exchange rate by the demand for and supply of pounds. If they saw beyond these points to the effect of changes in the base on money and of money on prices, market interest rates, and exchange rates, they did not stress the latter relations, and some denied them vigorously. As early as the 1830s John Horsley Palmer, a governor of the bank, had testified that the bank affected market rates by changing the "circulation" and suggested that during periods of crisis, market indicators are useful indicators of the state of the money market (Wood 1939, 45–47). With the passage of time and a series of crises and disturbances, this view gained adherents. The avoidance of panics seemed a more attainable goal if bank failures and internal drains could be avoided. Panics appeared to be money market re-

45. My interpretation of Tooke is based on the discussion in Wood 1939, 56–58. A succinct statement of Sayers's views is in Sayers 1957. This point and the notion that the relation between components of "liquidity" is ever changing catch essential points of Sayers's argument on this issue. Most of these issues returned in the early years of the Federal Reserve.

46. Viner notes (1965, 246) that Mill included potential borrowing power as a part of credit.

sponses, so avoiding panics required stability of the money market. Moreover, with the increased size and growing emphasis on short-term capital movements under the gold standard, market interest rates and other money market variables gained acceptance as indicators of near-term gold flows. As maintenance of the exchange rate and the bank's reserve became the principal goal of bank policy, stability of the money market became its primary concern, the best means of ensuring exchange rate stability and avoiding domestic crises.

Some of the writers in the banking school deserve praise, however, for recognizing that the private sector is able to produce a variety of substitute means of payment. They described the development of branch banking, the pooling and centralization of bank reserves, and the use of deposits and bills of exchange as innovations that increased credit by finding more efficient uses of a given monetary base. They failed to see that the introduction and use of deposits and other substitutes for base money are limited by the return from producing substitutes. Nor did they see the related point that more efficient use of a given stock of base money does not imply loss of control of the stock of means of payment by the central bank.⁴⁷

The failures of the banking school included a failure to analyze the monetary system as part of the economy and often to define terms. Its adherents made no attempt to distinguish substitution in demand from substitution in supply, the use of substitutes from the production of substitutes. As late as 1867 Thomas Hankey, a director of the Bank of England, denied that either the bank or the banking system could create or destroy means of payment (Viner 1965, 255 n. 3). His argument repeats the central notion on which the act of 1844 rested and shows that Hankey was unable to distinguish partial substitutes from perfect substitutes. Bagehot's criticism of Hankey and those who shared his view stresses the difference between bank reserves and bank deposits but not the difference between partial and perfect substitutes or between substitutes in demand and substitutes in supply.

The fundamental relation governing substitution on the demand side is that for each type of "money" the sum of the marginal product per dollar (or other unit) and the anticipated rate of deflation must equal the return per dollar (unit) in services and income. If two means of payment are rela-

47. The substance of banking school views on these matters (and on many others) is not strikingly different from the discussion of banking and financial innovation by many contemporary bankers and financial writers. Each major innovation in financial markets brings forth comments designed to establish that the central bank has lost (or will lose) control, so that monetary policy is "impossible" or ineffective. Recall the discussion of Eurodollars in the 1960s.

tively poor substitutes in supply, equilibrium is reestablished mainly by relative price changes, with little change in relative supplies. At the opposite pole, if the two are relatively close substitutes in supply, equilibrium is reestablished by changes in the respective outputs, with little change in relative returns to the two assets.

In the British monetary system, in our own, and in most others, currency and checking deposits are close substitutes in supply at a fixed supply price. Anyone who wishes to exchange one means of payment for the other does so at a fixed exchange rate. Technological change or other change in the relative cost or relative return from using one means of payment rather than the other affects relative demands. The return received by holders and users of these assets and the (real) demand for the sum changes. However, under a fractional reserve banking system, changes in relative demand for currency and deposits mainly change the combined nominal stock of the two and the price level at which the combined stocks are held.

The writers of the banking school, and many of those who repeated their arguments, observed the use of substitute means of payment and concluded, incorrectly, that the use of substitutes meant that each substitute means of payment had the same effect on the price level or the exchange rate as any other. Or if they were more sophisticated, they regarded changes in "credit" as changes in the "velocity" of the existing means of payment. They argued that the changes in velocity permanently changed the price level, the exchange rate, or the gold stock. For them money was a weighted average with the weights equal to the respective, but ever changing, velocities. Hence, they concluded, there was no point to defining money and no prospect of controlling money. These notions survive in discussions of "unstable velocity," the impossibility of defining money, or the importance of controlling total "liquid assets," credit, or the total liabilities of all financial institutions.

The currency school did not respond to the banking school arguments correctly or even uniformly. Some argued that the currency to deposit ratio was approximately constant, so control of currency issues meant control of money. Others argued that deposits could not be controlled because of substitution. Still others contended that the velocity of deposits was much lower than the velocity of currency and that the velocity of bills of exchange was lowest of all.

Improved understanding of the reasons for the failure of the currency principle had to await Fisher and Keynes. Fisher argued that the currency principle worked badly because currency was a poor indicator of monetary expansion and inflation. According to Fisher (1920, chap. 4), bank loans

and bank deposits increased much more than currency during the early stages of the expansion. In his notation, M' (deposits) rose relative to M (currency) following an inflow of gold or other source of base money. Later in the expansion, consumer expenditures increased and the ratio of currency to deposits rose. This rise forced fractional reserve banks, operating under gold standard rules, to surrender reserves. Faced with a loss of reserves, the banks raised loan rates, called loans, and reduced deposits. By redistributing the monetary base between reserves and currency, the rise in the currency ratio reduced the circulating medium, $M + M'$, or in current terminology, reduced money, currency and deposits. The reduction in money brought the expansion to an end and started the contraction.

Fisher's explanation links short-term changes to the long-term value. The key element in his explanation of cycles is that businesses, banks, and households failed to anticipate promptly the inflation caused by monetary expansion. A central bank operating on the currency principle (or gold standard rules) would always react too slowly to prevent inflation. Since currency increased for a time by less than the inflow of gold, the central bank did not increase the discount rate or take action to slow the monetary expansion. As a result, commercial banks expanded deposits and loans by more than the amount consistent with the given gold stock and the long-run average ratio of currency to deposits. Inflation was under way before currency increased relative to gold. Changes in money and credit were therefore procyclical.

Fisher was one of the first to emphasize that differences in the timing of cyclical changes in the stocks of currency and deposits caused the currency ratio to fluctuate around its long-run trend. Others commented on the fluctuations but failed to see that they were systematic, not random events. However, Fisher did not draw the implications for central bank policy of adherence to the currency principle. This was done by Keynes, in rather picturesque language.⁴⁸

Most nineteenth-century writers not only failed to analyze the timing and proximate causes of changes in money but did not consider the failures of monetary policy as a main cause of fluctuations in output. Neither the fluctuations under Palmer's rule nor the series of crises under the act

48. "For in the event of an inflation developing, the note issue is in modern conditions the *latest* phenomenon in point of time to exhibit symptoms of the disorder which is at work in the economic system. To attempt to maintain monetary health by regulating the volume of the note issue is like attempting to maintain physical health by ordering a drastic operation or amputation after the affliction has run its full course and mortification is setting in. For, generally speaking, the note-issue will not expand—for reasons other than increase in the volume of employment—until the inflationary influences have had time to raise the money-rates of remuneration of the factors of production" (Keynes 1930, 2:273, 2:264).

of 1844 stimulated anyone to analyze the relation of the Bank of England's policy to interest rates, output, prices, and specie flows. A few writers in the currency school accused the bank of overexpanding its discounts in 1844, but they did not follow the charge far enough to see the conflict with the currency principle. Had they considered the implications of their argument, they would have been forced to recognize that a central bank should keep control of both uses of the monetary base—reserves and currency—not currency alone. Almost certainly, some would have recognized that the way to control the uses was to control the total sources. Again, this point was not recognized until John Maynard Keynes's *Treatise on Money* (1930, 2:225–26).

Thomas Tooke, testifying before Parliament in 1832, anticipated Mariner Eccles's "pushing on a string."⁴⁹ Wood (1939, 48) summarizes a part of his statement: "An increased issue of notes might only swell the note reserves of the London bankers or be deposited by them in the Bank." Samuel Gurney, a leading banker of the period, testified that if there was an abundance of notes, extra notes would remain in the tills of the bankers, the "natural depository" of surplus notes. If there were ample means for speculation, mere idle funds would not encourage speculation (54).

William Blake argued in 1823 that inflation was caused by fiscal policy (government purchases) financed by new debt issues. The debt issues activated previously idle balances, that is, increased velocity. And Lord Lauderdale blamed the contraction before 1820 on the government's budget surplus. A surplus reduced "effectual demand," so production declined. Lauderdale wanted the government to replace the war expenditures that ended in 1815 with expenditures on public works (Viner 1965, 192–94).⁵⁰

CONCLUSION

Every complete theory of the monetary system must provide answers to a number of related questions. What is the monetary standard, and what are

49. Eccles's statement is in the congressional hearings before the Banking Act of 1935. See , House Committee on Banking and Currency 1935, 321. Asked what would happen if the Federal Reserve printed currency and paid off debt, Eccles replied, "The currency would increase the reserves of the banking system . . . but the currency would immediately go into the banks and from the banks into the Federal Reserve banks—and you would have—additional excess reserves."

50. Some, of course, recognized that among all the arguments, there were none that showed an increase in money would not raise prices. See Wood's discussion of Thomas Attwood (1939, 52–53). Attwood wrote of a depression: "Let them [the public] be glutted with money. They will then seek prosperity and the prosperity of the country will return." Attwood elsewhere recognized that an unanticipated fall in prices redistributed wealth and intensified depression because prices did not all fall at a uniform rate. Like Thornton, Attwood noted that wages were slow to fall and used this observation to explain unemployment of labor.

the source components of the monetary base? Why do the source components expand and contract? Which items are included as uses of the monetary base? If the uses of the base consist of more than one item, what effect does the substitution of one item for another produce on the monetary system? By what means and to what end should the government or a central bank seek to control the base? What are the short- and longer-term consequences of a change in the base on the stock of means of payment? What are the short- and longer-term consequences of changes in the means of payment on prices, output, employment, and balance of payments? What, if any, is the feedback from the changes in prices and real variables to the source components of the base?

In practice, there have been three distinct types of answers. One, following Thornton, stresses the relation of the base to the stock of money, the effects of money on economic activity, prices, balance of payments, and specie flows or exchange rates. A second approach, following Ricardo, puts aside questions of the relation of the base to the stock of money or means of payment and avoids analyzing the effects of substituting one means of payment for another. For the purposes of analysis, money and the base are identical or proportional. In both of these approaches, the monetary base stands at the bottom of a pyramid. Substitution of one type of credit instrument for another is of secondary importance, or no importance at all, once the determinants of the base and the stock of money have been specified and the relation between the two analyzed or dismissed. Corresponding to each set of tastes, state of technology, and anticipation of the future, the economy has a real rate of return at which the public willingly holds the stocks of money and real capital. The variety of claims and debts cancel each other out and affect the solution only to the extent that they represent changes in taste or technology, and then only as much as any other change in taste or technology. Corresponding to the real rate of interest, there is a market rate that differs from the real rate by the anticipated rate of price change. When anticipated and actual rates of price change remain equal, the economy reaches and remains in long-run equilibrium.

A third approach looks at the credit system as one that issues a variety of claims and debts that substitute for money or more generally for means of payment. In this approach, money lacks fundamental importance in the explanation of price and output changes or specie flows. Credit, interest rates, or more recently "flows of funds" become the main indicators of the state of the credit markets. The banking school developed this notion, if such a loose and amorphous collection of ideas can be described as "developed."

Each of the three types of monetary analysis was known in the nineteenth century, and for a time each had a dominant influence on the de-

velopment of central banking theory and practice. But in the end the banking school view became the established view among bankers and central bankers and was challenged by only a few economists. When the Aldrich Commission in the United States received the testimony of leading bankers and experts on central banking in 1912, the members heard very little about the effects of changes in money on domestic economies and a great deal about the “needs of trade,” “self-regulating productive credit,” and the use of the discount rate to stop an outflow of gold.

They learned, too, about the role of the Bank of England in smoothing the money market to eliminate seasonal fluctuations and its practice, well established by the 1840s, of offsetting the effects of Treasury operations on interest rates. These policies focused attention on short-term market interest rates and were the forerunner of so-called defensive open market operations. Among the by-products of the focus on short-term changes was the increased frequency of discount rate changes and, considerably more important, the belief or opinion that such operations were a main responsibility of central banks.

The promising analysis started by Henry Thornton recognized that money was neutral in the long run but not in the short run. Thornton's work opened the way to a careful analysis of the differences between central banks and intermediaries, between money and credit, between real and nominal rates of interest, between relative and absolute price changes, and between permanent and transitory changes. He recognized the errors in the real bills doctrine. Later Irving Fisher revived and added to the understanding of these issues, but, like Thornton's, his work did not influence central bankers until the Great Inflation of the 1970s.

Walter Bagehot did not have a theoretical framework to match Thornton's. He understood, however, the importance of a lender of last resort. And he emphasized the importance of precommitment by the central bank and of following precommitment with action.

The Federal Reserve's approach to policy originated in the Bank of England's nineteenth-century practices and the partially developed theory or framework that the practices attempted to apply. By the end of that century, discussions of central banking confused credit and money, used money market variables as indicators of monetary policy, and denied or cast doubt on the ability of a central bank to induce short-term changes in output or employment by monetary means. Although stabilization of prices and employment was mentioned as a goal of monetary policy in the literature of the early and late nineteenth century, virtually every discussion of the policy of the period concluded that monetary policy was guided by the state of the reserves, not by output, employment, or economic stability.

THREE

In the Beginning, 1914 to 1922

On December 23, 1913, Congress approved the Federal Reserve Act. Final passage came after several lengthy disputes and many pages of testimony favoring and opposing a central bank. More than thirty volumes of research reported on the findings of the National Monetary Commission.¹ Despite the intense discussions, detailed investigation of financial systems that preceded the act, and the number of alternative bills drafted, considered, and dismissed, the act says very little about the broader purposes of the legislation. The title talks of furnishing an elastic currency, affording means of rediscounting commercial paper, and improving the supervision of banking; the act speaks of setting discount rates “with a view of accommodating commerce and business” but mentions no other objectives.

Omission of a broad statement of purpose or policy objective was not an oversight. The act represented a compromise between many different groups that had very different purposes in mind. At one extreme were the proponents of a single central bank, owned by the commercial banks and run by bankers. The group favoring this alternative looked to the European central banks as a model, particularly the Bank of England. Many of the group’s members were bankers or “practical” men, which often meant in the context of the time that they had some idea of the services that central banks rendered to banks but less understanding of the longer-run consequences of central bank operations. They wanted the central bank to damp fluctuations in market interest rates, particularly those caused by the seasonal demand for currency and the financing of crop harvests, and to en-

1. The commission was created by act of Congress following the 1907–8 recession that produced more than 240 bank suspensions (Board of Governors of the Federal Reserve System 1943, table 66, 283).

courage the development of a broad national market in commercial paper and bills of exchange patterned on the London market. One of their principal aims was to increase the seasonal response, or elasticity, of the note issue by eliminating the provisions of the National Banking Act that tied the amount of currency to the stock of government bonds.² They believed firmly that a central bank could reduce panics by serving as lender of last resort in periods of distress. The record of the Bank of England in the previous fifty years reassured them that their beliefs were well founded.

At the opposite extreme were those who opposed a central bank of any kind. The main economic content of their argument was that a central bank is a monopoly, but they did not oppose monopoly as such. They feared or claimed that the monopoly would be run for the benefit of the bankers, particularly J. P. Morgan and other New York bankers. Instead of proposals to avoid a “bankers’ monopoly” they produced evidence of concentration, interlocking directorates, and control of financial institutions, railroads, and other enterprises in hearings before the Pujo Committee and in that committee’s final report.³ However, the Pujo report made few recommendations, was silent on the main issues involved in the discussions of banking reform, and had greater influence on the designers of the Federal Trade Commission than on the designers of the Federal Reserve System.

Proponents and opponents of a central bank clashed over the recommendations of the National Monetary Commission. Legislation drafted at the end of the Taft administration in 1912 embodied many of the principles proposed by the commission. The chairman of the commission, Senator Nelson Aldrich, was a New York Republican. His plan, the Aldrich plan, was unacceptable to the Democrats and opposed in their platform for the 1912 election. They objected much more to the organization of the system and the centralization of power in the hands of the larger banks than to the chartering of a bank to discount commercial paper and issue currency not tied to government securities.

The 1912 election shifted control of Congress to the Democrats. Many Democrats were willing to accept a central bank only if it was under political control. Some members wanted semi-independent regional banks. A

2. Government bonds were used as collateral or security for national banknotes, the principal currency or note issue under the 1863 National Bank Act. As the government debt declined, pressure to reduce the note issue rose. The Federal Reserve Act initially removed this tie by eliminating government securities as collateral for Federal Reserve notes.

3. Arsene P. Pujo was chairman of the House Committee on Banking and Currency. See 62d Cong., 3d sess., February 28, 1913, H. Rept. 1593, in Krooss 1969, 3:2143–95.

month after his election, President-Elect Wilson met with Carter Glass, the new chairman of the House Committee on Banking and Currency. Wilson proposed a mixture of private and public control (Glass 1927, 81–82).⁴ His legislative proposal to Congress, on June 23, 1913, included that recommendation and urged that control “be vested in the Government itself, so that the banks may be the instruments not the masters of business and of individual enterprise and initiative.” The final structure included Wilson’s compromise—a politically appointed Federal Reserve Board in Washington and regional banks in principal centers, run by bankers, with no clear division of authority between the two. As part of the compromise, Wilson proposed a Federal Advisory Council consisting of bankers, appointed by the reserve banks, to serve as advisers to the Board. As with the First Bank and Second Bank of the United States, Congress did not want to grant a permanent charter, so the initial charter was for twenty years. Permanence was not granted until the McFadden Act of 1927.

In its early years the Federal Reserve faced three major challenges. First, an unanticipated war brought a large increase in gold and removed the gold standard as the monetary system of the developed world. The Federal Reserve had a small portfolio, so it had no means of controlling the resulting inflation, even if it wished to sterilize the inflow. Second, the compromises that enabled a majority to support passage of the act shifted the argument over government or private control without resolving it. In the System’s early years, frequent conflicts broke out between the reserve banks and the Board as both sides struggled to gain control. Third, the intent of the principal proponents was not realized. They expected to create an institution capable of preventing inflation, responding to banking crises, and financing exports of grain, cotton, and other primary products. Instead they created a largely passive bank, dependent on revenues from member bank discounts but with limited influence over the volume of discounts. The real bills doctrine left the initiative to commercial banks. The Federal Reserve’s main channel of influence—the discount rate—was a penalty rate. But raising interest rates was unpopular and provoked concerns about bankers’ domination of the economy.

The early experience of the Federal Reserve induced it to abandon, or modify, the principles underlying the act. As noted, the international gold standard ended when the war started. War finance conflicted with the

4. Carter Glass was a Virginia country newspaper publisher. He was elected to the House from Virginia in 1902 and served as chairman of the Banking Committee from 1914 to 1918. In 1918 he replaced William G. McAdoo as secretary of the treasury. In 1920 he was appointed, then elected, to the Senate, where he served until 1946.

penalty rate, so the Federal Reserve abandoned it. Political concerns and mistaken policies prevented return to a penalty rate. And the more thoughtful among the early leaders began to question the central tenets of the real bills doctrine.

Wartime experience and the postwar boom, recession, inflation, and deflation convinced many that a passive strategy was inappropriate. Less than a decade after it was established, the Federal Reserve began to search for a more active approach.

THE FOUNDERS' RATIONALE

The House report on the Glass bill accepted that centralization of banking resources is the "root of the central banking argument" but concluded that in a country as large as the United States "equally good results can be obtained" by several federations.⁵ The report makes it clear that the House Banking Committee expected the regional reserve banks to function cooperatively but independently and to achieve the advantages of central banking without acquiring the monopoly powers of a single central bank. The striking feature of the report, however, is the extent to which the congressmen who approved it viewed the proposed system as a large association of banks able by pooling gold reserves to take better advantage than the individual national banks of the note issuing and discounting privileges that the national banks possessed. In addition to providing a new bank of issue, Congress made sure that the act improved the procedures for issuing notes by both broadening the definition of acceptable collateral and removing government bonds from the list of acceptable collateral.

Virtually every discussion of banking reform commented on the frequency and severity of United States banking crises. The desire to reduce

5. See 63d Cong., 1st sess., September 9, 1913, H. Rept. 69, in Krooss 1969, 3:2275–2342. The quotations are from Krooss 1969, 3:2284. Some of the passion aroused by the different views can be judged from the reference to the work of the National Monetary Commission. The commission's work is described as costly, lacking in originality, of historical interest only, and with no value for or direct bearing on legislative issues (Krooss 1969, 3:2280–81). Although Glass claimed credit for the final bill, much of the substance had been worked out earlier by Nelson Aldrich based on proposals made by Paul Warburg, a partner in Kuhn, Loeb and Company. Also, Glass gave no credit to Senator Robert Owen (Oklahoma), chairman of the Senate Banking Committee (Friedman and Schwartz 1963; Chernow 1993). Warburg (1930, 2:238) found five main differences between the Aldrich bill and the Owen-Glass bill. The most important of these concerned the greater role of the federal government in the Owen-Glass bill and the provision allowing each reserve bank to set its own discount rate. Owen-Glass also prescribed the size of reserve requirement ratios, a matter left to the central bankers in the Aldrich plan. The act specified that two members of the board were to come from banking and finance. The principal difference between the Glass-Owen and Aldrich proposals is the size and power of the Federal Reserve Board. The Aldrich plan called for a single central bank with fifteen branches and a board with forty-five members.

the frequency and severity of crises—five in the previous thirty years—is a main point of agreement in all the reform plans. All proposals recognized that a central bank could serve as lender of last resort in a banking crisis.

Since there was no established lender of last resort under the National Banking Act, banks attempted to protect themselves against runs or currency demands by holding gold or currency reserves.⁶ If all banks sought to increase their gold holdings simultaneously, short-term interest rose as high as 100 percent annually. To reduce the demand for gold, clearinghouse associations or groups of bankers pooled resources to provide payment facilities during periods of stress. Such private facilities had to assume the risk of defaults. A central bank that pooled reserves and lent during a panic would provide “elasticity” at lower cost. Hence bankers were eager to shift responsibility for maintaining the payments and clearing mechanism to a central bank, and there was wide support for this reform.

A second meaning of elasticity referred to seasonal fluctuations. Proponents expected a central bank to reduce seasonal fluctuations in interest rates, principally during the autumn marketing of the harvest. Under the prevailing system, interest rates rose and the dollar appreciated within the gold points when foreigners borrowed and purchased dollars to buy grain. New York banks sold holdings of British bills to smooth the seasonal fluctuation in exchange rates, but large seasonal swings remained until after the Federal Reserve was established (Warburg 1930; Myers 1931; Miron 1986).

The two types of inelasticity had a common source. The National Banking Act tied note issues to government bonds. Hence if banks expanded up to the limit set by the note issue, note issues could not expand further in response to seasonal or cyclical demands. A central bank empowered to dis-

6. In the panic of 1907, call money rates in New York reached a 100 percent annual rate on October 24. There were no offers earlier in the day at 60 percent (Tallman and Moen 1990, 8). J. P. Morgan and others organized loans to the stock exchange, and on October 26 the Clearinghouse Association began to issue certificates. The certificates served principally as a means of settlement between banks, releasing gold and currency for use by the public. Other currency substitutes were also introduced (9–10). Tallman and Moen (1995) point to an important difference between New York and Chicago during the panic of 1907. The Chicago clearinghouse treated trusts similar to banks and permitted them to be members of the clearinghouse. New York did not. When concerns arose about the safety of depositors at Knickerbocker Trust, the New York clearinghouse did not have much information about, or responsibility for, payments drawn on Knickerbocker. Chicago did not experience failures, but New York did. Although there was no lender of last resort, this experience suggests how anticipations or uncertainty about the payments function can induce bank runs and failures. The experience also points up the importance of defining financial institutions broadly at a time of panic.

count real bills would remove this inelasticity and finance the crop movement. Currency would be more elastic.⁷ John U. Calkins, later governor of the Federal Reserve Bank of San Francisco, subsequently stated the contemporary view of the relation between elasticity and real bills: “Probably the most important effect of the Federal Reserve Act was to set up the machinery necessary to provide elastic currency; elastic in that it would be based on self-liquidating credit instruments arising out of the production and distribution of commodities. An obligation of the United States does not represent a transaction of this character . . . to the extent such obligations back the currency such currency is fiat currency” (Federal Reserve Governors Conference, May 1922, 143–44 [hereafter cited as Governors Conference]).

Authority to discount real bills was seen by many at the time as the main improvement of the new legislation.⁸ Many bankers shared Paul M. Warburg’s view that the Federal Reserve could prevent wide swings in interest rates without risking inflation if it purchased real bills.⁹ Reliance on real bills also freed the credit system from dependence on the call money market and thus on credit to stock exchange brokers and dealers who financed their positions in that market. Leading economists such as A. Piatt Andrew, H. Parker Willis, J. Laurence Laughlin, and Horace White also advocated the real bills doctrine.¹⁰ These economists believed that credit would be adjusted to the needs of trade if banks invested in commercial and agri-

7. The outright prohibition against government securities as backing or collateral for note issue was written into the Federal Reserve Act. Paradoxically, the Glass-Steagall Act of February 1932 temporarily removed the restriction as a means of encouraging expansion of the note issue and preventing bank runs during the Great Depression. It was never restored. In June 1945 the use of government securities as collateral became permanent. See chapter 5.

8. Attempts to include deposit insurance in the Senate bill failed in the House. Glass opposed these efforts, and they were removed in conference (Glass 1927, 208–9). United States economic history would have been very different had the provision been in place after 1930.

9. Warburg was a New York banker who had taken a strong interest in central banking. He was born in Germany into a family of German-Jewish bankers, so he was familiar with practices abroad. After the 1907–8 crisis, he discussed his views with Senator Nelson Aldrich and subsequently took a leading role in drafting the Aldrich plan. One of his major contributions was to convince Aldrich that the problem of elasticity was not primarily a problem of providing currency. He saw the need for a discount bank to provide reserves seasonally and cyclically. He repeated this point many times. See Warburg 1930, vol. 2. He also worked with the House and Senate committees that drafted the Federal Reserve Act and served a four-year term from 1914 to 1918 (vice chairman in 1916–18) as a member of the first Federal Reserve Board. He was not reappointed during World War I, allegedly because of his German origin and his close ties to German bankers (Chernow 1993, 44). In the 1920s he served as an influential member of the Federal Advisory Council.

10. Of these, the most important in practice was Willis. Willis collaborated with Glass, served on his staff at the House Banking Committee, and drafted much of the act. Later he served as secretary of the organizing committee and as secretary of the Federal Reserve Board. In later years he was highly critical of the way the System developed and made his views known as editor of a leading business paper, the *Commercial and Financial Chronicle*.

cultural loans and avoided bonds, real estate, call money, and other speculative assets (Mints 1945, 206–7).

Mints (1945, 251–53) adds three additional benefits the founders expected the Federal Reserve to bring. First, bank reserves, mainly gold reserves, would be pooled and therefore available for lending when needed. Second, a bill market would replace the call money market, as in London. The call money market provided credit based on stock exchange collateral and hence depended on a speculative asset. The bill market depended on real bills, particularly bills arising from the financing of foreign trade. Third, improvement in the check clearing system would reduce the number of banks charging fees for clearing checks. The Federal Reserve instituted collection at par at the reserve banks but did not, initially, make par collection a condition of membership.

Section 15 of the Glass bill (section 14 of the act), titled “Open Market Operations,” authorized the Federal Reserve banks to engage in such operations in any of the assets acceptable as collateral for rediscounts and to purchase and sell gold and government bonds. The House report on the Glass bill noted that the purpose of open market operations was to enable the “Federal Reserve banks to make their rate of discount effective in the general market at those times and under those conditions when rediscounts were slack and when therefore there might have been accumulation of funds in the Reserve banks without any motive on the part of member banks to apply for rediscounts or perhaps with a strong motive on their part not to do so” (Krooss 1969, 3:2317–18). The Senate report saw open market operations as a means of developing a market for bills, thereby reducing the variability of rates, the risk premium, and the average level of market rates.¹¹

11. Glass (1927, 90) records that H. Parker Willis, his chief adviser, proposed open market operations. Willis was later highly critical of the use of open market operations as the principal policy tool. The perceived tie between open market operations and discount rates was so close that authority for setting discount rates is in (the same) section 14 of the act. The Senate committee could not agree and issued two separate reports. One report refers to open market operations as one of the main benefits of the bill. The source of the gain is the development of a market for bills and not the power to affect market rates of interest and expand or contract the monetary base. See 63d Cong., 1st sess., November 22, 1913, S. Rept. 133, in Krooss 1969, 3:2377–2416. The discussion of open market operations is on 2398–2400. On 2395 the report discusses the stability of interest rates and notes that in 1907 interest rates had been highly variable using the following figures for money rates in selected months of 1907:

<i>Month</i>	<i>Range of Rates</i>
January	2%–45%
March	3%–25%
October	5%–125%

The extreme variability of rates may explain the great concern in the Senate report with reducing the variability of market rates. However, the report anticipates that there will be “a

None of the reports discusses the effect of changes in money on prices or pays much attention to problems of inflation or deflation. The effects of money on prices were not unknown to Congress. Silver agitators had pressed the point during the deflation of the seventies and eighties. The lengthy report of the Jones Commission (1877) had discussed the issue and concluded that an inconvertible paper money was subject to government control and should be allowed to expand with population so as to keep the price level constant.¹² The quantity of gold or convertible currency, on the other hand, could not “be greater than such an amount as may be requisite to maintain the prices . . . at a substantial parity with the prices of all other countries using the same kind of money” (Krooss 1969, 3:1866).¹³ Yet none of this found its way into the act or influenced the reports of the House or Senate committee on the amended Glass bill.¹⁴

A principal reason for the omission is the Gold Standard Act of 1900 that legally established the gold standard as the United States monetary standard. The United States was thought to be part of the international gold standard that determined the stocks of money and the price levels in all member countries. However, after the start of the European war but before the effective beginning of the Federal Reserve System, all the princi-

comparatively stable rate of interest upon a lower basis than heretofore, because the element of hazard of panic and of financial stringency will be removed by the proposed system” (2395).

12. The proposal is, of course, similar to Henry Thornton’s. Krooss (1969, 3:1798–1911) reprints the report of the chairman of the Senate Monetary Commission (45th Cong., 1st sess., March 1877, S. Doc. 703). The report offers, as a sideline, a monetary explanation of history and points out that from the end of the Roman Empire to the fifteenth century, the stock of money in the (former) empire shrank from \$1.8 billion to \$200 million. It asserts a large effect of the decline in money and prices: “The crumbling of institutions kept even step and pace with the shrinkage in the stock of money and the falling of prices. All other attendant circumstances than these last have occurred in other historical periods unaccompanied and un-followed by any such mighty disasters. It is a suggestive coincidence that the first glimmer of light only came with the invention of bills of exchange and paper substitutes, through which the scanty stock of the precious metals was increased in efficiency” (3:1863). Other periods are interpreted in a similar way. However, the report does not argue for inflation but generally favors stable prices.

13. The following was written before Irving Fisher’s analysis of interest rates: “Equally fanciful and erroneous is the proposition that the rates of interest for money can be lowered by increasing its quantity. . . . [T]he rates for the use of loanable capital depend upon . . . the current rates of business profits . . . and the fiscal policies [sic] of governments. . . . In truth, *increasing the amount of money tends indirectly to raise the rate of interest* by stimulating business activity, while *decreasing the amount of money reduces the rate of interest* by checking enterprises and thereby curtailing the demand for loans” (3:1866–67; italics added). The report did not, however, distinguish anticipated from actual price changes, as Thornton had done.

14. There was a general belief, however, that centralization of reserves and development of a money market would reduce interest rates and make rates more uniform within the country. This was expected to contribute to economic development (U.S. Treasury Department 1915, 12; Warburg 1930).

pal gold standard countries suspended the gold standard. It was never reestablished in its prewar form.

The intent of the legislation was very different from the way the System evolved. The original conception was of a relatively passive system. The price level would be controlled mainly by gold movements and changes in foreign exchange. Seasonal and cyclical movements in demand for credit would increase or reduce demand for rediscounts at Federal Reserve banks. Much of this activity, it was believed, would take the form of changes in the volume of rediscounts of bills of exchange or acceptances initiated by banks. The Federal Reserve would not be entirely passive, however. Its active role, like that of the Bank of England, would consist mainly of raising or lowering the discount rate in ordinary times and providing emergency credit to prevent or respond to a financial panic. The discount rate would be a penalty rate, so in ordinary times bankers would keep discounts to a minimum.

FIRST STEPS AND CONFLICTS

The new system took nearly eight months to get organized. A main reason for the delay was that members of the Board and governors of the reserve banks could not be appointed until the size and number of Federal Reserve districts had been set. The act specified that no two members should come from the same district and required that there be at least eight and not more than twelve districts, each with a Federal Reserve bank in a principal city. Decisions about size, location, number, and boundaries were left to an organizing committee consisting of the secretaries of the treasury and agriculture and the comptroller of the currency.¹⁵

These decisions were contentious, political, and time consuming.¹⁶ By April 2, 1914, the locations were decided, although appeals continued for more than a year.¹⁷ By mid-May the twelve reserve banks began to organize. Almost ninety days passed, however, before Charles S. Hamlin, Paul M. Warburg, Frederic A. Delano, W. P. G. Harding, and Adolph C. Miller took

15. The committee used data on trading areas and size and growth of banking facilities. It also took a poll of national banks and usually chose the most popular city. Cleveland was the exception; it came third in the voting after Pittsburgh and Cincinnati. The committee also held hearings in eighteen cities (Reserve Bank Organizing Committee 1914).

16. Warburg's account of the choice of number of districts and their boundaries shows the importance attached to these issues at the time. Those, like Warburg, who wanted a European-type central bank appear to have resented greatly the decision to create twelve instead of eight districts. See Warburg 1930, vol. 1, chap. 11. Earlier, Warburg had wanted only four districts with multiple branches (Warburg 1930, 2:275).

17. In 1916 the attorney general ruled that the Board could not reduce the number of reserve banks or change the location of reserve bank cities.

their oaths of office on August 10 as the first appointed members of the Federal Reserve Board.¹⁸ The president designated one of the members as governor and one as vice governor for renewable one-year terms. The secretary of the treasury was ex officio chairman of the Board, but the governor was the chief operating official of the Board. Hamlin served as governor until 1916, when Harding replaced him. The two remaining members of the seven-person board, Secretary of the Treasury William G. McAdoo and Comptroller of the Currency John Skelton Williams, were ex officio members who had taken office earlier.¹⁹

The twelve reserve banks opened on November 16, 1914, eleven months after passage of the act.²⁰ Secretary McAdoo's announcement of the opening said in part: "They will put an end to the annual anxiety from which the country has suffered and would give such stability to the banking business

18. Charles S. Hamlin, the first governor, was a Boston lawyer who was serving as assistant secretary of the treasury. He was a last-minute substitute for Richard Olney, a former secretary of state, who declined because of age (Warburg 1930, 2:143). He is described as organized and conciliatory but a weak leader who was too responsive to the requests of Secretary McAdoo (Katz 1992). Delano, a railroad executive from Chicago, was designated vice governor. Harding was a banker from Birmingham who served as governor from 1916 to 1922. Miller, an economics professor who had taught at Chicago and Berkeley, served as assistant secretary of interior in the early Wilson administration. Miller was also the brother-in-law of Wesley C. Mitchell, a leading economist and founder of the National Bureau of Economic Research (NBER) (Katz 1992). Hamlin and Miller were reappointed twice. Both served until February 3, 1936. By law two of the members were to represent banking and finance. In 1922 this requirement was removed and an eighth member, representing agriculture, was added. Members had ten-year terms with two-year staggered appointments. Other requirements for membership were geographical diversity to satisfy sectional interests and prevent eastern control. The initial salary was \$12,000, at the time equal to the salary of a cabinet member. In 1995 prices, the salary before taxes would be approximately \$175,000, 40 percent more than the salary in 1995.

19. Charles J. Rhoads, first governor of the Philadelphia reserve bank, described Williams as "the only man I ever knew who could strut sitting down" (Rhoads, CHFRS, June 29, 1955, 4). Rhoads was a Quaker, opposed war, and left the system rather than sell war bonds.

20. Secretary McAdoo was authorized to choose the date on which the reserve banks opened. Under pressure from agricultural groups, he chose November 2 against the advice of Strong and Warburg. The opening was delayed because Federal Reserve notes were not ready for distribution. Also, not much capital had been paid in, so the System had very little gold (Harding and Warburg to McAdoo, Board of Governors File, box 659, October 13, 1914). I will use this reference with box number, date, and page where applicable to identify unpublished records in the "Central Subject File, 1913-54," stored at National Archives II in College Park, Maryland.

Many in the South and West criticized the delay in opening. The Texas legislature passed a resolution urging prompt opening. The System was expected to release gold by lowering reserve requirement ratios and thus lower interest rates. Rates had increased after August, when war started in Europe. (Prime commercial paper increased from 4.5 percent in May to 7.6 percent in September, and other rates rose commensurately.) Large banks were less eager to rush the opening because the gold outflow at the start of the war made it more costly to deposit reserves and subscribe.

that the extreme fluctuations in interest rates and available credits which have characterized banking in the past will be destroyed permanently" (Board of Governors File, box 659, November 15, 1914).

Tension between the Board and the reserve banks began before the System opened for business. Two factions formed within the Board. Delano, Miller, and Warburg worried about Treasury control and loss of independence. They distrusted the Treasury group—Hamlin, McAdoo, and Williams. Harding was in the middle. Typical of the reserve banks' concerns is a letter from a Chicago director H. B. Joy (president of Packard Motor Company), to Frederic Delano: "I have a little feeling—in fact it is growing on me—that the Federal Reserve Board in Washington is inclined toward dominating the District Banks" (Board of Governors File, box 659 October 10, 1914). Warburg described the problem. Dominance by the Board would allow political considerations to dominate decisions about interest rates. Dominance by the reserve banks "would render a concerted discount policy . . . an impossibility and reduce the Board to a position of impotence" (Warburg 1930, 1:473–74). To resolve some of the issues and coordinate the reserve banks' activities, the organizing committee recommended appointment of an executive council of the banks' governors. This is the origin of the Conference of Governors, later the Presidents Conference, that still continues (Board of Governors File, box 659, October 13, 1914).

The dominant personality in the early days of the System was Benjamin Strong, first governor of the Federal Reserve Bank of New York. Strong's early views were the views of a sophisticated banker, with little formal training, who had gained enough understanding of the functioning of the domestic and international payments mechanisms to be ahead of most of his contemporaries. He saw the Federal Reserve Act as an opportunity to expand the international operations of United States banks, particularly New York banks, and like Warburg, he believed that the development of the market for bills of exchange and acceptances was the means to accomplish this end in a manner consistent with the act. Throughout his life he remained a proponent of fixed exchange rates and the gold standard and an opponent of devaluation or revaluation of currencies and of inflation. In practice, this meant that he accepted deflation when required and came to regard it as the price of international stability.²¹

Strong's mature views on the gold standard and on monetary policy reflected his experience in the twenties. His prewar policies can be described succinctly as an attempt to recreate Lombard Street on Wall Street, with the

21. Strong's views and actions are described in a favorable biography (see Chandler 1958). His starting salary as governor was \$30,000, equal to more than \$400,000 in 1995. The governors of Boston and San Francisco banks received \$15,000 as initial salary.

Federal Reserve System, particularly the New York bank, playing the role of the Bank of England.²² He regarded the twelve reserve banks as eleven too many. The appropriate number was one, he wrote. And he believed it was a major defect to issue Federal Reserve notes as obligations of the government. Government note issues were too reminiscent of greenbacks and other fiat money (Chandler 1958, 34–35, 37).²³ Like Warburg, he accepted that real bills should be the base for expansion. To that end he worked to develop and strengthen the money market. One of his first appointees to the New York bank was an American expert on the operation of the London bill market. This effort to develop a market for banker's acceptances and bills of exchange as the principal means of affecting money market interest rates and to replace the call money market was renewed in the 1920s but did not succeed (Warburg 1930, vol. 2, chap. 12; Burgess 1964, 219). Early in his career as governor, he favored compulsory membership of state banks as a means of centralizing reserves. His views on discount policy read very much like pages from Bagehot and are not noticeably different from British views at the time.²⁴

The first task was to organize and begin operations. For Strong this meant not only staffing the New York bank but organizing the System. Since he regarded the Board as a political agency and saw the banks as the business end of the System,²⁵ Strong moved to enlist the support and co-

22. See his letters to Adolph Miller and to Paul Warburg, both of the Board, quoted in Chandler 1958, 90–91. Warburg's views on real bills, discussed earlier, were similar to Strong's. The two had worked together on the Aldrich bill. One of the first statements issued by the Federal Reserve appears in the *Commercial and Financial Chronicle* for November 14, 1914. The statement declares that discount policy is for the purpose of financing self-liquidating loans, or real bills (Mints 1945, 266).

23. In a letter to Warburg, Strong explained that he would decline the offer to serve as governor of the New York bank because of his disagreement over two features of the act—failure to create a central bank and vesting the note issue in a government institution. He accepted the appointment only after a weekend of persuasion by banking friends including Warburg (Chandler 1958, 39).

24. There are many references to Bagehot and Bagehotian principles in speeches at the time of passage. One proposal that did not become law would have made discounting up to twice the amount of the banks capital and surplus a right and not a privilege of membership. This proposal was defeated in the Senate by a vote of thirty-seven to thirty-one (Timberlake 1978, 202). Had it been approved, Federal Reserve history, particularly during the Great Depression, might have been very different.

25. Strong, like Warburg, had favored the Aldrich plan based on foreign central banks. The political role of the Board referred to the presence of the secretary and the comptroller on the Board, its presence in Washington, and the legal requirement that the Board's accounts were subject to audit (until 1933) by the General Accounting Office. On the other hand, the attorney general ruled in December 1914 that the Board was independent of the Treasury (Beckhart 1972, 31). The Federal Reserve Act was unclear about the specific function and responsibilities of the treasury secretary. He was chairman of the Board by law, but the duties of the chairman and his relation to the governor of the Board were not spelled out (Dykes and Whitehouse 1989).

operation of the other reserve bank governors so as to make the banks the dominant partner. His opportunity came very quickly. The Board called a meeting of the governors for December 10–12 to discuss common problems. The governors used the meeting to organize a permanent Governors Conference, with Strong as chairman.

From the start, the Governors Conference tried to control operations. At its first meeting, the governors discussed how the reserve banks would conduct open market operations.²⁶ One of the main issues was whether each bank would operate independently, as prescribed in the law, or whether they would operate collectively, as required for centralized control. Early in 1915, at Strong's suggestion, the banks agreed to combine operations in both the open market and acceptance accounts to avoid any effect of competitive purchases on market rates. Although effects on the market were recognized, purchases were made principally to increase the earnings of the reserve banks and were allocated to the individual banks in part based on their need for earnings. Reserve banks retained the right to purchase independently (Anderson 1965, 8; D'Arista 1994, 22). Not all the governors were satisfied. Some claimed that New York did not buy enough, so their earnings were held down.

The reserve banks also purchased the 2 percent bonds that continued to serve as collateral for national banknotes. The aim was to replace national banknotes with Federal Reserve notes. At first purchases were made by the individual reserve banks for their own accounts. By 1917 wartime expansion of the reserve banks reduced pressures to increase earnings, so the banks centralized open market purchases of the 2 percent bonds in New York. Concern for earnings returned, however, in the early 1920s and in the mid-1930s. The reserve banks again acted independently in the early 1920s until a new agreement was reached. Centralization of open market operations and the decision about participation remained as problems until the Banking Act of 1933 amended section 14.

The Board also sought control. One of its earliest acts was to rule that the reserve banks could not announce or change discount rates until they had been approved by the Board (letter of Parker Willis to all reserve banks, Board of Governors File, box 1239, November 18, 1914). The Board based its order on the provision of section 13 that gave the reserve banks power to establish rates "subject to review and determination of the Reserve Board." The governors chose to interpret "review and determination" as *pro forma* but the Board insisted that discount rates were subject to the Board's "de-

26. The first open market purchase of \$5 million of New York City tax anticipation notes was made by the New York bank on December 31, 1914.

termination.”²⁷ Early in 1915 the Governors Conference approved a resolution giving the reserve banks sole power to initiate discount rate changes “without pressure from the Federal Reserve Board” (Chandler 1958, 71).

Initially, discount rates were set above prevailing market rates; they were penalty rates to provide discount facilities in periods of market malfunction, as proposed by Bagehot.²⁸ This principle was in conflict both with the political desire for lower interest rates during the 1914–15 recession and with the desire of the reserve banks to increase earnings.²⁹

Earnings depended on membership. The act required approximately 7,500 national banks to be members, but state-chartered banks had a choice. Among the obstacles to membership were requirements for par collection of checks cleared at Federal Reserve banks and for holding reserves at Federal Reserve banks without earning interest. As of June 30, 1915, only seventeen of nearly twenty thousand state banks had elected to join. A year later state bank membership had increased only to thirty-four.

Partially offsetting these increased costs of membership, the act broadened the powers and reduced the reserve requirement ratio for national banks.³⁰ Cagan (1965, 140) estimates the reduction as 13 percent in No-

27. This clause continued as a source of friction. In 1919 and again in 1927, the Board considered or ordered a change in a discount rate without prior action by one of the reserve banks.

28. Until the early 1920s penalty rates were considered the normal arrangement. Warburg wrote to John Perrin, Federal Reserve chairman and agent at San Francisco: “Whenever the market rate approaches the bank rate, the bank rate will be increased” (Board of Governors File, box 1239, December 13, 1914).

29. The latter was a legitimate concern. The reserve banks were required to cover expenses, including salaries for the Board and its staff and a cumulative dividend for the member banks. Section 10 of the act authorized the Board to assess the reserve banks in proportion to their capital and surplus. The reserve banks as a group had negative earnings (–\$141,000 before dividends) for the period from their organization in November 1914 to December 1915. The reserve banks were authorized to assess member banks if necessary to meet expenses. In 1915 the Board discussed an assessment to cover losses and voted in favor, but the reserve banks recognized the effect on membership and were reluctant to choose this option (Board of Governors of the Federal Reserve System, Board Minutes, September 21, 1915, 1154 [hereafter cited as Board Minutes]). Moreover, with the gold inflow providing reserves, banks had little reason to discount. Further, the reserve banks were obligated to pay a 6 percent cumulative dividend on capital stock owned by member banks. Any net earnings in excess of dividend were divided between payments to the Treasury and the surplus account of the reserve banks. (When the surplus account reached 40 percent of paid-in capital, the entire net earnings were to be paid to the Treasury as a franchise tax on the note issue.) The law changed in March 1919 to permit the reserve banks to keep all net earnings after dividends until the surplus reached 100 percent of subscribed capital, after which 90 percent of earnings was paid as a franchise tax and the remaining 10 percent was added to surplus. The franchise tax was repealed in 1933 and restored after World War II (Board of Governors of the Federal Reserve System 1943, 329 n. 7).

30. Under the National Bank Act, there were three classes of banks. Central reserve city banks in New York, Chicago, and St. Louis were required to hold 25 percent of deposits as re-

vember 1914, when the System started operations. This reduction was partially offset in subsequent years by the requirement that member banks deposit more of their required reserves at Federal Reserve banks. In June 1917, by law all required reserves were held at Federal Reserve banks; vault cash was excluded from reserve computation.³¹ The legislation increased gold held by the Federal Reserve in excess of requirements by \$300 million.³²

Strong, and also Warburg (1930, 2:150–52), regarded the centralization of reserves as critical to the success of the System. Failure to deposit reserves at the reserve banks meant that gold holdings were dispersed, as they had been before the act. Without centralization, the System would be in a weak position to respond if the gold inflow from Europe reversed at the end of the war. Even if the gold remained, Warburg believed, the System required a larger gold reserve so that it would not be forced to contract the note issue in recessions as eligible paper declined. A larger stock of gold

serves in gold, government currency issues, or gold certificates issued by a clearinghouse. National banknotes could not be used as reserves. Reserve city banks also had a 25 percent reserve requirement, but half could be held at central reserve city banks at prevailing interest rates. Country banks had a 15 percent reserve requirement ratio, of which 60 percent could be deposits at reserve city or central reserve city banks. These requirements applied to all deposits, demand and time. Treasury deposits were exempted in 1908. The Federal Reserve Act set different reserve requirement ratios for time and demand deposits. For demand deposits, the initial reserve requirement ratios were 18 percent for central reserve city banks, 15 percent for reserve city banks, and 12 percent for country banks. For time deposits, the ratio was a uniform 5 percent. Initially, vault cash and correspondent balances counted as reserves, up to 6, 5, and 4 percent at the three groups of banks respectively.

31. At the same time, requirement ratios were reduced to 13 percent, 10 percent, and 7 percent for central reserve city, reserve city, and country banks and to 3 percent for time deposits, greatly expanding the money multiplier. Cagan (1965, 190) estimates that the 1917 amendment was a 21 percent increase in the monetary base. The increase was partly offset by reductions in the amounts discounted. These 1917 ratios remained unchanged until August 1936. In 1922 St. Louis changed from central reserve to reserve city classification, releasing a modest amount of required reserves. Vault cash did not again count as part of reserves until 1959. Miller (1921, 180) explains the 1917 legislation as a wartime measure to centralize gold reserves and provide for expansion of money and credit to finance the war. Sprague (1921, 19) estimates that the Federal Reserve increased the base money multiplier by 50 to 100 percent compared with the pre-Federal Reserve period.

32. The legislation also made membership more attractive for state banks by permitting them to withdraw on six months' notice. Warburg also wanted the Board to have authority to raise reserve requirements in case of a large gold inflow. This authority was not granted until the 1930s. Reserve requirement ratios could be reduced for central reserve and reserve city banks if five of the seven members of the Board approved. State banks also disliked having the comptroller of the currency as a member (ex officio) of the Board. They feared he would favor national banks. In 1915 the Federal Advisory Council urged an amendment removing the comptroller, but no action was taken (Board Minutes, 1915, 1158). The Federal Advisory Council consisted of bankers from each of the districts. It was authorized by the Federal Reserve Act and continues to the present as an advisory group to the Board.

could be used to maintain the note issue.³³ After June 1917, vault cash no longer counted as part of reserves, so banks deposited more of their gold at the reserve banks.

Gold flows in 1915 reversed the direction of change in interest rates. Early in January, discount rates followed market rates down. Interest rates continued to fall slowly through the first year of operations. The Board was quick to claim credit. Governor Hamlin wrote that by merely opening the doors, the steadying effect of the act became apparent in the market (Board of Governors File, box 1239, December 17, 1915). The reserve bank governors were more skeptical. When the Board asked all reserve banks to describe the effect of the new system, most attributed the decline in interest rates to gold inflows and the increase in gold reserves. Chairman John Perrin (San Francisco) wrote that there was “very little tangible evidence that the establishment and operation of the Federal Reserve bank has influenced rates in any important way.” Pierre Jay, chairman at New York, wrote that the new system had “no effect whatever” (letters, Board of Governors File, box 1239, December 11 and 13, 1915).

Although the governors invited the Board to send representatives to their meetings, and they sent summaries to the Board, the Board regarded the Governors Conference as a rival organization that weakened its authority by operating independently. It resented decisions by the governors to meet at reserve banks instead of in Washington. It was determined to prevent the governors from meeting too frequently or acting independently.

The Board decided to take control after the Governors Conference criticized the Board for “an exercise of pressure” on the reserve banks. It sent a letter to each of the governors suggesting that the governors hold no more than three or four meetings that year. Although the Board approved \$12,900 in expenses for the most recent meeting, it told the governors that their expenditures were too large. The Board did not object to informal discussions among the governors, but “a permanent organization, the appointment of an executive committee, and the election of a paid secretary, are matters . . . of doubtful propriety and beyond the scope and powers of the Federal Reserve banks as defined in the Federal Reserve Act” (Board Minutes, January 20, 1916, 79). The creation of a standing executive committee “might create the impression that certain banks . . . had delegated certain powers to a definite committee” (80). Responding to the governors’ criticism, the Board replied that the governors had “assumed powers which they do not possess . . . when they undertook collectively to direct or

33. Under Warburg’s proposal, the Federal Reserve would not follow gold standard rules.

to suggest to the Federal Reserve Board the manner of its exercise of the powers conferred upon it by the Act" (81).³⁴

The Board won the first contest, but the issues of control and power were put aside, not resolved. Late in July the secretary of the Governors Conference notified the Board that the governors planned to meet on August 15. By this time Harding had replaced the conciliatory Hamlin as governor (Katz 1992, 119). Harding responded that the Board did not want a conference held and that in the future conferences could be held only if called by the Board. The Treasury opposed a conference, Harding wrote, and, he added, "plans for the proposed meeting should be abandoned. . . . [I]n matters which concern interbank relations and operation of the Federal Reserve banks as a system, authority is vested by law solely in the Federal Reserve Board" (Board Minutes, July 25, 1917, 99–101). McAdoo attended the meeting and concurred in the decision. He urged the Board to keep the Federal Reserve banks in hand. To rein in the banks, he had considered appointing five additional government directors to the banks' boards, but he postponed the decision pending a favorable resolution of the dispute.

The following week the Board formally adopted the resolution discussed in the letter to the reserve banks. There was to be no permanent organization and no Governors Conferences unless called by the Board. No further conferences were held until November 1917.³⁵

The Board and the reserve banks also clashed over the obligation of one reserve bank to discount for another and the rate to be charged for interdistrict borrowing. The intent of the act was to pool gold reserves by permitting interdistrict borrowing, thereby smoothing regional demands for reserves and borrowing associated with crop movements. The Board had authority under the act to set the rates for interdistrict loans. Strong disliked the provision and sought to limit its scope by permitting the lending bank to set the rate on borrowings (D'Arista 1994, 19). The Board members insisted that this was their responsibility, and they prevailed.

34. On March 9 the Board voted to publish expenses of the Governors Conference in the *Federal Reserve Bulletin*, but they reconsidered on April 21 and voted to include these expenditures in the accounts of the reserve banks (Board Minutes, 1916).

35. In March 1918, Strong proposed a Governors Conference to act on interest rates. The Board responded that if a meeting was held, it would be confined to Treasury security sales and a few technical matters. Strong held an informal meeting in New York with about six governors (Board Minutes, March 8 and June 22, 1918). As late as May 1921, Governor Harding appointed a committee of governors to consider whether the Governors Conferences should be continued. The governors responded that they wanted more frequent conferences, with some held at reserve banks. Harding remained opposed to meetings outside Washington, and none were held (Federal Reserve Governors Conference, May 28, 1921 [hereafter cited as Governors Conference]).

In March 1915 the Board established interdistrict rates. No transactions were made until 1916, when rates were set by the Board on each transaction. In the fall of 1920 the Board reestablished a common rate for interbank rediscounts related to the discount rate on member bank borrowing.

POLICY PROBLEMS

Almost from its founding, the System faced a series of major policy problems. First there was an outflow of gold before the reserve banks opened, as foreigners sold dollar securities at the start of the war in August 1914. Exports declined for lack of shipping because German and British ships that had carried much of the freight withdrew. Commodity prices, particularly for exportables, fell sharply. The initial wartime problems were severe enough to send the dollar above five dollars per pound sterling, well above its intervention point. The New York Stock Exchange and most foreign stock markets closed to hinder sales of securities and demands for gold.

Soon after the reserve banks began operations in November, a gold inflow replaced the outflow and produced monetary expansion and inflation. Wartime inflation, resulting from the financing of Treasury bond sales, soon followed. After the war there was the difficult task of establishing independence from the Treasury and developing an anti-inflation policy. By 1920 the System had to deal with its first recession. The System's response to this series of events—the discussions, the proposals for action, and the actions themselves—reveals the policy approaches and understanding of the Board members and governors at the time and the flaws in the act.

The Federal Reserve System was not fully organized when war started in Europe, so it had a minor role in responding to the gold outflow. In September the Treasury issued emergency currency, authorized under the Aldrich-Vreeland Act of 1908.³⁶ One of the Federal Reserve's first actions was to oppose issuance of additional Aldrich-Vreeland currency. It worked with the Treasury to organize a group of bankers that subscribed \$108 million to redeem United States loans abroad. The organization of the fund may have helped to restore calm; only \$10 million was drawn.

36. The act expired in June 1915 and was not renewed. The emergency currency issue helped to prevent a panic (Friedman and Schwartz 1963, 196; Dykes and Whitehouse 1989, 237). At its peak in October, \$308 million of emergency currency was outstanding, approximately 15 percent of total currency. In addition, banks issued clearinghouse certificates to pay their adverse balances (Chandler 1958, 56). There were no bank runs and the crisis was overcome, a marked contrast to experiences in 1929 to 1933.

Gold Flows

Within a few months of the start of the European war, exports increased and gold flowed to the United States in payment. In 1914 the United States held 19 percent of the world's monetary gold stock. By 1918 its monetary gold stock had increased by 65 million ounces, more than \$1.3 billion at the official gold price, \$20.67 per fine ounce. The increase was 88 percent of the United States monetary gold stock in 1914 and more than 16 percent of the world's prewar monetary gold (Schwartz 1982, tables SC7 and SC10).³⁷

The Federal Reserve followed gold standard and penalty rate rules by reducing discount rates as market rates fell. By mid-December 1914 it had lowered discount rates at all reserve banks. By February 1915, rates at most reserve banks were two percentage points lower than on opening day.³⁸ Market rates rose briefly in the spring, perhaps in anticipation of the expiration of Aldrich-Vreeland currency issues on June 30. The Board issued a press release urging the reserve banks to “discount as liberally as prudent” (Board of Governors File, box 1239, January 21, 1915). No problems occurred, and interest rates resumed their decline.

The gold inflows substantially increased the monetary base. Table 3.1 shows annual rates of increase in the base from 1915 to 1922. The Federal Reserve was at first powerless to stop or offset the increases even if it had chosen to abrogate gold standard rules by selling securities. The open market portfolio of government securities at the end of 1916 was only \$55 million.³⁹ In fact, the System made small net purchases of government securities in 1915 and 1916 and larger net purchases after the United States entered the war in April 1917.⁴⁰ Many of these purchases were made to increase the reserve banks earnings.⁴¹

37. In addition, foreigners sold \$2 billion of American securities and borrowed \$2.4 billion. The United States became a net creditor.

38. In the early years, discount rates differed by maturity and by district. I have used the rates on thirty-one- to sixty-day commercial and agricultural paper.

39. The Federal Reserve requested authority to increase reserve requirements of member banks, but Congress did not approve. Increases in reserve requirement ratios were often politically unpalatable. Congress resisted or ignored proposals to increase statutory authority both at this time and after World War II.

40. Net earnings before payments to the Treasury rose from \$2.7 million in 1916 to a peak of \$149 million in 1920. The 1920 earnings were not surpassed in nominal value until 1948. Most of the increase at the end of World War I came from the increased volume of discounts.

41. One achievement of the early years was a reduction of the seasonal swing in interest rates. Warburg (1930, 2:357–58) emphasizes this result. For a modern analysis supporting his view, see Mankiw, Miron, and Weil 1987.

Table 3.1 Annual Growth of the Monetary Base, 1915–22, December to December (percent)

YEAR	GROWTH RATE	YEAR	GROWTH RATE
1915	11.2	1919	5.0
1916	15.2	1920	3.6
1917	20.6	1921	-15.5
1918	16.2	1922	4.2

Source: 1915–18, Friedman and Schwartz 1963, table 33; 1919–22, Anderson and Rasche 1999.

Alarmed at the increase in bank reserves and unable to get Congress to permit changes in reserve requirement ratios, the Board began 1917 by urging all reserve banks to let their aggregate acceptances decline by \$40 million to \$50 million, 20 to 25 percent of their holdings (Board of Governors File, box 1239, January 19, 1917). Several of the reserve banks ignored the request to maintain earnings.

Discount rates remained mostly unchanged until late in the year. The Board confined its activity to simplifying the rate structure. Reserve banks were requested to post no more than seven discount rates by type and maturity and to unify the rate structure across districts. The reserve banks' responses to the request show the diversity that prevailed at the time in the United States.⁴²

Wartime Finance

Once the United States entered the war, government spending increased. The nation advanced \$7.3 billion to its allies during the war and an additional \$2.2 billion after the war (Friedman and Schwartz 1963, 216). Effective income tax rates increased sixfold from 1916 to 1918, but the increased revenue was much less than the increased spending, so the Treasury had to finance relatively large deficits (Bureau of the Census 1960, 716).⁴³ Military spending increased from less than \$1 billion in fiscal 1916 to an average of \$15 billion a year for the fiscal years ending June 1918 and 1919.

The war reshaped the Federal Reserve System in many ways. Most for-

42. For example, the New Orleans branch of the Atlanta reserve bank had a different structure of rates than Atlanta. Many banks had more than seven rates. Schedules differed by number of rates, type of discount, and maturity.

43. Gross public debt rose from \$1.2 billion on June 30, 1916, to \$25.5 billion on June 30, 1919 (Bureau of the Census 1960, 720). Deficits for the two fiscal years 1918 and 1919 were \$22.3 billion, a large fraction of GNP but not as large as the 50 percent share estimated at the time. Average nominal GNP for the two years is \$73.5 billion (Balke and Gordon 1986, 793). Friedman and Schwartz (1963, 221) put the total cost of wartime outlays at \$32 billion, with 70 percent financed by borrowing, 25 percent by explicit taxation, and 5 percent by money creation. Their estimate implies a \$22.4 billion increase in debt for war finance.

eign governments suspended the gold standard, so it no longer served as a guide to policy. The System abandoned the penalty discount rate in the interest of war finance. The number of state member banks rose to more than a thousand by 1919, and they included the largest state-chartered banks, with 40 percent of the assets of all state-chartered banks (Bureau of the Census 1960, 633). Wartime (and prewar) changes made the System more like a central bank, as in World War II. Independence was sacrificed to maintain interest rates that lowered the Treasury's cost of debt finance. The System became subservient to the Treasury's perceived needs.

The Federal Reserve's main wartime activity was selling Treasury bonds. The New York bank wanted to replace the existing Independent Treasury System, carried over from the nineteenth century, by serving as fiscal agent for the government. Its wartime activities, and those of the other reserve banks, included selling almost half of the debt issues. It succeeded in convincing the Treasury that the Independent Treasury System was redundant. In 1920 the New York bank was designated fiscal agent, and the Independent Treasury System ended.

Wartime finance consisted principally of a series of Treasury bond drives or Liberty Loans. The governors of the reserve banks served as chairmen of the committees organized in each district to sell Treasury bonds to the nonbank public. Since the amount borrowed was large relative to the size of the country or previous credit demands, the System ensured the success of the four wartime Liberty Loans by making two types of loans. Short-term loans at preferential discount rates encouraged banks to buy short-term Treasury certificates during the interval between bond drives. Initially the discount rate on these loans in New York was 3 percent for fifteen days and 3.5 percent for sixteen to ninety days. Rates rose to 3.5 and 4 percent in December 1917 and to 4 and 4.5 percent in April 1918, where they remained until November 1919.⁴⁴ Loans were also made to encourage banks to stretch out the public's payments for purchases of Liberty Loan bonds over \$1,000. The latter was known as the "borrow and buy" policy. Its original intent was to avoid a short-term contractive effect on the money stock and interest rates as buyers drew down their balances to make pay-

44. Discount rates were discussed at a meeting of the Board and the governors on November 9, 1917. New York saw no need for a change in rates, but Boston wanted higher rates to prevent borrowing for profit. Chicago wanted uniform rates at all reserve banks. On November 21, Harding telegraphed the reserve banks that the Board had concluded that rates should be raised by 0.5 percent. Rate increases were approved in late November for all banks except Boston and New York. New York did not increase its rate to 3.5 percent until December 21. At the time all other banks were at 4 percent (Board Minutes, November 9, 21, 26 and December 21, 1917).

ments to the Treasury (Governors Conference 1917, 233). Later it became a marketing device for the bonds, since buyers could defer payments for as much as a year from time of purchase.

The Treasury's borrowing tested the System's ability to pool reserves. By far the largest part of the Treasury's short-term borrowing was in New York, so the New York bank was under pressure to finance the purchases. The Board urged other reserve banks to buy acceptances from New York to relieve the strain on its reserve position, and New York renewed the request at the November Governors Conference. All banks except Kansas City, Chicago, and Atlanta agreed to buy acceptances to earn interest for their banks and thereby supply additional gold reserves to New York.

The intent of the Treasury's policy was that sales of certificates would be retired out of the proceeds of the Liberty Loans. From April 1917 to October 1919, the Treasury sold \$6 billion of tax anticipation certificates and \$19 billion in anticipation of bond and note sales. The intent was not realized. A large volume of certificates remained outstanding at the end of the war. The Treasury opposed raising short-term rates to refund the certificates as they came due. It expressed concern not only that higher short-term rates on certificates would carry over to long rates, lowering bond prices, but also that an increase in rates would abrogate commitments made to purchasers of Treasury bonds under the borrow and buy policy.

By offering discounts at a preferential rate on Treasury certificates, the Federal Reserve abandoned the penalty rate, one of the main principles on which it was founded. Member banks could borrow at a preferential rate below the rate paid on the Treasury certificates or Liberty bonds, so borrowing became profitable.⁴⁵ Penalty rates for other types of borrowing remained, but most borrowing was at the preferential rate, so higher rates had no effect. One consequence was that state banks membership increased, as noted earlier. Another consequence was that much of the collateral for borrowing was Treasury debt, contrary to the spirit of the Federal Reserve Act.

Table 3.2 compares the interest rates at which the Treasury sold Liberty bonds to the preferential discount rates at New York. Congress set the rate on the First Liberty Loan below the market rate on savings deposits. The intention was to avoid a drain of existing savings into war bonds (Warburg

45. The Board objected to the low rate paid by the Treasury on the initial certificates, \$50 billion at 2 percent interest. Secretary McAdoo responded by threatening to invoke the Overman Act, under which the president could give the secretary (or other official) authority to carry out any of the functions of the reserve banks. The Board withdrew its objections. McAdoo was President Wilson's son-in-law. This was the first clash with the Treasury over wartime finance. It was a preview of experience during and after the two world wars.

Table 3.2 War Finance (millions of dollars)

DATE	LOAN	INTEREST RATE (%)	PREFERENTIAL DISCOUNT, NEW YORK ^a (%)	SIZE OF ISSUE
May–June 1917	First Liberty	3.5	3–3.5	1,989
October 1917	Second Liberty	4	3–3.5	3,808
April–May 1918	Third Liberty	4.5	4–4.5	4,177
September–October 1918	Fourth Liberty	4.25	4–4.5	6,993
April–May 1919	Victory	4.75 ^b	4–4.5	4,498

^aLower rate for fifteen days or less; higher rate for sixteen to ninety days.

^bTax-exempt bonds offered at 3.75 percent.

1930, 2:12). On May 22, 1917, a week after the borrowing campaign began, New York introduced the preferential discount rate. The other banks followed within a few weeks. The decision reflected concern about the ability to sell the issue at the low interest rate Congress set (Wicker 1966, 14).⁴⁶

The preferential rate enabled the Treasury to borrow on favorable terms between bond drives. The Treasury sold short-term certificates to the banks. The member banks paid by crediting the Treasury's account at their banks and retained the deposits until the Treasury drew on its balances. Treasury balances were not subject to reserve requirements, but after they were spent, the money returned as private deposits subject to reserve requirements.⁴⁷ The preferential discount rate allowed the banks to meet this obligation at low cost. The preferential rate soon became the modal borrowing rate. The Federal Reserve continued the practice until December 1919, after the war ended and the fifth and final war loan, the so-called Victory Loan, had been sold.⁴⁸

The System considered direct purchases to be “inflationary.” To avoid making open market purchases, it encouraged banks to offer installment loans to nonbank purchasers on favorable terms. Most commentators point out (correctly) that it is no more inflationary for the Federal Reserve to buy the bonds directly (or in the open market) than to lend money to the banks at below market rates so that banks can either purchase the bonds or finance the public's purchases. The increase in the monetary base is the same in both cases. However, the distinction was important to the

46. The governors' recommendation was that the first Liberty Loan should be for \$1 billion, a sum they considered very large (Governors Conference 1917, 317–20). The Treasury ignored this advice also. See table 3.2.

47. This change was made in April 1917 as part of Federal Reserve support of war finance.

48. During and after World War II, Secretary Henry Morgenthau pointed out frequently that Liberty Loans had been sold at rising interest rates, whereas he financed World War II at constant rates. Another major difference is that in World War II the Treasury offered the public nonmarketable bonds, with fixed nominal redemption value. These were used to attract small savers and avoid the losses of nominal value that followed World War I.

Federal Reserve and many others who shared the real bills framework. Central bank purchases of government securities expand money (or credit) based on speculative paper. This paper would have to be eliminated after the war to restore the central bank's reputation. Although the members recognized that it would be difficult to reduce member bank indebtedness by restoring a penalty rate in the face of almost certain Treasury opposition, far more difficult would be postwar direct sales of Treasury obligations by the reserve banks with the secretary and the comptroller on the Board. Further, currency issues had to be backed by gold and real bills. Treasury securities and commercial paper were not close substitutes for this reason.

By 1918 most of the Liberty Loans sold in the secondary market at a small discount. To raise their prices, Congress, in approving the Third Liberty Loan, permitted the Treasury to purchase not more than 5 percent of each outstanding issue in the market. Purchases were made at the market price and financed by short-term certificates subject to preferential rates for borrowing from the reserve banks. The effect was to lower the average maturity of the debt and to increase the incentive for the Treasury to maintain low interest rates on Treasury certificates and the preferential discount rate after the war. The purchase operations ended on June 30, 1920, when a sinking fund replaced the purchase program. In all, the Treasury purchased \$1.7 billion under the program, with most of the purchases made after the war. The program did not succeed in bringing taxable bonds to par value.

Since the commercial banks could use the certificates at their option to borrow at preferential rates, the reserve banks were the source of the financing no more and no less than if they undertook the same volume of purchases directly. Despite a rising rate of inflation, Liberty bonds remained only slightly below par throughout the war. For example, at the time of the Third Liberty Loan, in spring 1918, the GNP deflator rose at an annual rate of about 7.5 percent. For the year 1918 as a whole, the deflator rose by 10 percent (Balke and Gordon 1986) and the consumer price index by 18 percent. Yet the Treasury was able to sell bonds at par with a 4.5 percent coupon and to keep its outstanding debt close to par by making occasional purchases. One partial explanation is that the market did not anticipate continued inflation over the life of the bonds. Although there was an embargo on sales of gold abroad, the United States remained legally on the gold standard, and the bonds contained a gold clause, permitting the holder to demand gold at redemption. Further, the common anticipation, based on experience in previous wars, was that budget deficits would end

and the gold standard would be restored at the end of the war. Evidence of this disinflationary anticipation is given by the inverted yield curve: commercial paper with a maximum of 180 days maturity yielded 6 percent.⁴⁹

Unlike its World War II policy, the Federal Reserve did not agree to purchase all government securities at fixed rates. In keeping with its mostly passive policy orientation, it achieved the same end by setting the discount rate on Treasury securities below the market rate on the securities. Bank reserves and the monetary base were thus set by the banks' demand to borrow. Any bank with Treasury certificates could borrow profitably. The price of Treasury securities was kept relatively stable by this arrangement at the cost of supplying reserves and money at the market's demand. As in World War II, the Federal Reserve became the "engine of inflation."

The wartime policy achieved the Treasury's objective of marketing an extraordinary increase in debt at relatively low direct cost to the Treasury.⁵⁰ The public bought most of the debt, but between 1916 and 1919 commercial banks bought almost \$5 billion, approximately 20 percent of the total issued. The banks financed their purchases in part by borrowing \$2 billion from the Federal Reserve.

In June 1917 Congress amended section 13 of the Federal Reserve Act by reducing collateral behind the note issue. Initially, a reserve bank had to deposit with the Federal Reserve agent (at the reserve bank) 40 percent of the issue in gold and 100 percent in commercial paper and bills of exchange with less than ninety days to maturity. The new requirement reduced the total of real bills and gold to 100 percent of the note issue, 40 percent in gold. A year earlier, banker's acceptances became eligible as collateral and, slightly altering a premise of the act, reserve banks could also use as collateral promissory notes of member banks secured by government bonds or notes.

Gold inflows slowed after 1917 (Schwartz 1982, table SC14). For the next three years Federal Reserve credit—mainly discounts—became the driving force in the expansion of the monetary base and inflation. The Federal Reserve Board's annual report for 1918 looked forward to the time when "the invested assets of the Federal Reserve Banks have been restored to a commercial basis" (Board of Governors of the Federal Reserve System, *Annual Report*, 1918, 87). This appeal to the real bills standard gives a mis-

49. This does not explain why short-term rates rose so little, hence it can only be a partial explanation of interest rate changes.

50. Congress approved the Third Liberty Loan with a 4.25 percent maximum interest rate. This restriction on the interest rate remained for all government bonds issued until the 1960s. The restriction did not apply to notes.

leading impression of what had happened. From December 1916 to December 1918, Federal Reserve notes outstanding increased by \$1.7 billion and bank reserves increased by \$400 million. On the asset side, discounts for member banks rose by \$1.5 billion, gold by \$200 million, and government securities by \$180 million. Nearly all of the discounts, however, were secured by government obligations (Board of Governors of the Federal Reserve System 1943, 340).

THE POSTWAR STRUGGLE FOR INDEPENDENCE

The history of the early postwar years is principally the story of the Federal Reserve's struggle for independence from the Treasury and the deflationary consequences of its policies after it obtained independence. This was the System's first opportunity to take independent policy action. It made several mistakes, some avoidable, some unavoidable in the circumstances. By promising not to raise interest rates during the last wartime bond drive, the System relinquished a chance to moderate the postwar inflation. By raising discount rates from 4 percent to 6 percent and then to 7 percent in the space of a few months, it contributed to the postwar contraction.⁵¹ By failing to lower discount rates for more than a year after the cyclic peak, the System prolonged the recession and contributed to its severity.

In the first four years of Federal Reserve operations, the compound average rate of inflation was 12 to 13 percent, using consumer prices and the GNP deflator. Table 3.3 shows the annual data. The peak in the quarterly rate of inflation is in third quarter 1918, at the end of the war, but the price level did not reach a peak until second quarter 1920. For the first two quarters of the latter year, the deflator rose at a 20 percent annual rate. For the last two quarters, it fell at a 15 percent annual rate. The price level continued to fall throughout 1921, although the rate of decline slowed after midyear.

The inflation period has two phases. At first the Treasury dominated the Federal Reserve, aided by the System's commitment to assist in war finance and, after the war, commitments under the borrow and buy policy. In the second phase, the commitments had expired. The System was free to act but uncertain about what to do.

51. The 7 percent discount rate was posted (as the lowest available rate for commercial and agricultural discounts) at only six of the twelve reserve banks. Philadelphia, Cleveland, Richmond, St. Louis, Kansas City, and San Francisco held the minimum discount rate at 6 percent, but some of these banks adopted progressive rates to penalize heavy borrowers. Dallas did not adopt the 7 percent rate until February 1921, more than a year after the NBER date for the cyclic peak, January 1920. Less than two months later, Boston lowered the discount rate to 6 percent on April 15, followed by New York on May 5. The 7 percent rate applied to commercial paper. A 5.5 percent rate for borrowing on Treasury certificates remained in effect throughout the period. The latter was the applicable rate for most borrowing.

Table 3.3 Inflation Rates, 1915–20 (percent)

YEAR	RATE	YEAR	RATE
1915	2.0	1918	18.6
1916	11.0	1919	13.8
1917	17.0	1920	2.3

Source: Balke and Gordon 1986. Rates are from fourth quarter to fourth quarter.

The Inflation Phase, Part 1

The Board's annual report for 1920 blamed the inflation on "an unprecedented orgy of extravagance, a mania for speculation, overextended business in nearly all lines and in every section of the country" (Board of Governors of the Federal Reserve System, *Annual Report*, 1920, 1). At best this was disingenuous, as the Board had recognized in its annual report for 1919. The Board wrote there that the absence of a penalty rate "is enough to prevent a normal functioning of a Federal Reserve Bank, whose rates should be so fixed that resort thereto is unprofitable . . . and thus has a tendency to check expansion" (Board of Governors of the Federal Reserve System, *Annual Report*, 1919, 2).

In fact, the Federal Reserve lacked any consensus on a policy regarding rates. A return to penalty rates might be sufficient to stop the inflation but was likely to conflict with accommodating the needs of trade and commerce. This was a principal concern for several governors. Others viewed the wartime policy as a violation of the real bills basis for credit expansion, hence inflationary. Insisting on a return to a real bills policy meant that the preferential discount rate on Treasury securities had to be raised. As long as the preferential rate remained in effect, the discount rate would be controlled by the Treasury when it set the rate on Treasury issues.⁵² Thus there was an issue of control or independence as well as a policy issue about rates. Members were aware, however, that the president could invoke the

52. The first restive sign came early. Chairman Perrin (San Francisco) wrote on October 3, 1917, to ask whether the discount rate should be raised to 4 percent for loans on 4 percent certificates and 4 percent Liberty bonds. Miller replied for the Board, saying that an increase in rates would hurt the Second Liberty Loan. Two weeks later, in a lengthy memo, Miller argued that rates should have been raised after the First Liberty Loan so they could be reduced to support the Second Liberty Loan. Miller defended the policy as part of the Federal Reserve's responsibility to help the government finance the war "with a minimum of injury to the health and strength of the banking situation" (Board of Governors File, box 1239, October 3 and 17, 1917). Miller also stressed the need to modify the System's real bills orientation by reducing commercial loans to nonessential industries. On December 12 Warburg responded, noting the Board had no power to discriminate against particular borrowers. Rates were raised by 0.5 percent after first payments were made on the Second Liberty Loan. This established a precedent that the Treasury was not willing to follow in 1919.

Overman Act and assign their responsibilities to another agency. This act did not expire until six months after the end of the war, in April 1919.

The division of opinion remained throughout the war and beyond. In February 1918 Governor Harding suggested an increase to 4 percent on commercial discounts with less than fifteen days to maturity. Opinion was mixed, and the rate remained unchanged. In June Adolph Miller wrote a long memo pointing out that the government had spent less than planned in fiscal 1918 but would increase spending to \$24 billion in fiscal 1919. He estimated that this would be half of current GNP, and he urged an immediate increase in rates to curtail commercial lending. He included an increase in rates on loans secured by Treasury certificates. Hamlin replied in a letter to Harding, opposing Miller's proposal and recommending "rationing credit as we now ration food." Raising rates would be "bad faith" with the banks that bought certificates (Board of Governors File, box 1239, February 21 and 25, June 27 and 28, 1918).⁵³ The only action was a decision by the Cleveland and Richmond banks to raise the discount rate from 4 to 4.25 percent in April. Kansas City followed in May, raising its rate to 4.5 percent. The others remained at 4 percent.

Government spending continued to exceed revenues at the end of the war, so the Treasury's problem of financing the deficit continued through the winter and spring of 1919. This was one source, but not the only source, of contention between the Treasury and the Federal Reserve and within the Federal Reserve. Carter Glass, who replaced McAdoo as treasury secretary in January 1919, preferred qualitative controls and moral suasion to rate increases as a means of controlling credit. In the first of many differences about qualitative controls, governors of many of the Federal Reserve banks argued that exhortation or moral suasion would work, if at all, only if rates increased.⁵⁴ Missing from the discussion of qualitative controls, as from Hamlin's proposal to ration credit, was the role of interest rates in resource allocation. Wartime expenditures required a shift of real resources equal to almost 20 percent of GNP. Several Board members and Treasury officials seem unaware that their proposals raised the cost of the transfer and added to the burden of financing the war.

In addition to deficit finance, the Treasury faced the problem of rolling over the outstanding stock of short-term certificates. Before leaving office,

53. A few months later, Governor Joseph A. McCord (Atlanta) wrote to Harding warning that banks were recycling fifteen-day paper to avoid the 0.5 percent difference between fifteen- and ninety-day paper. The Federal Reserve ignored evidence of this kind when it decided that there was a tradition against borrowing for profit.

54. No one pointed out that urging a bank to repay borrowing could shift the borrowing to another bank.

McAdoo had sent a letter to all banks urging them to purchase short-term Treasury certificates. Glass continued this policy of moral suasion. Moreover, to sell the Fourth Liberty Loan (in September and October 1918), national banks had promised as part of the borrow and buy program to lend at 4.25 percent for ninety days with renewal guaranteed for a year at the 4.25 percent rate. These commitments did not expire until the end of October 1919. And to sell the Victory Loan, in April–May 1919, banks had offered customers installment loans at a 4.25 percent rate for six months.

The shorter period for financing the Victory Loan reflected a telegram from the Board to the reserve banks on April 16 suggesting that member banks be discouraged from “leaving the situation with respect to loans secured by Government bonds entirely clear after November” (Board Minutes, April 16, 1919, 297).

The Board and the reserve banks were parties to the borrow and buy policy. As heads of the Liberty and Victory Loan committees, the governors had wanted this commitment to make the bond drives successful and to avoid large changes in money and interest rates following Treasury bond drives. Treasury took the position that honoring the commitments took precedence over credit and monetary control (Board Minutes, April 16, 1919). With this stance, the Treasury also hoped to fund its outstanding short-term debt at the prevailing interest rate.

Behind the subsequent struggle lay the governors’ concern about independence. Wartime policy had prevented Strong and other governors from establishing an independent institution that was free of political control. A strong Board subject to political pressures, or dominated by the Treasury, was a long-standing concern.

In January Strong took another leave to rest and recuperate from tuberculosis. The Board approved a three-month leave with full pay. Strong was away from the bank during January and February and in Europe from mid-July to late September. He participated in the discussion only by letter. Early in February he wrote to Adolph Miller and to Russell Leffingwell, the undersecretary of the treasury, about the need to liquidate the banks’ borrowings secured by Treasury certificates. In his letter to Miller he is undecided about the speed with which the Federal Reserve should act and the consequences of a rapid liquidation. The letter to Leffingwell is more decisive about the need to deflate, although he recognized that “the process of deflation is a painful one, involving loss, unemployment, bankruptcy, and social and political disorders” (Chandler 1958, 138–39).

When the Governors Conference met with the Federal Reserve Board on March 20–22, three main considerations were the forthcoming sale of the Victory Loan, the French and British decisions to allow their currencies

to depreciate against gold and the dollar, and the end of the gold embargo with the expiration of the Trading with the Enemy Act in June.⁵⁵ Discussion of the size and pricing of the Victory Loan presumed that discount rates would remain unchanged. Large foreign balances had built up during the war, currency exports had increased, and there was concern that a higher discount rate would be needed to slow the gold export.

Leffingwell argued that Europe lacked effective demand. Although the gold reserve ratio had fallen from 61 percent to 49 percent in the year to March and seven reserve banks including New York and Philadelphia had recourse to interbank loans to supplement their reserves, he did not “see anything in the international situation to justify an apprehension about the protection of our gold reserves” (Governors Conference, March 20, 1919, 156). He would soon reverse that forecast. Strong responded that British and French devaluations effectively raised prices in the United States, so it was equivalent in its effect on spending to an increase in the discount rate. He feared that raising the discount rate would cause too rapid liquidation of inventories (162).

The next day the Conference voted to maintain the discount rate until after the Victory Loan was placed and “for such reasonable period thereafter as will permit a considerable liquidation of such borrowing [to buy the bonds] without imposing undue penalties upon the banks” (Governors Conference, March 21, 1919, 354–55). It would soon regret this decision. The Conference also voted to recommend a 5 percent interest rate on the Victory Loan.⁵⁶ The Treasury set the rate at 4.75 percent.

The inflation rate increased sharply during the summer and fall of 1919. Part of the increase is mainly measurement, the release of prices that had been controlled in wartime, but this explains only a small part of the surge in the inflation rate. Balke and Gordon’s (1986) estimate of the deflator rose from 4.3 percent annual rate in first quarter 1919 to 15.8 percent for the last two quarters. The consumer price index shows an even larger increase.

Interest rates on government bonds and commercial paper remained steady through the spring and summer. The Treasury continued to support the bond price by purchasing in the open market. From June to year end,

55. Some of the meetings in this period included outsiders. Present on the first day of the meeting were members of the executive committee of the Federal Advisory Council and two senior members of Congress, Senator Robert Owen, chairman of the Senate Banking Committee, and Congressman Edmund Platt, the ranking minority member of the House Banking Committee. Platt subsequently became a member of the Board.

56. The conference agreed also to hold the buying rate on acceptances below the discount rate to encourage the market for dollar acceptances. This policy, favored by Strong, later infuriated Glass.

the Treasury purchased \$500 million, with more than half the purchases in late November and early December (Wicker 1966, 35).

By June, an outflow of gold and rising inflation revived interest in eliminating the preferential rate for Treasury securities and raising the discount rate. On June 9 the Treasury removed the embargo on gold exports. Despite the subsequent gold outflow, bank reserves and currency continued to rise in response to member bank borrowing. Rising monetary liabilities and falling gold stock reduced the ratio of gold to monetary liabilities from 50.6 percent in June to 47.3 percent in September. The fall in the gold reserve ratio was the traditional signal to raise interest rates. The Federal Reserve had urged an end to the wartime embargo so that the United States would lose gold. Adolph Miller describes the decision as helping “to bring nearer the day when the Federal Reserve must be permitted to resume their normal relations to the money market and to exercise control through discount rates” (1921, 182).

The Treasury was in charge, and it continued to oppose a rate increase. In July, Boston requested a general increase in its discount rates. The Board rejected the request as “inadvisable from the point of view of Treasury plans.” Government debt outstanding reached a peak in August, but the Treasury was not yet ready to raise rates. At a September 4 meeting with the Board, Leffingwell explained that he shared the view that rates must rise. He was not primarily interested in borrowing money cheaply for the government. His purpose, he said, was to refund the debt and eliminate the Treasury certificates that were subject to the preferential discount rate. He thought that higher rates would make that task more difficult in two ways. First, Liberty and Victory bonds would fall below 90, and if this occurred, Congress might require the Treasury to refund the entire debt and absorb the loss. Second, banks were obligated to renew loans to carry securities at unchanged rates. A rise in rates would put more of the debt into the banking system, so speculative credit expansion would increase at the expense of commercial and agricultural credit. This he viewed as contrary to real bills principles, hence inflationary.

In response to a question from Governor Harding, Leffingwell indicated that the Treasury did not oppose an increase in rates on commercial loans: “I ask that you do not increase your rates on paper secured by Government obligations” (Board Minutes, September 4, 1919).

Despite Leffingwell’s comment, some of the differences at the meeting reflected the commitment to keep rates unchanged at least until November. A second issue concerned debt management. Strong wanted the Treasury to borrow at market rates, in smaller amounts, more frequently. His reasoning was that Treasury borrowing created a large volume of Treasury

deposits not subject to reserve requirements. When the Treasury spent the proceeds, private deposits increased. Banks borrowed at the prevailing preferential discount rate to meet the reserve requirement. The Treasury's view was that the reserve banks should discourage borrowing by the banks without raising rates. Strong, supported by several of the reserve banks, argued that inflation could not be controlled as long as borrowing at the preferential discount rate remained profitable.⁵⁷

At an October 28 meeting, Strong urged the Board to approve an increase in the minimum discount rate to 4.5 percent. Leffingwell objected that such a move would hurt the Treasury's planned refunding. He again favored higher rates for commercial and agricultural borrowers and greater use of moral suasion to prevent "speculation." Secretary Glass strongly favored moral suasion and opposed rate increases.⁵⁸

Glass, and others, argued as if demand were completely inelastic. By raising rates, the reserve banks would encourage commercial banks to raise their rates with no effect on the amount borrowed. He agreed, however, to increase the rate for borrowing against Treasury certificates to 4.25 percent and voted for the increase at the November 1 Board meeting.

Table 3.4 shows the interest rates prevailing during the years 1919 and 1920. In October 1919, just before the first increase in discount rates, short-term rates were above long-term rates. Both had changed little during the year; bond prices, on average, had remained in a narrow range below par, 91.3 to 92.9, sustained in part by Treasury purchases.

At the end of October 1919 the outstanding debt was \$26 billion, with \$3.7 billion in certificates of indebtedness subject to a preferential rate. At the nearest call date, November 17, member banks held \$3.5 billion in United States government obligations, mainly Treasury certificates, and had borrowed \$2.2 billion from Federal Reserve banks, mainly at prefer-

57. For example, Governor Perrin (San Francisco) wrote to the Board on September 16 to report that his directors favored a gradual increase in discount rates, first eliminating the preferential rate for Treasury certificates, then "fixing higher rates for loans based on government securities than for those growing out of commerce." Harding replied that "it was not advisable to make any change in rates until after Christmas" (Board of Governors File, box 1239, September 16 and 24, 1919).

58. The chairmen of the reserve banks, who also served as Federal Reserve agents, met in conference periodically. The views expressed at their October 1919 meeting suggest the ambivalence that prevailed at the time. The chairmen concluded: "The normal check [against inflation] . . . is a higher discount rate. But in the opinion of your Committee the conditions prevailing at home and abroad are so abnormal as to render this method not wholly effective of itself. . . . Some increase in bank rate, however, seems the necessary first step in any program for the restraint of undesirable credit expansion" (Federal Reserve Agents Conference, October 1919, 6). The agents favored a small increase in rates accompanied by a campaign to moderate speculative uses of borrowing (7). Talk of "special conditions" and the problems of refinancing debt produced a very similar lack of response after World War II.

Table 3.4 Market Interest Rates, 1919–20 (percent)

DATE	U.S. GOVERNMENT BONDS ^a	PRIME COMMERCIAL PAPER	MINIMUM DISCOUNT RATE, NEW YORK
1919			
January	4.63	5.25	4.00
April	4.72	5.38	4.00
July	4.72	5.38	4.00
October	4.71	5.25	4.00
1920			
January	4.93	6.00	4.75 ^b
April	5.28	6.88	5.00
July	5.57	8.13	5.50
October	5.08	8.13	5.50

Source: Board of Governors of the Federal Reserve System 1943.

^aEight years or more to maturity.

^bIncreased by steps in November and December 1919.

ential rates (Board of Governors of the Federal Reserve System 1943).⁵⁹ An important change had occurred, however. Commercial bank commitments to lend at a fixed rate on the Fourth Liberty Loan and the Victory Loan issues had expired.

On November 3 the directors of the New York bank voted to increase the discount rate by 0.25 percent, putting the discount rate for borrowing on certificates (4.25 percent) equal to the rate on the certificates. The discount rate on commercial paper increased by 0.75 percent to 4.75 percent and to 4.5 percent on paper secured by Liberty Loans. However, the Bank retained the preferential rate for borrowing collateralized by Treasury certificates, so the new minimum effective rate was 4.25 percent for up to fifteen days maturity.⁶⁰ This was the first increase in the discount rate for more than a year. The Board immediately approved increases at New York, Boston, and Chicago and, on the next day, at Kansas City. Other banks followed later.

Member bank borrowing continued to increase, but government bond yields rose and stock prices fell. The monthly index of common stock prices, at 80.5, was close to a peak in October. It did not pass the monthly October level in the next five years. Loans to brokers and dealers on the New York Stock Exchange declined, suggesting reduced demand for “speculative” credit. The rate of inflation increased, however.

Although Glass voted for the increase in rates, he was far from enthusiastic about the decision. He had always favored the real bills doctrine, and

59. Reserve bank holdings are available for June 30 and December 31, 1919. On these dates, 86 percent and 68 percent of borrowings were secured by Treasury obligations. The December data came after the increase in discount rates, so they probably understate the importance of Treasury debt at the October meeting.

60. The preferential rate remained until June 1921.

he now forcefully urged the reserve banks to rely on qualitative control. On November 5 he wrote a five-page letter to Governor Harding arguing that the Federal Reserve could not rely on interest rates alone. In principle he accepted that discount rates should be above commercial rates, but these were difficult times. A rise in Federal Reserve rates would only raise other rates. Wartime embargoes remained, so gold would not be imported. Higher rates would curtail domestic production, raise prices, and stimulate speculation. Then he added:

We cannot trust to copybook texts. Making credit more expensive will not suffice. . . . The Reserve Bank Governor must raise his mind above the language of the textbooks and face the situation which exists. . . .

Speculation in stocks on the New York Stock Exchange is no more vicious in its effect upon the welfare of the people and upon our credit structure than speculation in cotton or in land or in commodities generally. But the New York Stock Exchange is the greatest single organized user of credit for speculative purposes." (Board of Governors File, box 1239, November 5, 1919)

Glass praised the Federal Reserve for accepting Treasury leadership during the war. Now the Board must provide the leadership. Governor Harding replied that he was "in hearty agreement" with the letter. The Board sent a copy to each of the reserve banks "with the injunction that the policy outlined be carried into effect" with reliance on direct action to prevent excessive borrowing and improper use of "bank credit."⁶¹ The emphasis on direct action continued. As late as April 1920, the Board commented on the use of credit for speculation.⁶²

61. Leffingwell stated the Treasury's case for moral suasion as a solution to the wartime and postwar problem at a symposium held at the American Economic Association meeting in December 1920 (Leffingwell 1921). Wartime inflation reflected excess demand and the waste of those goods in a wartime "debauch." "To control credit through rates would have been futile" (31). The Treasury would have had to pay higher rates. Since gold movements were controlled by all governments, this would have had no effect unless rates were so high that "we would have lost the war and would have to inflate afterwards to pay the indemnity which Germany would have imposed" (31). The same conditions continued after the war. Invoking an argument reinvented after World War II, he argued: "You cannot have credit control with an unmanageable floating government debt" (32). "An increase in rates would operate solely on the domestic situation, and with painful results" (34). Leffingwell concluded that the Federal Reserve was "bound to make the effort to deal with the problem by direct action" (34). In fact, the failure of higher rates to attract a gold inflow because foreign governments were off the gold standard, if true, would have helped, not hindered, Federal Reserve control of inflation. In fact, deflation soon attracted a gold inflow despite restrictions abroad.

62. Later Strong amplified his view about the difficulty of implementing control in testimony before the Joint Congressional Commission on Agricultural Inquiry (1921, pt. 13, 693–98). He argued that qualitative control would require examining each loan by each member bank, so it was not feasible in practice. Governor Harding recognized that the policy had not

A new element now entered. Inflation reduced the real value of cash balances, inducing conversion of dollars to gold. The continuing fall in the gold reserve threatened to force suspension. The problem was most acute in New York, where most foreign balances were held. New York's reserve ratio fell to 40.2 percent.

On November 7 the Board voted to suspend for ten days, if necessary, the reserve requirement against deposits at the New York bank.⁶³ Adolph Miller opposed the action, arguing that New York had available \$150 million in gold from the other reserve banks. Further, Miller noted, New York had allowed its credit facilities to be used for speculative borrowing. The Board was reluctant to let New York borrow gold by rediscounting in other districts. It had to be punished for permitting the increase in speculative credit.

The Federal Advisory Council met on November 19. A majority favored a rate increase, but Leffingwell convinced the members that a rate increase would be harmful. Their report to the Governors Conference the following day recommended no change. Many of the governors disagreed. They wanted a prompt increase in rates. Governor Charles A. Morss (Boston) expressed concern about speculative activity. The gold reserve ratio was approaching 40 percent. He "strongly advocated higher rates, even for commercial paper." Governor Maximillian B. Wellborn (Atlanta) saw the credit situation in the country as more important than Treasury borrowing rates. But others were hesitant and preferred to hear the Treasury's arguments before deciding (Governors Conference, November 19, 1919, 59-71).

When the governors meeting resumed after hearing Glass and Leffingwell, Strong asked each of the governors whether control could be achieved by moral suasion and admonition and what would happen to market rates if moral suasion succeeded in controlling credit. Although Strong was a proponent of the real bills view at the time, he did not believe that qualitative controls and moral suasion could replace quantitative controls. He believed that direct action to control the quality of credit would not work without an increase in rates. Even if the New York bank succeeded in getting its members to withdraw loans for stock exchange credit, loans would be available from banks in other districts. Many of the lending banks did not bor-

worked (Harris 1933, 1:224). Nevertheless, the Board returned to the policy at the end of the decade. With hindsight, several Board members concluded that September 1919 had been the time to increase rates (Miller 1921, 188). Recognition came after the Federal Reserve was blamed for the subsequent deflation.

63. This action contrasts with the inaction in 1931-32 when faced with the alleged free gold problem. The law required a 35 percent reserve against deposits and 40 percent against notes. The note issue was about three times the amount of reserves, so the 40 percent reserve was considered a minimum for the sum.

row from their reserve banks, so they were not subject to direct pressure. Several governors accepted that direct pressure could have an effect but doubted that it would work without an increase in rates. Governor Roy Young (Minneapolis), in particular, recognized that money and credit are fungible; the lender does not truly know what is financed at the margin. Governors who took this position argued that substituting one type of credit for another undermined the effects of direct action. These governors concluded that, if effective, moral suasion would raise interest rates.⁶⁴

The conclusion was not unanimous, however. Governor George Seay (Richmond) claimed that moral suasion had a “very widespread effect.” A concerted effort would, he claimed, reduce credit demand and interest rates. Some shared this view, at least in part, qualifying their answers in various ways (Federal Reserve Governors Conference, November 19, 1919, 74–88).

The Board wanted to avoid harming the Treasury’s January refunding of \$1.5 billion in certificates. Leffingwell agreed that rates should rise, but not until after the refunding. Miller expressed a common concern about the effects on the prices of government bonds. He favored an increase in rates only after the Treasury refunding.⁶⁵ Strong argued that it was wrong to follow certificate sales with an increase in rates and compared this proposal to a “sharp” commercial practice. Strong’s position was weakened, however, by his own and the New York directors’ concern, earlier in the month, about the effect of a discount rate increase on bond prices and by his apparent ambivalence on the issue of a preferential rate.⁶⁶

Strong recognized, correctly, that banks would borrow at the lowest rate available. He weakened his argument for higher rates, however, by buying

64. Young’s position is of interest because he was governor of the Board during the 1928–29 period of qualitative controls. Many have noted that the dispute over policy in 1919–20 was a prelude to the policy dispute in 1928–29 when the Board again favored moral suasion and direct pressure to control speculative credit without raising interest rates and most of the reserve banks wanted to raise rates as a supplement to direct pressure. In both periods the Board was able to delay an increase in rates. An important difference between the two episodes is often overlooked. In 1919–20, monetary growth was fueling inflation, and ex post real interest rates were negative. Balke and Gordon’s (1986) data show the price deflator rising at a 16 percent annual rate at the end of 1919 and nearly 25 percent in the first quarter of 1920. In 1928 the deflator rose only 4 percent, and the consumer price index fell. In the first half of 1929, the price level appears to have been stable or falling.

65. Miller (1921, 188) later admitted that it was wrong not to raise rates in September 1919.

66. Wicker (1966, 39) quotes Hamlin’s diary: “I cannot help feeling some lack of confidence in Strong—his health is bad and he is inclined to be panicky.” In October, Strong had insisted on a minimum rate of 4.75 percent. Two days later, he phoned saying that any increase would hurt Liberty bonds and finally accepted Leffingwell’s proposal to increase the rate to 4.25 percent. See also Friedman and Schwartz 1963, 226.

banker's acceptances at a 4 percent rate even after the discount rate on Treasury certificates was raised to 4.25 percent. Strong considered this preferential rate necessary to encourage the market for banker's acceptances, one of his main aims. He wrote to Governor Harding that it was

essential to the Federal Reserve System and, particularly, to the financing of the foreign commerce of the United States by American banks instead of, as heretofore, by foreign banks. But this preferential rate was also established in recognition of the fact that a bill drawn against an actual shipment of commodities and accepted by the largest and richest bankers of the country was a credit instrument of greater value commanding a lower rate than the average of the commercial paper which would reach us. (Chandler 1958, 160)

This argument for a preferential rate has some similarities to the Treasury's argument. The principal difference is that Strong wanted a preferential rate for a particular type of real bill. The Treasury wanted the preferential rate for itself, based on its claim that its debt had lower risk because the government would not default. A central issue was whether the rate structure should give preference to real (commercial) or speculative (government) borrowers. Beneath the surface was the continuing struggle over the control of policy and the requirements of Treasury finance.

The November Governors Conference made no decision.⁶⁷ On November 24 New York and Boston voted to increase their discount rates. When the Board met two days later to consider the request, Leffingwell attacked Strong both personally and for several of his actions and policies.⁶⁸ He accused Strong of making "a direct attempt to punish the Treasury of the United States for not submitting to dictation on the part of the Governor of the Federal Reserve Bank of New York even though it be at the cost of a shortage of funds of the Treasury to meet its outstanding obligations." Treasury had consented to a rate increase early in November because Governor Strong had agreed to do three things: insist that stock exchange accounts be adequately covered; prevent a scramble for deposits (higher rates on deposits) by New York banks; and raise the buying rate on acceptances. Strong had done none of the three. Further, he said, Strong had made an agreement with the governor of the Bank of England to increase rates for Treasury borrowing. The Bank of England had forced the British Treasury

67. The governors also noted but took no action against the effects of inflation on the melting of silver coinage and the reduction in silver certificates outstanding.

68. Glass told Hamlin that he had almost made up his mind that Strong should be removed. The section of Hamlin's diary is in Board of Governors File, box 1240, November 26, 1919.

to raise rates, thus encouraging a gold outflow and the fall in the gold reserve. The United States Treasury had to borrow \$500 million every two weeks until January 15. Leffingwell urged the Board to wait until January 15, when Treasury borrowing would be completed.

The Board disapproved the increases by New York and Boston. Miller said that he believed rates should rise, but he would not vote against the Treasury. Albert Strauss, a New York investment banker who had replaced Warburg, saw “no occasion for an increase in rates” that would only add to the cost of credit with no effect on the credit situation. Williams opposed a rate increase because of heavy borrowing by banks that lent to Wall Street. The Board rejected the increase in discount rates and voted to advise Boston and New York that acceptance rates were too low (Board Minutes, November 26, 1919).⁶⁹

The criticism found its mark. Strong at last fulfilled his commitment by raising buying rates on acceptances to 4.375 percent on November 26 and to 4.5 percent on December 4.⁷⁰ Within a month, the rate was 4.75 percent. At a meeting in Secretary Glass’s office, Strong threatened to increase the discount rate without Board approval, claiming that section 14 of the Federal Reserve Act gave power over discount rates to the reserve banks. This was too much for Glass. He threatened to have the president remove Strong, and in a lengthy letter to the attorney general that left no doubt about his view, he requested an interpretation of section 14.⁷¹

On December 9, the Justice Department responded: “I am of the opinion that the Federal Reserve Board has the right, under the powers conferred by the Federal Reserve Act, to determine what rates of discount should be charged from time to time by a Federal Reserve bank, and under their powers of review and supervision, to require such rates to be put into effect by such bank” (quoted in Warburg 1930, 2:822).

69. The criticism of acceptance policy had merit. Acceptance rates in October and November were almost a full percentage point below rates on prime commercial paper. Banks therefore sold acceptances to the reserve banks at the preferential rate and bought commercial paper. Acceptances held by the reserve banks increased from a low of \$187 million in May 1919 to \$570 million in January 1920. During the same period discounts, although a much larger stock, increased only \$160 million.

70. Hamlin wrote in his diary for November 29 that Strong was “in a panic.” He “feared an industrial panic.” Raising rates might bring on a crisis. Rates should have been raised “long ago” (Board of Governors File, box 1240, November 29, 1919).

71. A month earlier the Board’s legal staff had concluded that the act gave the Board wide authority, so the Board could require a reserve bank to change discount rates. Glass sent the staff opinion to the attorney general and added his recollection that it was the “intent of Congress to give the Federal Reserve Board complete power in the matter of fixing the rate of discount.” Attorney General King’s opinion repeated many of the arguments in Glass’s letter to him (Board of Governors File, box 1239, October 29, November 14, and December 9, 1919).

The Treasury won the point, and the Board won another round in the continuing dispute about the locus of power in the System.⁷² The Federal Reserve System had shown itself divided, hesitant, and unable to move promptly against inflation in the face of Treasury opposition, a situation that was repeated in different circumstances after World War II.

The Inflation Phase, Part 2

The attorney general's opinion came just as the Treasury's cash position improved. On December 9 Leffingwell wrote to Glass: "I do not think that a moderate further increase in rates at the present time would have a disastrous effect upon the Treasury's position" (quoted in Wicker 1966, 42). On the following day he gave a similar message to the Board, offering several reasons for the change in position. Recent Treasury issues had been successful; the chance of a coal strike had diminished; and he was concerned about renewed speculation. He no longer objected to an increase in rates or the elimination of the preferential rate for debt secured by Liberty and Victory bonds. The preference for certificates should remain (Board of Governors File, box 1239, December 10, 1919).

The Board immediately sent a telegram to the reserve banks informing them that they could now propose a rate increase. New York and Richmond responded at once, raising rates on paper collateralized by Treasury certificates and Liberty bonds by 0.25 percent to 4.5 percent and 4.75 percent, respectively. The minimum discount rate, 4.5 percent, was now above the rate on the Treasury's latest certificates. Most other banks followed within the week. On December 30 New York voted to increase the rate on certificates to 4.75 percent. Despite the Treasury's sale of certificates on the same day, Leffingwell permitted the increase, although he described the change as unwise.⁷³ Other banks followed.

72. Less than eight years later, the Board used the ruling to lower the discount rate at Chicago without a vote by the Chicago directors. Glass, then a senator, opposed the move as an unwarranted centralization of authority, "a long stride in the direction of making the Federal Reserve Board a central bank, with the Reserve banks as mere branches" (quoted in Warburg 1930, 2:493). Hamlin wrote to Glass reminding him of his position in 1919. Glass responded that his request for a ruling by the attorney general in 1919 was opportunistic, done "more in anger than in reason" (Chandler 1958, 104).

73. Strong went on a year's leave soon after. On December 31 the Board met to decide whether Strong could have a year's leave of absence (for health reasons) at half salary as recommended by the New York directors. The Board's discussion shows the divisions and controversy within the System. Glass favored an indefinite leave, saying that if Strong were well he would favor calling for his resignation. Harding, Strauss, and Hamlin voted for the resolution; Miller and Comptroller Williams voted no. Miller urged the Board to demand Strong's resignation, "in view of the conditions existing in the Second Federal Reserve District." This motion was tabled. The reference was to the use of speculative credit, the need to borrow from other reserve banks, and continuous heavy borrowing by some member banks.

By mid-January the Treasury had completed its current financing operations. Leffingwell now became a proponent of higher rates on commercial loans but continued to demand a preferential rate for borrowing on Treasury certificates.⁷⁴ He proposed a 6 percent rate on commercial paper and a 5.5 percent rate on Liberty bonds but wanted to retain the 4.75 percent rate on certificates. Comptroller Williams offered a substitute motion with a lower rate schedule. Williams's proposal was approved by a vote of four to three. After further discussion, the Board voted to reconsider; Adolph Miller changed sides, and the Board approved Leffingwell's proposal for Boston, New York, and Philadelphia (Board Minutes, January 21, 1920, 79–81). The new schedule put rates on commercial paper above the rates proposed by the New York directors. Relying on the earlier letter from the acting attorney general, the Board interpreted section 14 of the Federal Reserve Act as giving the Board authority to initiate increases in the discount rate and require reserve banks to adopt them.⁷⁵

Why did the Board change its views about rates at this time? Years later, Adolph Miller answered: "It is a terrible thing to admit that the only thing that really awakened us was the fact that we were in sight of the 40 percent [gold reserve] ratio" (Governors Conference, March 1923, 766). In 1924 the Board's staff gave several reasons. The gold reserve ratio is mentioned first, but the staff also cites data on gold exports following the end of the embargo, borrowing from the Federal Reserve banks, the increase in note circulation, and the rise in the wholesale price index (Board of Governors File, box 1240, July 28, 1924). The staff did not mention the change in the Treasury's view.

The Treasury's change of view was not adventitious. It had completed its borrowing, and inflation had increased with no sign of credit liquidation yet visible. Treasury debt outstanding was past its peak and continued to fall. The monthly average gold reserve ratio was probably most important. The ratio had continued to fall after the wartime gold export embargo ended the previous June. By January the monthly average reserve ratio for the System was 42.7 percent, down five percentage points in a year. Gold reserves in excess of statutory requirements had fallen to \$233 million, a 50 percent decline in twelve months. Several reserve banks had less than a 40 percent reserve. They had to either suspend gold reserve requirements or rediscount acceptances with other reserve banks.

74. Leffingwell wrote to Strong: "I became an earnest and, in some respects, successful advocate of dear money" (quoted in Chandler 1958, 167).

75. The New York directors hired a law firm to give an opinion on section 14. The opinion said that the initiation of a rate change was the responsibility of the reserve banks, but the Board had authority to change the recommendation.

The Federal Reserve overcame the problem by using interbank loans to pool System reserves.⁷⁶ The risk of suspension was greater than at any time in the next fifty years. Even in the fall and winter of 1931–32, after the British devaluation, the gold reserve ratio never fell below 60 percent, and excess reserves remained above \$1.2 billion.⁷⁷ The System's later claim that the gold reserve prevented them from acting in 1931–32 is belied by the actions taken in 1920.⁷⁸ Although the problem was inflation in 1920 and deflation in 1931–32, the remedy of pooling reserves to meet a deficiency at one or more banks applied in both periods.

The January rise in the discount rate did not change the minimum borrowing rate. Bank lending and reserve bank discounts continued to increase, and the gold reserve ratio continued to fall. At the end of February the minimum discount rate increased to 5 percent. In March, Boston, New York, and Cleveland asked to raise the minimum rate (collateralized by Treasury certificates) to 5.5 percent. The motion was tabled by the Board, with Harding and Miller opposed (Board Minutes, March 9, 1920, 250–51). The reserve banks continued to lose gold, so the Federal Reserve Board approved an increase in the discount rate at New York, Chicago, and Minneapolis to 7 percent on commercial credit and from 4.75 to 5.5 percent on Treasury certificates at seven banks effective June 1. Boston soon followed. This increase in interest rates, and the start of deflation in July, reversed the gold flow.

To supplement the increase in rates, Congress passed the Phelan Act in April 1920. The act authorized progressive discount rates on a member bank that borrowed relatively large amounts from its reserve bank. In districts that adopted progressive rates, each bank was given a line of credit, or normal rediscount. The governors agreed in principle that a member bank's contribution to the lending power of the System increased with its reserve deposits and paid-in capital. They could not agree on a formula to apply the principle, so the choice of formula was left to the reserve banks (Governors Conference, April 1920, 388). Borrowing in excess of the normal line was subject to progressively higher discount rates.

76. On October 12, 1920, four of the reserve banks had \$231.8 million in loans outstanding to the other reserve banks. Banks in the South and West did most of the borrowing; Cleveland, Boston, and Philadelphia were the principal lenders. Other unusual arrangements included counting deposits abroad as part of reserves and including deposits of silver from the Treasury's holdings. The Federal Reserve Act authorized interdistrict lending at rates set by the Federal Reserve Board.

77. The monthly average reserve ratio fell to 56.3 percent in July 1932 and 51.3 percent in March 1933 (Board of Governors of the Federal Reserve System 1943, 348–49). New York had a reserve deficiency in early March 1933.

78. Several of the governors and Board members served in both periods.

There was considerable difference of opinion about how and when to use the new powers. Governor Wellborn (Atlanta) wanted progressive rates to be applied in all districts. Others wanted these rates used only as a last resort, mainly to reinforce efforts to discourage banks that borrowed heavily. A resolution to that effect was defeated at the April Governors Conference, in part because several governors opposed any effort to bind their directors or limit local authority over discount rates (Governors Conference, April 1920, 269, 279).

Rates were considerably higher in agricultural districts. The reserve banks in these districts saw that their members could lend at rates of 10 or 12 percent or more, so they would not be deterred by discount rates of 5 to 6 percent.⁷⁹ Unable to get an agreement to use a progressive rate, the four agricultural districts in the South and West—Atlanta, St. Louis, Dallas, and Kansas City—acted on their own. The details of the formulas for computing borrowing lines differed, but in each of the districts the progressive rate was tied to the member's reserve position, stock in the reserve bank, and the amount borrowed. Loans on government securities were excluded.⁸⁰ Each 25 percent above the borrowing line was subject to a progressive or marginal rate of 0.5 percent a month. A bank with a borrowing line of \$150,000 and excess borrowing of \$150,000 subject to progressive rates would pay 2 percent above the standard discount rate for agricultural paper on borrowing above \$112,500 and up to \$150,000.

The aim of the program was to make the discount rate "effective" and penalize banks that borrowed heavily.⁸¹ Although Congress had authorized the program, it did not like its application. Since only banks in agricultural regions used progressive rates, the program seemed to confirm populist claims that a central bank would be run for the benefit of eastern bankers, especially Wall Street. Congress and the press pointed to marginal rates as high as 81.5 percent charged by the Atlanta Federal Reserve Bank on agri-

79. "The margin of profit to a member bank in the western regions of this district . . . is so great as to tempt even the most conservative bankers to make loans which they know their bank is not able to carry" (R. L. Van Zandt [Dallas] to Governor Harding, Board of Governors File, box 1470, December 8, 1920). Richard L. Van Zandt was governor at Dallas. The letter goes on to recognize that a penalty rate should be based "on the rate actually received by the member bank from its customers on the identical item." This was a rare recognition of differences in risk.

80. If a bank with a borrowing line of \$100,000 borrowed \$400,000 with \$150,000 secured by government securities, the amount subject to a progressive rate was \$400,000 - \$100,000 - \$150,000 = \$150,000.

81. The annual report (Board of Governors of the Federal Reserve System, *Annual Report*, 1921, 3) reports that 906 member banks had borrowed 494 percent of their basic lines, while all member banks borrowed 40 percent of their basic lines.

cultural paper (Board of Governors File, box 1240, 1920).⁸² The System was also criticized for not applying the progressive rate at all reserve banks.

Political issues aside, progressive rates applied selectively shifted borrowing from reserve banks with high rates to those with lower rates. Member banks in an agricultural district could borrow from correspondent banks in other districts to repay their borrowing at the district reserve bank. Often the correspondent bank then borrowed from its reserve bank. The Board was aware that this kind of substitution took place, and the Joint Commission of Agricultural Inquiry gave examples, but the Board made no systematic effort to estimate the extent of the problem.⁸³

Progressive rates remained in effect from six to fifteen months depending on the district. The main lessons the System learned were to be wary of political criticism of high marginal rates and to avoid the appearance of favoring financial over agricultural interests. Progressive rates were never used again. In March 1923 Congress repealed the provisions of the Phelan Act authorizing progressive rates.⁸⁴

Glass left the Treasury early in 1920 and was elected to the Senate. His successor for the remaining months of the Wilson administration was David Houston and, after the presidential election, Andrew Mellon.⁸⁵ Houston adopted Strong's earlier plan of selling and refunding certificates more frequently, so in smaller volume. The Treasury intervened in the Board's policy much less. For the first time in its brief history, the System had control of its policy and sufficient resources to carry it out. But it lacked enough determination and coherence of views to act. Although several governors complained about the preferential rate for Treasury securities, the April 1920 Conference voted nine to three to retain the preferential rate.

For nearly a year after the June 1920 increase in rates, the Federal Reserve did very little. Minimum borrowing rates on Treasury certificates

82. The borrowing bank had a small reserve position, hence a small borrowing line. The 81.5 percent rate applied to a loan of \$112,000 for two weeks. Maximum rates at St. Louis, Dallas and Kansas City were 16 percent, 7 percent, and 22.5 percent, respectively, all on relatively small amounts for short periods (Board of Governors File, box 1240, December 1, 1920).

83. To mute criticism of the effect on agricultural districts, the Board did a study of borrowing rates at the twelve reserve banks. The study compared average rates charged in New York with the average rates charged in the four districts with penalty rates. The study ignored differences in marginal rates and found similar average rates.

84. Progressive rates were not the only problem. Congressional criticism of the System's policy was followed by bills in December 1920 and April 1921 to impose ceiling rates of 5 percent. Senator Robert Owen (Oklahoma), an author of the Federal Reserve Act, took a leading role in criticizing policy and urging lower rates (Board of Governors File, box 1246, November 1919, October 1920).

85. Houston was the secretary of agriculture in 1914, so he had served on the organizing committee for the System.

Table 3.5 Amount and Types of Discounts, 1918–20 (millions of dollars)

DATE (LAST FRIDAY OF)	SECURED BY GOVERNMENT SECURITIES	SECURED BY COMMERCIAL PAPER	MINIMUM DISCOUNT RATES, NEW YORK		OPEN MARKET RATE, COMMERCIAL PAPER, NEW YORK (%)
			<i>Governments</i>	<i>Commercial</i>	
December 1918	1,300	303	4	4	6
June 1919	1,574	244	4	4	5 ³ / ₈
December 1919	1,510	684	4 ¹ / ₄	4 ³ / ₄	5 ⁷ / ₈
June 1920	1,278	1,154	5 ¹ / ₂	7	7 ⁷ / ₈
December 1920	1,142	1,578	5 ¹ / ₂	7	8

Source: Board of Governors of the Federal Reserve System 1943, 340, 450.

remained at 5.5 percent in New York, Boston, and most other banks. Several reserve banks, however, kept the minimum, preferential rate on Treasury certificates at 5 percent until January or February 1921, when it was raised at all banks to 5.5 or 6 percent. Large-scale borrowing by member banks continued in 1920. Not surprisingly, much of the borrowing was at the minimum rate. Continuing the preferential rate severely reduced the effect of discount rate increases for commercial borrowers.

Table 3.5 shows the amount borrowed by type of collateral in the first two postwar years. The table makes clear that it was profitable for banks to borrow even at the higher rate on commercial paper.⁸⁶

The gold reserve percentage continued to increase throughout the summer and fall, but it did not reach 50 percent until March 1921. Rates on commercial paper reached a peak early in January 1921 and remained above the 7 percent discount rate until late April. The Federal Reserve watched and waited but did not begin to reduce rates until open market rates began to fall.⁸⁷ It made no effort to restore a penalty rate but followed

86. Banks in the largest cities did most of the borrowing, so the discount rates at New York are a useful benchmark. For example, at December 30, 1920, all member banks had borrowed \$3.04 billion, of which \$2.1 billion was for banks in 101 leading cities. New York banks owed more than one-quarter of the total outstanding (Board of Governors of the Federal Reserve System 1943, table 48). Friedman and Schwartz (1963, 233) neglect the 5.5 percent borrowing rate on Treasury certificates and conclude that banks continued to borrow at a loss. This leads them to overstate the role of the 7 percent discount rate and the lag in response to discount rate increases during this period.

87. The October 1920 Governors Conference voted to eliminate the preferential rate on Treasury certificates, but the Board did not act. In place of policy discussion, the governors considered, at length, the development of an acceptance market in each district. The discussion brings out the rivalry between reserve banks. With Strong on leave, Acting Governor J. Herbert Case argued that New York's purchases should "unreservedly" bind other banks to participate in the purchase. Chicago and Boston were unwilling, and Boston argued that if New York wanted to limit purchases, it could raise its rate and let acceptances go to other markets. Charles A. Morss (Boston) accused New York of being too protective of the buyers and too hesitant to change buying rates: "We think you protect them too much; that they do not take any chances at all" (Governors Conference, October 14, 1920, 65). The Conference voted,

the market, reducing the discount rate on commercial paper to 6.5 percent in May and 6 percent in June. Rates in New York were now uniform for all collateral.

The National Bureau of Economic Research (NBER) chose January 1920 as the peak of the postwar expansion. Industrial production reached a peak in that month, but consumer prices continued to increase until July. Using this measure of the start of recession, the recession was a year old before the Federal Reserve acted to stem the decline.

POLICY IN RECESSION AND RECOVERY

Virtually every statistical indicator shows the 1920–21 recession as a sharp decline. The measured unemployment rate rose from a 4 percent average for 1920 to 12 percent in 1921. The Federal Reserve Board's index of industrial production (base 100 in 1947–1949) fell 23 percent, from 39 in 1920 to 30 in 1921 before returning to 39 in 1922. Agricultural production fell from 83 to 71 between 1920 and 1921, a much more severe decline than in the early years of the 1929–33 depression.⁸⁸ The Bureau of Labor Statistics wholesale price index (base 100 in 1947–1949) fell 37 percent, a much sharper percentage decline than in any single year of the 1929–33 depression and a total percentage decline of comparable magnitude. Yet throughout the period the Federal Reserve maintained and even raised its discount rates.⁸⁹

In its annual report for 1920, the Board defended the sharp rise in discount rates as necessary to “maintain the strength of the Federal Reserve Banks, which are the custodians of the lawful reserves of the member banks,” a reference to the gold reserve ratio. It denied that Federal Reserve policy had been the cause of the contraction (Board of Governors of the Federal Reserve System, *Annual Report*, 1920, 12–14). The dominant view, which reappears again in 1929–33, was that the deflation was an inevitable consequence of the previous inflation. Federal Reserve officials defended the deflationary policy as a means of reversing the effects of the previous inflation and restoring the gold standard at the prewar gold price.

Since prices had risen in virtually every country, a less costly means of

however, to establish a centralized committee on acceptances, with a secretary in New York. The committee was to develop uniform policies, suggest buying rates, and receive weekly reports on activity from each reserve bank. Much of the discussion foreshadows issues that arose about the management of the open market account.

88. Comparable figures for 1929–33 show agricultural production relatively flat from 1929 through 1932, then falling from 80 to 58 between 1932 and 1934.

89. Balke and Gordon 1986 shows a 27.5 percent peak to trough decline in the GNP deflator. The wholesale price index available at the time, base 100 in 1913, declined 44 percent from May 1920 to January 1922.

restoring the standard would have been to adjust exchange rates to reflect differences in recorded rates of inflation. The United States, as the principal gold standard country, was in a position to negotiate buying and selling prices that would have avoided much of the adjustment of domestic and foreign prices. Although several European countries devalued against gold, there is no evidence that the Federal Reserve discussed devaluation or any other alternative to domestic deflation. To the governors and board members, gold standard rules called for a fixed gold price.

Both Strong and the governor of the Bank of England, Montagu Norman, regarded the restoration of the prewar gold standard as a necessary condition for reestablishing international stability. To restore “stability,” they were willing to deflate, just as the governors of the Bank of England had been willing to deflate to achieve resumption a century earlier and the United States had accepted deflation as necessary for resumption after the Civil War. However, there are few clues to why Strong, Norman, and others believed that both countries should deflate to restore prewar exchange rates.

Strong knew there were real costs of deflation. He predicted that the deflation would be “accompanied by a considerable degree of unemployment, but not for very long, and that after a year or two of discomfort, embarrassment, some losses, some disorders caused by unemployment, we will emerge with an almost invincible banking position, prices more nearly at competitive levels with other nations, and be able to exercise a wide and important influence in restoring the world to a normal and livable condition” (letter to Professor Kemmerer, February 1919, quoted in Chandler 1958, 122–24).⁹⁰ There is no suggestion in his writings or speeches that the goals Strong sought to achieve required adjustment of the relative rates of inflation and not a reduction of the absolute price levels to their prewar values.

The size of the deflation during 1920–22 shows the extent to which the Federal Reserve saw the problem of restoring the gold standard as a problem of reducing the absolute price index to its prewar level. There had been two periods of rising prices in the United States between 1914 and 1920. The first, mainly due to gold movements, ended early in 1917; the second, mainly due to the Federal Reserve policy of assisting Treasury debt operations, continued until 1920. The prevailing view of the gold standard and

90. This was very much the conventional view. At the time, Keynes was a strong proponent of rapid deflation in the United Kingdom. He favored a 10 percent bank rate for up to three years to eliminate inflation (Meltzer 1988, 45–46). At the time, Keynes also favored a return to the prewar gold parity for Britain on grounds of national prestige and confidence (49).

Table 3.6 Wholesale Price Index (base 100 in 1947-49)

YEAR	INDEX
1914	44.3
1915	45.2
1916	55.6
1917	76.4
—	—
1920	100.3
1921	63.4
1922	62.8

Source: Bureau of Labor Statistics.

the real bills doctrine treated these price increases very differently. Only the increases in price level resulting from the wartime and postwar policies had to be rolled back by eliminating the effects of speculative credit based on government securities or stock exchange loans.

Table 3.6 shows the values of the wholesale price index during the period. By 1921-22, the wholesale price level was approximately the same as the average for the years 1916-17.⁹¹ The United States gold stock was slightly higher than it had been at the start of the war, and at 70 percent the gold reserve ratio was within a few percentage points of its April 1917 value. If the Federal Reserve intended to eliminate the effects of wartime inflation, these indicators suggest that the policy was successful. The effect of the policy, however, was to reduce the United States price level relative to the price levels in other trading countries, so the commitment to fixed exchange rates became a commitment to deflation abroad as well as at home.⁹²

The 1920-21 recession is one of the few recessions in which published market interest rates were higher at the NBER trough (by three-eighths to three-quarters of a percentage point) than at the previous peak. As long as market rates remained above the discount rates, many Federal Reserve officials opposed reductions in discount rates. Their arguments are very similar to the arguments put forward in England a half century earlier. Any at-

91. Balke and Gordon's deflator returns to the level of mid-1918, the consumer price index to the level of early 1919. These data were not available, of course.

92. Friedman and Schwartz (1963, 770) suggest how much the size of the disequilibrium increased from 1920 to 1921. The ratios of United States prices to British, Swedish, and Swiss prices (each base 100 in 1929 and each adjusted for exchange rate changes) are:

Year	Britain	Sweden	Switzerland
1920	106.5	102.8	99.8
1921	95.4	85.4	92.8

The deflationary policy turned the terms of trade in favor of the United States and required revaluation or deflation in the rest of the world.

tempt to encourage expansion by reducing discount rates or allowing discount rates to remain below market rates was an encouragement to borrowing for profit, speculation, and therefore was inflationary.⁹³ They believed the discount rate should be a penalty rate.

At the start of 1921, rates for borrowing collateralized by Treasury certificates and Liberty bonds were generally 5.5 percent to 6 percent, and for agricultural and commercial paper 6 to 7 percent. On January 12 the Board sent a telegram to each of the reserve banks suggesting a uniform rate of 6 percent on all types of borrowing. The responses were mixed. The southern and western banks mainly favored the proposal; the larger eastern reserve banks opposed it. New York and Cleveland cited as reasons for their opposition that market rates were about to stabilize or fall below prevailing discount rates. Governor Richard L. Van Zandt of Dallas reported on the unsatisfactory and illiquid position of the Dallas bank. He suggested that discount rates be raised to correspond to market rates. The Board replied that the bank's "condition . . . constitutes a serious reflection upon the management" and ordered the bank to set discount rates at 6 percent for government securities used as collateral and 7 percent for commercial paper (Board Minutes, January 24, 1921, 72).⁹⁴

The outgoing Wilson Treasury at last agreed to end preferential rates on certificates of indebtedness. In late January, Undersecretary Parker Gilbert wrote to Governor Harding urging the reserve banks to raise their minimum rates to 6 percent. Between January 19 and February 9 several banks, including New York, adopted the 6 percent minimum rate on Treasury obligations.

President Harding's administration had a different attitude than its predecessor. Pressure for lower discount rates came from farmers, Congress, the Treasury, and particularly Andrew Mellon, who had become secretary of the treasury in the new administration and was therefore *ex officio* chairman of the Federal Reserve Board. Mellon favored a reduction in the discount rate from the time he took office, March 1921.⁹⁵

93. Chandler (1958, 174) quotes Strong's letter to Parker Gilbert of July 1920 to this effect. Strong wrote in a very similar vein to Montagu Norman almost nine months later—April 1921—after he had been pressured to reduce the New York bank's discount rate by Secretary Mellon and the Federal Reserve Board.

94. Within a year the Dallas bank replaced Governor Van Zandt. The problems at the Dallas bank arose from the agricultural depression. Later recollections by officers of the Dallas bank describe their memories of the period. They recall that cotton prices fell from 60 cents to 5 cents a bale. All eleven banks in El Paso, Texas, failed in 1920; eight hundred banks failed in Texas the same year (CHFRS, interviews with William D. Gentry and Joseph Dreibilbis, March 4 and 31, 1955).

95. In 1921 Secretary Mellon also proposed, and Congress agreed to, a reduction of \$835 billion in tax revenues out of a budget of approximately \$5 billion (17 percent).

Mellon took office with the volume of discounts below its peak but above \$2.3 billion and with prices falling at a 25 percent annual rate.⁹⁶ Banks still held \$2.5 billion of government securities, and their outstanding loans had declined very little from the peak. To the Federal Reserve, at the time, the banking data indicated inflationary pressure, both because the banks were borrowing heavily and because they continued to hold government securities. Hence banks could be regarded as financing speculative holdings by borrowing at the reserve banks. Moreover, the gold reserve ratio had increased only to 50 percent, and three of the reserve banks—Dallas, Richmond, and Minneapolis—continued to rediscount with other banks to maintain the legal reserve ratio behind their note issue.⁹⁷

At his first meeting with the Board, in April, Secretary Mellon urged reducing rates at all reserve banks to a 6 percent maximum. Miller was opposed, arguing that wages had not been reduced enough. Other Board members did not want to dictate rate changes to the reserve banks again. Boston then proposed a reduction from 7 to 6 percent, but the request was denied pending a meeting of the Governors Conference the following week.

At the Conference, April 12–15, only Boston and Atlanta favored lower rates. Strong was opposed on grounds that a penalty rate had not yet been established. He claimed that a reduction in rates would encourage speculation on the stock exchange that “might very well extend to commodities. . . . I think the sound policy is to leave the rate unchanged” (Governors Conference, April 1921, 28–29).

Strong’s reasons for opposing rate reduction are set out more clearly in a March letter to Montagu Norman: “What I have written to you . . . is absolutely the fundamental and controlling factor, that is, the debt of member banks to the Reserve Bank” (quoted in Chandler 1958, 172). Bank loans had fallen only 4 percent, not the 20 percent reduction Strong believed necessary to reestablish sound conditions. During a period of liquidation, rate reduction would not encourage business. Businesses were liquidating inventories. Banks would not increase their borrowing at the reserve banks unless the Federal Reserve encouraged “a period of inflation with all the accompanying evils of speculation and extravagance.” The proper policy, he believed, was to follow “Bagehot’s golden rule” (Chandler 1958, 173–74).

96. The March 1920 volume of discounts was not reached again until 1980, when the price level, the economy, and the size of the banking system had increased manifold.

97. The system hailed the interdistrict lending as evidence of the importance of the new system. After 1921, however, the system relied much more on open market operations and could use the allocation of the open market portfolio among banks to smooth earnings and gold reserves.

On one of the four meeting days, the Board and the governors met with representatives of the American Farm Bureau Federation. This group told them that “the farmers feel that they have no financial system designed to meet their needs” (Governors Conference, April 13, 1921, 468). “Money is borrowed from Federal Reserve banks to be reloaned on Wall Street” (477). The farm representatives asked, “Who decided that deflation was necessary?” (472).

Strong replied that the deflation was an inevitable consequence of the previous inflation: “No one could have stopped it, and no one could have started it. In our opinion, it was bound to come” (*ibid.*, 496). Governor George W. Norris (Philadelphia) supported him. Ignoring the effect of the gold standard, he said deflation was not confined to the United States. All countries had inflated during the war, and all must deflate.

Pressure for rate reduction was rising, however. Unlike some banks, the Board no longer argued for penalty rates or elimination of Treasury certificates from the banks’ portfolios. The 1920 annual report comments that “the Board’s purpose [in raising rates in 1920] was to maintain the strength of the Federal Reserve banks,” a reference to the gold reserve (Board of Governors of the Federal Reserve System, *Annual Report*, 1920, 12). Harding expanded the argument in a May letter to the Atlanta reserve bank. The 7 percent rates were emergency rates. He denied that the Federal Reserve responded to political pressure. Rates had been reduced because the emergency was over (Board of Governors File, box 1240, 1921).

At the end of the meeting, on April 15, Boston lowered its rate by one percentage point to 6 percent. The reduction and political pressure from Congress led New York to lower rates by 0.5 percent in early May. The following day, Strong wrote to Norman:

So far as I can discover, the demand [for lower rates] comes from no other class than those engaged in agriculture. They made an impressive showing, and their complaints reached all classes of Congressmen and executive officers of the government right up to the President.

. . . The general feeling prevailed that the New York Bank was causing the deadlock. My own belief is that the principle followed so long by your institution, and . . . first enunciated by Bagehot, that in such times as these, money should be loaned freely, but at high rates, is the principle which should now govern our operation. (*Ibid.*, 175)

This was not the unanimous view of System officials. The Board was more responsive to political pressure. On June 10 the Board sent a telegram to all reserve banks recommending that “rates on paper secured

by new Treasury notes should be 6 percent flat at all banks" (Board of Governors File, box 1240, 1921). Within a week, several banks (including New York) lowered rates to 6 percent. By June all the major banks had reduced their rates, and in July New York, Boston, Philadelphia, and San Francisco again lowered rates to 5.5 percent. Criticism of the Federal Reserve did not stop. On July 25 Harding wrote John Perrin (Federal Reserve agent in San Francisco): "I do not know whether you appreciate how violent the attacks are which are now being made upon the Board and the system" (Board of Governors File, box 1240, 1921).

Complaints were not limited to speeches and editorials.⁹⁸ State legislatures, and Congress, considered legal limits on interest rates. In August 1922 the Senate approved a resolution criticizing the use of progressive rates only in agricultural districts and asking the Federal Reserve to refund any excess over the amounts that would have been paid at a 10 percent annual interest rate. It authorized Federal Land Bank to lend to farmers in distress but restricted loans to farmers who owned their land.

Those who had opposed a central bank on grounds that it would penalize agriculture by keeping rates high to benefit bankers and lenders believed that the Federal Reserve System had acted like the central bank they thought they had prevented. Typical of the criticism was a letter from the governor of Nebraska: "The War Finance Corporation promised relief to the . . . corn belt, but this relief should have come from the Federal Reserve. . . . [T]he tremendous reserves of the Federal Reserve Banks at a time when there was much need for credit in essentials [remained unused]" (Governors Conference, October 27, 1920, 580).

The Federal Reserve was torn between concern for the political power of the farmers and belief that the farmers' problems were not of their making. They pointed to the worldwide decline in agricultural prices but made no mention of the deflationary effect of renewed United States accumulation of gold on other countries attempting to return to the gold standard. Their defense was that credit to agriculture had fallen very little. The much greater reduction was in nonfarm regions. Reserve banks had not called agricultural loans. Farmers had borrowed to buy land and increase output during the war and postwar inflation. Worldwide deflation had now reduced the value of farm assets while leaving loan liabilities un-

98. The Board's records for the period contain many editorials, especially from agricultural areas, denouncing and criticizing the Federal Reserve. To meet the criticisms, the Board requested the reserve banks' opinions on a proposal to establish a preferential rate for commodity paper. The banks opposed it, and the proposal died (Board of Governors File, box 1240, August, 1922).

changed. This forced liquidation, low prices, and bankruptcy. The governors were relieved when this interpretation was accepted by Congress's Joint Commission of Agricultural Inquiry (Governors Conference, October 27, 1921, 567).

Livestock farmers faced particularly severe distress as prices fell and loans came due. Congress responded by extending the life of the War Loan Corporation to help livestock producers. In October the governors and Board members met with a group of senators who described at length the problems faced by farmers and ranchers. The governors responded that the Federal Reserve could not make long-term loans and was not authorized to direct credit to particular uses. Part of Strong's response is a firm denial of the efficacy of direct pressure, or qualitative credit control, that played such a large role in the Board's approach and was to return at the end of the decade. The Federal Reserve, Strong said, "has no power to tell any of its members what kind of loan it shall make, nor to restrain it from making any loan it wants to make" (Governors Conference, October 27, 1921, 390-91). He was concerned, however, that state member banks would withdraw from the system if Congress permitted the Federal Land Bank to make long-term loans. He urged the senators to confine such loans to member banks (392-93).

Deflation brought a large gold inflow. Strong's first reaction was to favor keeping the gold abroad, earmarked at the Bank of England and thus not counted as part of the gold reserve (Governors Conference, April 15, 1921, 1083). This would avoid the need for monetary expansion. Others pointed out that this was politically risky. The system would be criticized for refusing to expand.⁹⁹

By late October New York's gold reserve ratio reached 82 percent. Strong told the October Governors Conference that if the gold reserve was the only factor, as at the prewar Bank of England, the discount rate would be 2 percent (Governors Conference, October 28, 1921, 622-24). He favored lower rates, and he urged the other governors to keep downward pressure on rates. Although a penalty rate had not been restored, he favored faster reductions in discount rates "as long as speculative fever is not on." The New York bank intended to keep downward pressure on rates by remaining in the acceptance market and by making small purchases of new issues of Treasury certificates to keep them at a premium price (Governors Conference, October 28, 1921, 634-36).

99. Miller asked Strong whether he could maintain a 7 percent interest rate if the gold reserve reached 60 or 65 percent. Strong replied, "Yes, I think we ought to fight that out right now" (Board of Governors File, box 1102, April 15, 1921).

Shortly after the meeting, most reserve banks reduced discount rates by 0.5 percent. The more important change was in the open market portfolio. That portfolio had remained in a narrow range since the summer of 1919. In November it began to increase. In the next seven months the portfolio increased threefold, an addition of more than \$400 million.

During the winter and spring of 1922, open market rates continued to fall. As the discount portfolio fell, the reserve banks bought acceptances and Treasury certificates principally to improve their earnings. But Strong's revised view had gained acceptance. At the Governors Conference in May, Morss (Boston) noted that a reserve bank could increase "momentum" by purchasing in the open market and then reducing the discount rate. And Strong pointed out that buying in the open market is equivalent to member bank borrowing (Governors Conference, May 2, 1922, 155–56). Some at the Federal Reserve had found virtue in activist policy, but the view was far from unanimous.

END OF THE RECESSION

The NBER dates the trough of the business cycle at July 1921, four months before the activist policy began. Industrial production turned in August and rose strongly. By March 1922 production was more than 20 percent above the previous year. Perhaps influenced by continuing agricultural problems, Balke and Gordon's (1986) real GNP series shows a mixed pattern. A strong recovery in fourth quarter 1921 is followed by renewed contraction after the start of 1922. Averaging the two quarters suggests continued contraction. On this basis, real GNP does not return to expansion until second quarter 1922. Stock prices, however, reached a bottom in August 1922, and by December they were 13 percent above their trough.

The monetary base was subject to two principal countervailing forces. Federal Reserve discounts and advances continued to decline until September 1922, at times offsetting the continued strong inflows of gold. Quarterly average growth of the base did not become positive until second quarter 1922, nine months after the NBER trough. Quarterly average growth of M_1 was weakly positive after fourth quarter 1921 but did not increase strongly until two quarters later. The New York discount rate remained at 4.50 percent until late in June 1922. This is the only business cycle in Federal Reserve history where market interest rates on many instruments—including commercial paper, long-term Treasury and corporate bonds—were higher at the NBER trough than at the preceding peak. Since prices fell throughout 1921, *ex post* real interest rates were far above nominal rates. Using Balke and Gordon's (1986) deflator, real rates on

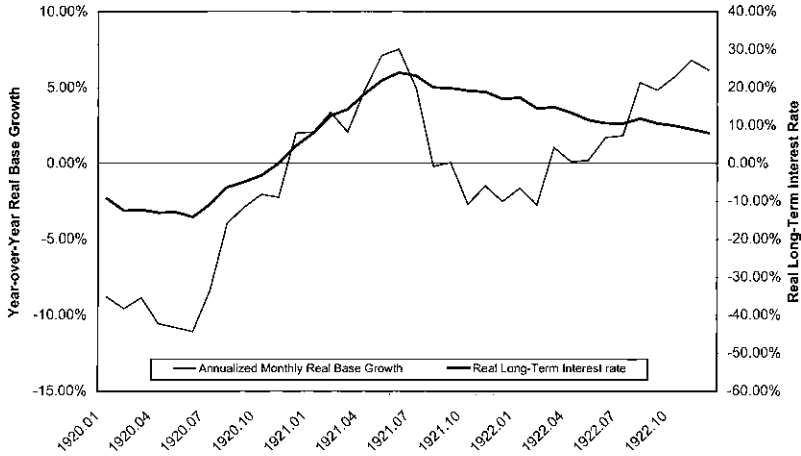


Chart 3.1 Year-over-year real base growth versus real long-term interest rate, January 1920 to December 1922.

commercial paper were between 13 percent and 26 percent around the recession trough.¹⁰⁰

The economy recovered despite these high rates and the restrictive Federal Reserve policy. Two forces were at work. The monetary gold stock rose 28 percent in 1921 and 18 percent in 1922, moderating and finally reversing the effects of falling discounts on the monetary base and the money stock. Falling prices raised the value of the public's real balances as well as real interest rates. Of the two, the rise in real money balances was the more potent.

Chart 3.1 compares the growth of the real value of the monetary base with the real long-term interest rate.¹⁰¹ The two series reach a peak just before the NBER trough in the economy. The recovery occurs despite an (ex post) real interest rate of more than 20 percent. Although the real interest rate fell after June 1921, the decline was gradual.

Real money balances show a very different pattern, surging during the early months of 1921 and, after a brief decline, rising in 1922. Chart 3.2 shows that this pattern is similar to the growth of real GNP two quarters later.

Growth of real money balances predicts the start and end of the recession; the growth rate declines precipitately before the recession, remains negative during 1920, and starts to rise five months before the trough

100. Consumer prices show a similar pattern. They fell until March 1922. Their annual growth rate did not turn positive until early 1923, in part as the result of a large negative value in August 1922.

101. Real base growth is the annual rate of change of the monetary base deflated by Balke and Gordon's (1986) GNP deflator. Real long-term interest rates are rates on Treasury debt minus the annual rate of change of the deflator.

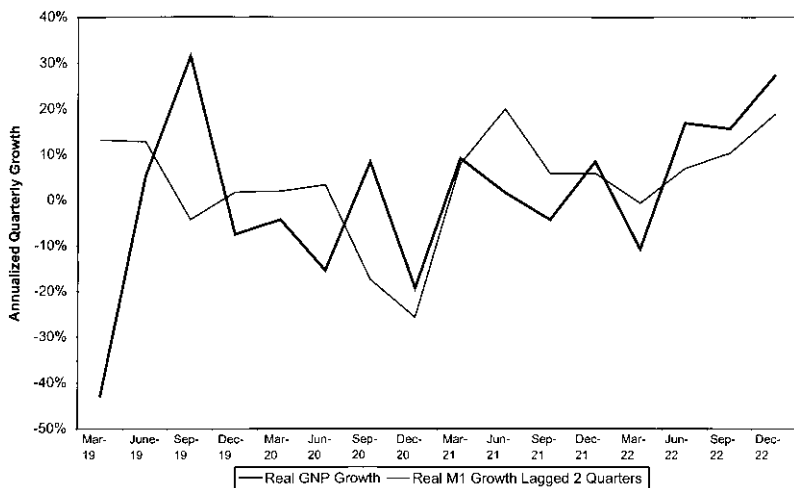


Chart 3.2 Real GNP versus real M_1 lagged two quarters.

(chart 3.2). Real interest rates show almost the opposite pattern, falling before the recession and rising during the recession. The reason is that both series have a common element—the annual rate of price change.

Falling prices raised real balances and attracted gold from abroad. The public used its increase in money balances to purchase goods and assets. Judging from stock market prices, after July 1921 asset prices rose absolutely and relative to prices of new production, stimulating the demand for new production. The change in relative prices and real wealth more than offset the negative effect of high real interest rates on spending.

The recovery from the 1920–21 recession provides some evidence on the way money and monetary policy influence the economy.¹⁰² Relative price changes are not limited to market interest rates. Prices of housing, autos, buildings, and many other assets change relative to the price of new production of substitutes. The relative price change stimulates or retards production (Brunner and Meltzer 1976).

POLICY FRAMEWORK

The 1920–21 recession was the first test of the policy conception implicit in the Federal Reserve Act. The act provided three principal means of regulating money—gold flows, discounting, and the discount rate.¹⁰³ The

102. Real money balances are M_1 balances deflated by Balke and Gordon's (1986) deflator.

103. Acceptances and open market security purchases or sales had a smaller policy role at the time. Acceptances, like discounts, were at the discretion of holders, given the rate posted by the reserve banks. The Federal Reserve wanted to expand the role of acceptance

Federal Reserve was expected to follow gold standard rules, allowing money and interest rates to rise and fall with gold movements. Discounts were at the discretion of the banks; they presented or paid off real bills at the given discount rate. The Federal Reserve responded by issuing or withdrawing base money. The discount rate was intended to be a penalty rate that changed in response to market rates.

Whether judged by money, interest rates, or economic activity, policy failed in 1920–22. The recession was long and deep; two years after the NBER peak, real GDP was 8.4 percent below its peak value. Principal monetary aggregates fell throughout the recession, and as noted, nominal interest rates were higher at the trough than at the previous peak. Table 3.7 shows the peaks and troughs in several of these series and the changes from the NBER peak to trough.

The monetary base and the money stock declined from peak to trough despite the heavy gold inflow in 1921. Measured by either the deflator or the consumer price index, prices fell after midyear 1920; the rate of deflation remained between 20 and 30 percent from fourth quarter 1920 through second quarter 1921. Thereafter, prices declined more slowly until mid-1922.

The movements of gold, discounts, and money were a response to a common cause. Federal Reserve policy held nominal interest rates high. With prices falling, real interest rose, reducing discounts and attracting a gold inflow that continued after nominal interest rates declined from their peaks. The relatively high real interest rates and declining activity also reduced the supply of acceptances offered to the Federal Reserve. The net flow of discounts, gold, and acceptances accounts for the peak to trough decline in the monetary base. Federal Reserve open market sales and redemptions of government securities made a further small negative contribution to the base.

Charts 3.3 and 3.4 show the relation of monthly values of the gold stock and the monetary base during the recession and recovery. Despite the gold inflow from October 1920 to January 1922, the Federal Reserve kept interest rates unchanged until September, contrary to gold standard rules, and allowed the monetary base to decline. After January 1921, the relation of gold to the monetary base reversed. Gold inflows supplemented by Federal

markets but did not succeed. Warburg (1930, 1:457) regarded the failure to develop markets for discounts outside New York as the System's biggest failure. In his view, this failure left the banks dependent on the call money market and thus on the daily movements of the New York Stock Exchange. After he left the Board, Warburg returned to Wall Street. He became the representative of the New York Federal Reserve bank to the American Acceptance Council. In 1922 he proposed a preferential discount rate for trade acceptances. The Federal Reserve disliked preferential discount rates and voted to treat acceptances as open market paper, where they would have a lower rate only if endorsed by a bank.

Table 3.7 Cyclical Changes in Money, Interest Rates, and Prices, 1920–22

PEAK OR TROUGH AND DATE	GOLD	DISCOUNTS	BASE	M ₁	i _s	i _L	DEFLATOR
Cycle peak, January 1920	\$2.67	\$2.14	6.91	23.26	6.00	4.93	38.15
Series peak	2.53*	2.78	7.33	23.91	8.13	5.67	42.71
Date	1920/4	1920/10	1920/10	1920/3	1920/9	1920/8	1920/2
Cycle trough, July 1921	3.02	1.72	6.47	20.73	6.38	5.26	33.74
Series trough	NA	0.40	6.08	20.45	4.13	4.12	32.43
Date		1922/8	1922/1	1922/1	1922/8	1922/8	1922/2
Change cycle P to T	0.37	-0.42	-0.44	-2.51	0.38	0.32	-4.41
%	13.8	-19.6	-6.4	-10.9			-11.6
Change, series P to T %	NA	-85.6	-17.0	-14.4			-24.1

Source: Board of Governors of the Federal Reserve System 1943; Friedman and Schwartz 1963; Balke and Gordon 1986.

Note: Dollar amounts are billions.

i_s, prime commercial paper, four to six months.

i_L, government bond rate.

NA, no peak in this period, series rises throughout 1922.

*trough.

Reserve open market purchases more than offset the continued decline in discounts, producing a rise in the monetary base.

At the time, the Federal Reserve did not use the gold reserve ratio as a guide to discount policy. To reduce pressure for reductions in discount rates, it excluded gold held abroad from the gold reserve in February, as Strong had proposed (Board Minutes, January 28, 1921, 94). By May 1921, the gold reserve ratio was above 55 percent. A classical response required reductions in discount rates despite member bank borrowing in excess of \$2 billion. Although a reduction in discount rates would have helped Britain and others to accumulate gold for a return to the gold standard, as noted earlier, the Federal Reserve required prodding from the new administration and Congress to reduce its rates in May and June.¹⁰⁴

Failure to respond to the reserve ratio was not the only departure from the classical gold standard. At the May meeting, Strong reported on a recent conversation with Montagu Norman in New York. Their concern was exchange rate instability. They had considered a plan to stabilize exchange

104. In a speech delivered late in 1922, Strong recognized that the gold reserve ratio was not likely to be useful as a policy indicator or guide: "The present banking system has created a situation where there is a surplus of banking reserves (gold and foreign exchange) in the country, and where there is not likely to be a deficiency. The real reserve barometer is the reserve percentage of reserve banks. The impulse, which led the Reserve System to change rates, must for the present largely arise from general conditions, and it cannot be expected that the impulse to advance rates will be given by gold exports for a long time to come. Therefore, the regulation of the volume of credit which is the chief function of the Reserve System must be effected by a combination of rate changes and due caution as to members' borrowings" (Strong 1930, 197).

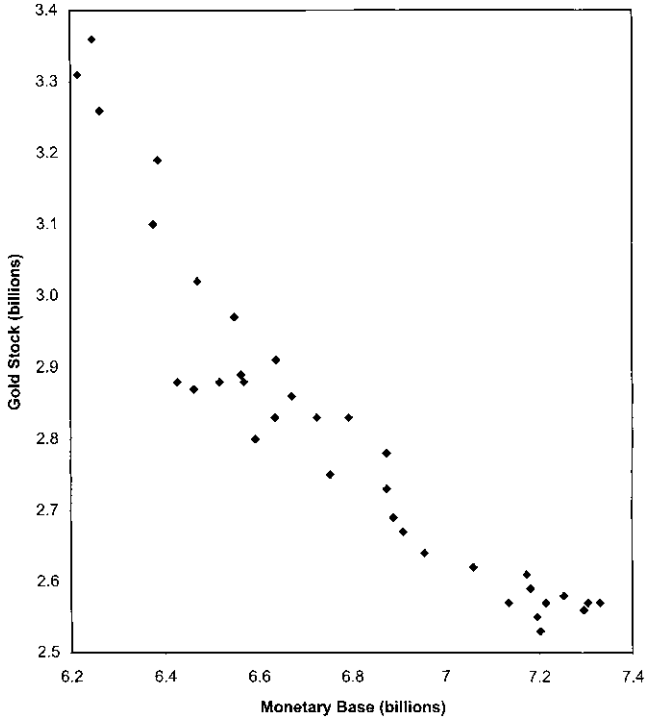


Chart 3.3 Gold and monetary base, 1919–21 (billions of dollars).

rates among eight countries—the United States, Britain, Switzerland, Holland, Denmark, Norway, Sweden, and Japan. The participating countries would establish a trading account of about \$300 million to buy and sell foreign exchange. Risks would be limited by an agreement to ship gold to pay for losses. To overcome legal obstacles, Strong proposed to implement the policy by buying foreign bills instead of currencies. Strong believed the operations would be highly profitable. The proposal was never adopted (Governors Conference, May 28, 1921, 721–41).¹⁰⁵

By October 1921, the gold reserve ratio was above 69 percent and still rising. At the Governors Conference, the Treasury proposed putting gold into circulation. The governors objected on two grounds. The proposal was contrary to the System’s policies of centralizing gold reserves at reserve banks and encouraging the use of Federal Reserve notes. And the policy would be viewed as a subterfuge to avoid reducing discount rates. The action would raise new concerns about the System’s responsibility for deflation and high interest rates (Governors Conference, October 25, 1921, 90–

105. The plan is a forerunner of the swap arrangements developed after 1960.

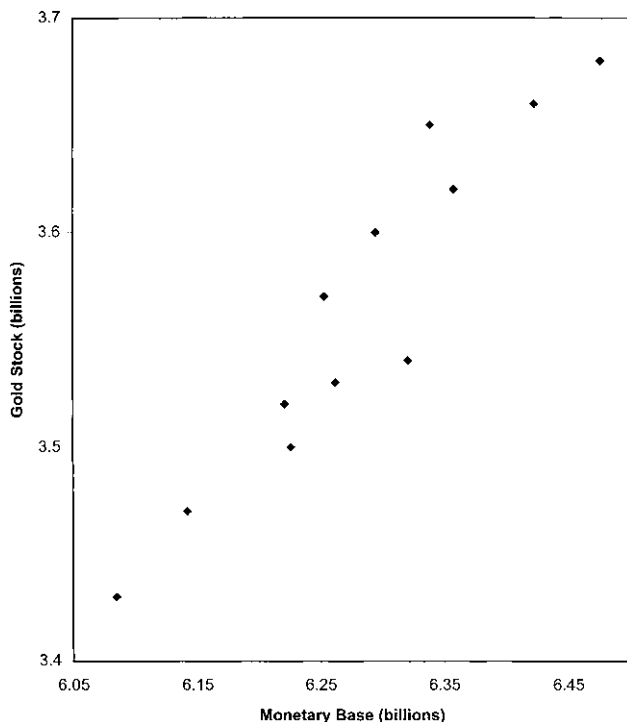


Chart 3.4 Gold and monetary base, 1922 (billions of dollars).

91, 374–77). In March 1922 the Treasury, on its own, announced a policy of unrestricted gold circulation. New York followed later.

The Treasury's action put more gold into circulation but did not keep the reserve ratio from rising. The ratio reached a peak of almost 80 percent in August 1922 and did not fall below 75 percent until late in 1924.

The governors were not alone in rejecting the gold reserve ratio as a guide to policy. Many academic economists also held that view. For example, Oliver M. W. Sprague (1921) argued that the Federal Reserve could not adopt traditional Bank of England practices. Most countries had left the gold standard and would not soon return. Hence moderate credit expansion would not automatically induce an outflow of gold to limit credit expansion. Sprague urged the Federal Reserve to adopt a domestic standard, based on discretionary judgment. He favored a modestly countercyclical policy of “lessening price fluctuations within particular business cycles, checking somewhat the upward movement, and thereby lessening the subsequent decline” (*ibid.*, 26). A policy of this kind could work, provided there was support from public opinion and “general confidence in the wisdom of the policies” (29).

Sprague wanted to substitute price stability for the reserve ratio as a guide to action. The price level should change “with permanent changes in prices associated with variations in the world’s supply of gold” (*ibid.*, 28), but fluctuations around this level should be damped by the Federal Reserve acting on its best judgment.

This view was strongly criticized externally in papers or comments by Russell Leffingwell (1921) and Adolph Miller (1921). Leffingwell agreed that the reserve ratio was not an adequate guide when most countries had left the gold standard. He favored a penalty discount rate, to get the banks out of debt to the Federal Reserve, and circulation of gold to reduce the gold reserve ratio at the reserve banks. Miller recognized that, in principle, price stability could be a guide to policy. He found no practical merit in the proposal, however. Nothing in the Federal Reserve Act authorized such a policy, while both the act and tradition favored continued reliance on the reserve ratio. The problem was not one of finding a substitute for the reserve ratio, it was finding ways to make the “reserve ratio a more sensitive and immediate indicator” (Miller 1921, 195). Like Leffingwell, Miller blamed the 1917 amendments that centralized gold holdings at Federal Reserve banks for the reserve banks’ slow response to gold.¹⁰⁶

Price stability as the goal of policy is a recurrent issue for the rest of the decade and again in later years. The internal discussion of price stability as a goal contains much that is repeated in these later episodes. Frederic H. Curtiss, chairman of the Boston reserve bank, accepted price stability as an important aim of policy. He argued that an explicit price level objective would have several defects. First, it would open the System to irresistible political pressure to create prosperity. Second, the public would not distinguish relative and absolute price changes. The farm bloc in particular would want the index to reflect its concerns. Third, changes in the price level are not entirely the result of monetary changes: the relation between money and the price index was looser, he thought, than quantity theorists like Irving Fisher and Knut Wicksell believed.

106. Miller favored a system more like the Bank of England’s, in which gold reserves were held separately against notes and bank reserves with a higher percentage against currency than under the Federal Reserve Act. The aim was to absorb some of the excess gold and restore the gold reserve ratio as a policy indicator. At about the time this public statement was published, Miller argued internally that the reserve ratio was a faulty indicator that was inconsistent with the prevailing discount rate. His proposal was intended to remove the problem (Governors Conference, April 1921, 1098–99). The Governors Conference did not accept his proposal. A principal counterargument was the uncertainty about whether or when the gold reserve would fall. The members were unwilling to make a permanent policy change based on a gold stock that might prove to be temporarily high.

As usual, Strong was more forceful. He opposed price stability as a guide to policy: "It is not the business, the duty, or the function of the Federal Reserve System, or of central banks generally, to deal with prices" (Governors Conference, May 28, 1921, 629). For Strong, price stability was a desirable outcome of a proper monetary policy, not a policy objective. He continued to hold this position throughout the 1920s. Although his opposition lessened in 1928, he preferred to reconstruct the international gold standard, in the belief that the standard would maintain price stability, and he worked to that end.

If the reserve ratio was no longer useful, what principles should govern policy? At the October Governors Conference, the Board asked the governors to state how interest rates should be set.

Governor Norris expressed the confused state: "No two of us would write exactly the same essay. . . . The only thing we could agree on would be absolutely nothing" (Governors Conference, October 27, 1921, 591). The Federal Advisory Council had been asked to discuss the issue. It provided a list of factors affecting decisions, such as gold reserves, conditions of banks, or national, district, and world business conditions. The governors recognized that these were guides, not principles.

Roy Young (Minneapolis) proposed that discount rates should be penalty rates, "equal or slightly in excess of what the customer pays the member bank" (*ibid.*, 599). Several governors agreed with this principle, none more than James McDougal (Chicago): "If the reserves of the Federal Reserve System were to be safeguarded against misuse and to be held available for legitimate seasonal requirements, as the law contemplated they should be held, the discount rate policy should be one which should hold those rates as high or slightly higher than the prevailing rates in the commercial centers" (619–20). George W. Norris (Philadelphia) and George Seay (Richmond) strongly agreed.

Strong's reply is a sharp break from his earlier views favoring a penalty rate. In a March 1921 letter to Norman, he called the indebtedness of the member banks "absolutely the fundamental and controlling factor" (Chandler 1958, 172). He estimated that there would have to be a \$6 billion to \$7 billion reduction in lending, a decline equal to 20 percent of the outstanding stock, a contraction of lending five times greater than the contraction that he estimated had occurred to that time. A different signal had to be found, at least for the present.

The following month he told the Governors Conference that he opposed putting undue pressure on banks to liquidate debt. The effect would be to force inventory liquidation and additional deflation. He believed the cor-

rect policy was to lend freely at a penalty rate, and he again cited Bagehot's rule.¹⁰⁷ In July he continued to favor a penalty rate in principle, but he recognized that the principle had to give way. He told Norman that money market conditions "hardly justified . . . making a further reduction." There were other considerations, however, that made classical methods "not always the wisest," and he added, there were "political considerations brought about by the change of administration" (Chandler 1956, 176).¹⁰⁸

At the October Governors Conference, Strong noted that the reserve ratio at the New York bank was 82 percent. If he followed Bagehot's formula, the discount rate would be 2 percent. Further, he now saw that United States markets differed from Britain's. Only one type of paper, acceptances, mattered for the Bank of England. The Federal Reserve bought many types of paper, each with its own rate, so the same procedures could not be applied. The problem was to keep the banks from borrowing for profit. This problem, he now believed, was more acute when the outlook for business was good and the community was more inclined to speculate (Governors Conference, October 27, 1921, 624–29).

Strong offered an observation that was to have an important role in shaping future policy operations and the policy framework. When banks were in debt, they used surplus reserves to reduce borrowing. Once some were out of debt, they reduced rates to put surplus funds to work: "The reduction in our rate had no influence in the market. It was the competition to lend money that did it" (*ibid.*, 634).

Weekly data for 1921 and 1922 show that reductions in the discount rate at New York preceded declines in interest rates on four- to six-month commercial paper. All the reductions occurred with market rates on commercial paper above the discount rate. The timing was contrary to the penalty rate conception and suggests that the Federal Reserve had abandoned the idea of a penalty rate as a rule for setting the discount rate without making an explicit decision to do so.¹⁰⁹

107. He seemed unaware that Bagehot's argument for maintaining a high discount rate was offered as a means of reversing a temporary gold drain and was inappropriate in 1921 with the gold reserve rising and the price level falling.

108. Classical conditions meant maintaining a penalty rate and following market rates down. Strong mentions five factors that guided his policy. Four were short-term interest rates—the rates on banker's bills, short-term Treasury certificates, commercial paper, and stock exchange call loans. The fifth factor was the Treasury's success in selling three-year notes and the rate at which they sold. He does not mention that these are nominal rates and that real rates were much higher.

109. In contrast, rates on short-term Treasury certificates led market rates down. At each of the reductions in the New York discount rate during 1921 and 1922, open market rates on certificates were from 0.5 percent to 0.75 percent below the discount rate in the month before the discount rate reduction. For these securities, the penalty rate was in effect. However, the

Perhaps the main force producing a major policy change was the political response to the 1920–21 experience. Congress began to discuss legislation limiting the Federal Reserve's power to raise discount rates beyond a ceiling rate without congressional approval. In January 1921 Congress revived the War Finance Corporation to finance agricultural and other exports. Eugene Meyer, later governor of the Federal Reserve Board, returned as head of the corporation. In August 1921 Congress appointed the congressional Joint Commission of Agricultural Inquiry to investigate the reasons for agricultural distress, the protracted economic decline, and the level of interest rates.

The commission was organized in response to a request by the Board to consider charges against the Board and Strong by John Skelton Williams, the comptroller of the currency in the Wilson administration and an ex officio member of the Board until March 1921. Williams claimed that the Federal Reserve had deliberately created a deflation to the detriment of farmers and small banks.

In December 1920, with the election over and his term about to end, Williams wrote a letter to the Board advocating lower rates. After an exchange of letters with Governor Harding, he brought his proposals before the Board on January 25 (Board Minutes, January 3, 13, 17, and 25, 1921). His principal motion, at the time, called on the Board to prepare a press release showing the unused lending power resulting from gold inflows and stating the Board's intention to reduce interest rates. The motion was defeated five to one, with Secretary Houston absent. A second motion, to suspend progressive rates, was tabled at Williams's request when the Board produced a letter from the Dallas bank suspending its progressive rate.

On February 26 the Board considered some additional motions and charges.¹¹⁰ This time Williams demanded discount rate reductions to 6 percent at all reserve banks effective March 1 and the elimination of the remaining progressive rates. (Six banks were at 7 percent, the others at 6 percent.) Ignoring its own precedent, the Board objected that discount rate policy actions should be taken by reserve bank directors. Williams also moved that 4.5 percent Liberty bonds be purchased at par if the money was used for "essential purposes." None of the proposals was approved.

Federal Reserve had no intention of allowing these securities to be used as collateral. That was contrary to their real bills view and the principles of the act. Long-term governments with a minimum of eight years to maturity or first call were also below the discount rate in July 1921 but 0.25 percent above at the other reductions.

110. This meeting was considered so confidential that the Board's copy of the minutes is written in longhand. The minutes for the meeting were stored in Governor Harding's office and never transcribed. These are the only handwritten minutes I have found.

Williams charged that the New York bank had lent to the Chase National Bank and that Chase had made “unsafe and improper advances to the officers of the member bank and to companies and corporations in which such officers were interested” (Board Minutes, January 25, 1921, 173). New York had continued the policy after the comptroller’s examinations in October 1919 and August 1920.

Strong was present for this part of the meeting and replied that there was nothing in the comptroller’s 1919 report to warn the Federal Reserve bank. A report of the August 1920 examination had not been received until January 1921. Moreover, the comptroller was required by law to make two examinations a year but had made only one.¹¹¹

Williams’s charges and the complaints of farmers and small businessmen were aired by the Joint Commission at the first congressional hearing on Federal Reserve policy. Strong acted as the System’s principal witness. In three days of testimony, he defended the deflationary policies and urged the commission to accept that deflation was an inevitable response to the previous excessive expansion. The System had been unable to control the expansion because of wartime exigencies and subservience to the Treasury. “Nature” had brought on the deflation, and there was little the Federal Reserve could have done to prevent it.¹¹² The reserve banks had been willing to lend on real bills. Without the reserve banks, there would have been liquidation and financial panic, as experience before 1914 showed. In the same hearings, Harding denied that the Federal Reserve had anything to do with the deflation and could not have prevented it (Joint Commission of Agricultural Inquiry 1921, 363).

The commission accepted most of Strong’s argument and concluded that the Federal Reserve was most at fault when it yielded to Treasury pressure during the summer and fall of 1919. The commission argued, correctly, that the System should have been more concerned about inflation and less concerned about Treasury refunding operations. To a considerable extent the final report reflects Strong’s ability to shift responsibility from the

111. Williams sent copies of his charges to some members of Congress but refused to give the Board their names (Board Minutes, March 2, 1921, 184). The Board and the reserve banks retaliated by asking the Treasury to transfer the comptroller’s functions to the Board (Board Minutes, March 11, 1921, 205).

112. Strong’s testimony is reprinted in Strong 1930; see esp. 135–38. The claim about inevitability was widely held at the time. See, e.g., Sprague 1921, 20–22, or Miller 1921. The same claim returns at the end of the decade. “Nature” in this case is the combination of the real bills doctrine, the gold standard, and agricultural production. The Federal Reserve and the Bank of England wanted to restore the prewar gold standard at unchanged gold parities. The Federal Reserve also wanted to eliminate speculative credit as collateral for discounts to banks and to eliminate most Treasury securities from the portfolios of borrowing member banks. They did not achieve the last objective.

Federal Reserve to the Treasury, as well as the absence of any witness for the Treasury and perhaps the commission's desire to dispose of the issues by blaming the previous Democratic administration. The System's case was strengthened because the Treasury could have invoked the Overman Act and had threatened to do so. Moreover, the hearings came at the end of the deflation and the beginning of recovery. On the indexes used at the time, industrial production rose from 75 (1919 = 100) in the summer of 1921 to 87 by January 1922 and 100 by September 1922 (Reed 1930, 16).¹¹³

The commission led to only one important change in the Federal Reserve's structure—the addition of one member to the Board to represent agricultural interests. Beginning in 1923, the Board had six appointed members plus two ex officio members. The first appointee to the new position died after eight days. He was replaced by Edward H. Cunningham, a farmer, leader of the Iowa Farm Bureau, and a Republican legislator. Cunningham served until his death in November 1930.

The problem of when to change the discount rate and the more basic problem of how to conduct monetary policy had not been resolved. Studies by Federal Reserve staff concluded that member banks borrowed for profit or at least profited while borrowing. The 1921 annual report compared the average rates charged on rediscounts at each Federal Reserve bank with the average rates charged by member banks on the paper used as collateral during December 1921. At a time when discount rates at the reserve banks ranged from 4.5 percent in the large eastern centers to 5.5 percent at Dallas and Minneapolis and rates on open market paper at New York were between 4 and 4.5 percent, the rates on the rediscounted paper ranged from 4 percent to 12 percent. Instead of a net cost, or penalty, the data show an average net return to the borrowing banks ranging from 1.27 percent (Cleveland) to 2.87 percent (Kansas City). Almost one-third of the items rediscounted had rates of 8 percent or above, and on 20 percent of the items the reported rates were at least 10 percent, almost twice as high as the highest rate of discount at any of the reserve banks. The study made no allowance for differences in risk on the different rediscounts. Further, the highest rates of recorded profit appear to have been on relatively small items, so the data overstate the marginal net return from borrowing by neglecting the cost of arranging and collecting loans and depositing collateral at the reserve banks.¹¹⁴

113. The recent Federal Reserve index shows a more rapid initial recovery from 6.03 in July 1921 to 6.53 in January 1922 followed by a 26 percent increase to 8.22 in September 1922. Miron and Romer (1989) have a very different pattern, based on a smaller sample.

114. More than 80 percent of the total *volume* of rediscounts carried rates of 6.5 percent or less, but this volume was accounted for by only 25 percent of the number of items redis-

A second type of evidence on the effect of rediscount rates on member bank borrowing came from a study of progressive discount rates. Although only four of the reserve banks used progressive discount rates, all of them accumulated information on the number of banks borrowing in excess of their basic line and the average amounts borrowed.¹¹⁵ These data showed that during the contraction of 1920–21 the volume of borrowing in excess of basic discount lines rose at first, then declined as the larger banks reduced their borrowing. But the number of banks borrowing in excess of their lines continued to increase—from 1,800 in May 1920 to 3,000 in December 1921—and the increase was particularly great in the agricultural sections (Board of Governors of the Federal Reserve System, *Annual Report*, 1921, 67). These data furnished the main empirical basis for the conclusion that the use of a penalty discount rate did not reduce borrowing in the agricultural and rural sections of the country. Yet the report offered no analysis of the effect on borrowing of removing the progressive rates and made no effort to separate the volume of borrowing secured by Treasury securities that, during most of the period, could be used by banks subject to progressive rates to obtain discounts at a preferential rate. Perhaps most important of all, the Board's report made no attempt to compare the marginal rates on loans at banks subject to progressive rates with marginal rates at other banks. Data collected in December 1921, long after the peaks in borrowing and interest rates, showed that lending rates on eligible paper rose to 12 percent or more, suggesting that marginal loan rates at the peak were well over 12 percent. The borrowing data, on the other hand, showed that fewer than 250 banks paid progressive rates of 10 percent or more (Wallace 1956, 61). Nevertheless, the Board concluded that progressive rates were not effective, and this conclusion has been repeated in subsequent System studies (see Anderson 1966, *passim*).

A third source of evidence came from examining the effect of removing the preferential discount rate for borrowing secured by government obligations. The elimination of the preferential rate at various times during 1921 was reflected in a rapid decline in the volume of borrowing secured by such obligations, but total borrowing continued to rise, and as late as May 1921, borrowing was above the level at the start of the recession. The Board's 1921 annual report clearly conveys its inability to find a satisfactory

counted. The average value of the notes rediscounted during the month was about \$14,000; the average value of the notes bearing 6 percent interest was about \$40,000; the average size of notes bearing 10 percent interest was about \$1,000.

115. Most of the reserve banks computed the borrowing lines by taking 65 percent of the balances maintained with the reserve bank, adding the amount paid in subscription to the reserve bank's capital stock, and multiplying the total by 2.5.

explanation for the movements in member bank earning assets and member bank borrowing during the recession. After noting that the principle of maintaining central bank discount rates above market rates was well established, the report compared the Bank of England and the Federal Reserve System. The Bank of England accepted only one class of paper for rediscount—bills of exchange. Federal Reserve banks accepted a wide variety of paper, so that it is “exceedingly difficult to determine just what current market rates are” (Board of Governors of the Federal Reserve System, *Annual Report*, 1921, 30). Neither the studies nor the discussion suggested setting the penalty rate in relation to the rate changed for the loan.

To many in the System, the 1920–21 experience showed the need to replace or supplement the discount rate as a main instrument of Federal Reserve policy and to speed the process by which policy changes reduced market interest rates. Using the discount rate as a penalty rate, applying the Bank of England’s system under American conditions, did not seem to work in the way they had expected. The System had tried progressive rates, nonuniform rates, uniform rates, preferential rates, and moral suasion. None of these methods seemed to them to be an effective means of controlling member bank borrowing. Years later Ralph Young, a director of research at the Board, summarized the experience: “The broad conclusions of System experience in the ’20’s, the record shows, was that in this country it was not feasible to attempt to make the discount rate function as a penalty rate. Our banking conditions were too unique. It was more practical to rely on the bankers’ tradition against borrowing and reluctance to remain continuously in debt” (Minutes, Federal Open Market Committee, August 23, 1955).¹¹⁶

The political attacks on the Board and the System for the high rates charged at a few banks during the period of progressive discount rates, and also the criticisms of the Board and the System for having caused a decline in agricultural prices and incomes, must be viewed against the background of hostility to high interest rates in the South and West, where the highest rates were charged, and the long debate before Congress agreed to establish the Federal Reserve System. Fears of political reprisal, combined with doubts about the effectiveness of the penalty rate policy, stimulated the search for a new approach to policy.¹¹⁷

116. The Board’s tenth annual report comments that the outlook for credit regulation would be “unpromising . . . if the Reserve banks had no other means than discount rates to regulate the volume of their credit” and had to rely on penalty rates (Board of Governors of the Federal Reserve System, *Annual Report*, 1923, 9).

117. The 1920–21 experience and its political repercussion helps to explain why the Board was reluctant to raise interest rates above 6 percent during the stock market boom at the end of the decade.

CONCLUSION

The first annual report of the Federal Reserve Board, published within six months of its founding, saw the role of the Federal Reserve as preemptive. Its duty was “not to await emergencies but, by anticipation, to do what it can to prevent them” (Board of Governors of the Federal Reserve System, *Annual Report*, 1915, 17). Practice was far from that intent. In its early years the Federal Reserve financed the war by indirectly monetizing the Treasury’s debt. It was too weak politically to slow or stop the postwar inflation and too uncertain about the political consequences of its actions to act decisively when the Treasury allowed it to act. Thereafter the Federal Reserve pursued a deflationary policy throughout the deep postwar recession.

Wartime political weakness is certainly part of the explanation for the inauspicious beginning. Beliefs, or theories, also had a large role. Notwithstanding the intention to be preemptive, expressed in the first annual report, the policy conception embedded in the Federal Reserve Act and in the minds of the principals was passive. The gold standard was expected to maintain long-term price stability. The discount rate was a penalty rate that followed the market and the gold reserve. The principal asset, other than gold, was the discount portfolio. The real bills doctrine gave the borrowers responsibility for deciding on the volume of discounts.

This conception proved inadequate in the early years, particularly in the 1920–21 recession. Freed of Treasury controls in 1920, the Federal Reserve soon found its policy guides giving directions it did not wish to follow. The gold reserve rose, signaling a reduction in the discount rate at a time when member banks remained heavily in debt to the Federal Reserve, when member banks held large portfolios of Treasury securities, and when the penalty discount rate had not been restored. The real bills doctrine required higher interest rates and a reduction in borrowing. The gold reserve ratio sent the opposite signal.

In the event, political considerations tipped the balance in favor of lower discount rates. Secretary Mellon and the new Republican Congress were eager to show improved economic conditions, particularly before the 1922 congressional elections. Congressmen from agricultural areas, particularly in the South and West, were highly critical of the higher discount rates in those regions. Bills were introduced limiting the System’s ability to increase rates. The Federal Reserve yielded to this political pressure by lowering discount rates. More important for the recovery, however, was the gold inflow and the rise in real money balances resulting from almost two years of severe deflation.

The experience convinced the Federal Reserve that the original policy conception was flawed: the Bank of England’s use of the discount rate as a

penalty rate and its limitation on discounts to one type of eligible paper were not the model for the United States. This conclusion appears to have been based more on conjecture than on careful analysis, the conclusion itself being as much political as economic. The discount rate worked "too slowly," hampered by the diversity of the economy, by the alleged profitability of borrowing, and by the many types of paper eligible for discount. The evidence, such as it was, came from comparing average gross returns to banks on a wide variety of risky loans with the risk-free rate and from the fact that discounts had continued to rise long after the recession began. This suggested to the governors that much larger increases in discount rates would be needed during recessions. The political response to such rates was not something they wanted to experience.

Bank portfolio choices appeared to support the conclusion. There was no sign of a return to real bills. In both January 1920, when the discount rates were raised, and June 1922, when the rates were reduced, the 101 weekly reporting banks held \$2 billion in government securities and \$4 billion or more in total investments. Loans on securities had fallen by less than \$1 billion. In fact, the low point for bank investment in "speculative" instruments and loans on securities had come in summer 1921, at the trough of the recession. The prospect of shifting portfolios of borrowing banks mainly to real bills by discount rate policy appeared unattainable.

By the end of 1922, in a speech at Harvard, Strong recognized that the real bills doctrine provided no effective limitation. He had seen early on that a bank may use its borrowings for many purposes. Now he saw clearly that the doctrine was flawed. Although he did not fully recognize the distinction between an individual bank and the banking or financial system, he was far ahead of his contemporaries on the Board and at the other banks.

Now as to the limitations which the Federal Reserve Act seeks to impose as to the character of the paper which a Reserve bank may discount. When a member bank's reserve balance is impaired, it borrows to make it good, and it is quite impossible to determine to what particular purpose the money so borrowed may have been applied. It is simply the net reserve deficiency caused by a great mass of transactions. The borrowing member selects the paper which it brings to the Reserve bank for discount not with regard to the rate which it bears, but with regard to various elements of convenience. . . . [S]uppose a member bank's reserve became impaired solely because on a given day it had made a number of loans on the stock exchange; it might then come to us with commercial paper which it had discounted two months before. . . . If it were the design of the authors of the Federal Reserve Act to pre-

vent these funds . . . from being loaned on the Stock Exchange or to non-member state banks or in any other type of ineligible loan, there would be only one way to prevent the funds from being so used, and that is by preventing member banks from making any ineligible loans whatsoever, or deny it loans if it had.

The eligible paper we discount is simply the vehicle through which the credit of the Reserve System is conveyed to the members. But the definition of eligibility does not effect the slightest control over the use to which the proceeds are put. (Chandler 1958, 197–98)

Important as the policy issues were, they were not the only problems. The Federal Reserve Act left the lines of authority unclear. Political trading had not resolved the dispute between those who wanted a central bank modeled as closely as possible on the Bank of England and those who wanted the political authorities to protect the public against bankers. Lines of authority were unclear not only between the Board and the reserve banks, but between Washington, New York, and the other banks. Early conflicts did not resolve the issue. Throughout the early 1920s letters and memorandums from the reserve banks complained that the impression in the districts was that discount rates were set in Washington and that the Board controlled discount policy. The Board, in turn, complained that the reserve banks leaked information about rate changes before they had been approved by the Board. In addition, personal antipathies between Strong and Miller, or between Strong and Glass, sometimes affected judgments and decisions.

The long delay in reducing interest rates provided a test of two long-standing conceptions about monetary policy. Nominal interest rates were higher at the trough of the recession than at the preceding peak, the only time this has occurred in Federal Reserve history to date. With prices falling at the trough, real interest rates rose more than nominal rates during the contraction. The economy recovered in large part because falling prices combined with an inflow of gold to increase real money balances. The rise in real money balances overcame the effect of high real interest rates, increasing spending and output. This experience contrasts with experience in the early 1930s when real balances fell as real interest rates rose.

Although there were many mistakes, the first eight years produced some successes as well. The System was able to pool the gold reserve and to make interdistrict loans when the gold reserve ratio fell. Although more banks failed in 1921 than in the recessions of 1893 or 1907 and 1908, there was no banking panic. Also, the Federal Reserve pressed the banks, par-

ticularly rural banks, to establish par collection. It improved the system for issuing currency, eliminated the effects of seasonal swings in currency demand, and nurtured a market in banker's acceptances with the aim of reducing the influence of the stock exchange and the call money market on the banking system.

The System had survived its first mistakes. The central task of developing a policy framework and useful operating guides remained.

New Procedures, New Problems, 1923 to 1929

The years 1923 to 1929 are often described as one of the best periods in Federal Reserve history. Inflation, though highly variable from quarter to quarter, averaged close to zero for the period as a whole. Economic growth was variable but robust. The economy grew at a 3.3 percent average rate, despite two recessions in six years.¹ Labor productivity in manufacturing rose 4 percent a year, and the index of stock prices rose 20 percent a year.

Whether judged by money growth or by interest rates, Federal Reserve policy avoided the sharply inflationary and deflationary actions of earlier and later years. Interest rates on both long-term Treasury bonds and commercial paper averaged about 4.5 percent. The monetary base rose about 1.5 percent a year. Although the United States was on the gold standard for the period as a whole, variations in money growth were not much affected by gold movements.

Membership in the Federal Reserve System was far from complete. Fewer than 10 percent of state banks were members. The number of state member banks declined, but deposits of member banks increased both absolutely and relative to deposits of nonmember banks.

The Federal Reserve developed much more activist procedures than envisaged by the authors of the Federal Reserve Act or practiced in earlier years, and policy actions became more centralized. The reserve banks, par-

1. Real growth is computed from third quarter 1923 through third quarter 1929 to omit the recovery early in 1923 and the start of the 1929 recession. Using annual data, growth is 4.7 percent for the seven years 1923 through 1929. The difference is due principally to the strong recovery reported for second quarter 1923. Quarterly and annual data for inflation give very similar results.

ticularly New York, gained more control over decisions, but disputes about the locus of power continued and at times became intense.

The problem was partly personal, partly substantive. Adolph Miller, the dominant personality at the Board, was indecisive, inclined to shift his position in debate, and unwilling to take responsibility. Miller envied the power and influence of Benjamin Strong and the New York reserve bank that Strong headed. As the only economist in a decision-making position, he expected Strong and others to defer to him on economic issues. Strong was decisive, commanding, and eager to exercise leadership. Intended ambiguity in the Federal Reserve Act, a result of the compromise President Wilson crafted, heightened the personal controversy. To Strong and other bank governors, the System was an association of reserve banks supervised by the Board. To Miller and others in Washington, the Board was responsible for directing the System to a common policy goal and steering away from bankers' interests. As open market operations increased in importance and discount policy declined, Miller tried repeatedly to shift control of open market policy from Strong and his colleagues to the Board. He was unsuccessful while Strong was alive.

Substantive differences also reflected problems in the Federal Reserve Act. Miller and the Board emphasized control of the quality of credit by discounting real bills. The act supported their position; this was the intent of Carter Glass and others who drafted the act. Strong held this view before the 1920–21 recession, but the policy failures of that period and the political response to interest rate increases changed his mind. Further, unlike Miller and the Board, he recognized that the type of credit instrument discounted by the borrowing bank did not restrict the volume of borrowing or give information about the use of new loans. He saw that under the real bills doctrine, money and credit would expand as long as banks had eligible paper and could discount profitably. To be effective, the System had to control the quantity of credit.

Initially, policy action responded to the gold reserve ratio. A decline in the ratio signaled that interest rates should rise, a rise that rates should decline. With few countries on the gold standard during and after the war, the signal was less reliable.

What should replace it? The Board's annual report for 1923 set out the new operating framework. By carefully sifting through the responses to open market purchases and sales, economists at the New York bank and the Board developed a new set of signals to guide operations. I call this analysis the Riefler-Burgess doctrine. The doctrine played a major role in the 1920s and beyond.

Governor Strong's efforts to support the British by easing policy in the

summer and fall of 1927 brought differences between New York and the Board into sharp focus. Under Strong's leadership, the open market committee lowered United States interest rates by buying government securities after member bank borrowing declined. Advocates of real bills, such as Miller, criticized the action as inflationary, by which they meant that the increased credit was not backed by productive assets. They, and most others, believed that inflationary credit expansion, like wartime expansion, must inevitably be followed by contraction and deflation. For the real bills advocates, the deflation and depression that started in 1929 were the inevitable consequence of Strong's policies in 1927.

Conflict between New York and the Board reached new heights in 1928 and 1929. New York, operating on Riefler-Burgess rules, favored a higher discount rate to reduce member bank borrowing and the quantity of credit. On their interpretation, reduced borrowing would indicate greater ease. The Board, fearful of a return to the high discount rates at the start of the decade and wanting to limit credit to stock market speculators, favored controlling the quality of credit by moral suasion, direct pressure, and exhortation against speculation. It opposed increases in discount rates. The result was delay and inaction; the more serious problem on both sides was failure to recognize that monetary policy was deflationary.

The Federal Reserve had three principal aims during the 1920s: to reestablish the gold standard as an international exchange system; to maintain price stability at least as well as if the country remained on the prewar gold standard; and to prevent or slow the growth of speculative credit, particularly credit used to carry securities traded on the New York Stock Exchange. A fourth aim, though rarely stated, was present also: the Federal Reserve wanted to avoid a return to the level of interest rates and deflationary policies of 1920–21 that had damaged agriculture and commerce and heightened criticism of the System.

The different aims often gave conflicting signals. Higher interest rates to prevent growth of stock exchange lending exposed the System to renewed criticism and attracted gold. Mindful of those criticisms, some officials preferred to rely on exhortation or qualitative control instead of quantitative control. This produced conflict within the System.

At a more basic level was the conflict between price stability and restoration of the world gold standard. In part to maintain price stability, the Federal Reserve System sterilized gold inflows and, reversing its earlier policy, put gold and gold certificates into circulation. This policy reduced the monetary expansion resulting from gold inflows, thereby shifting more of the burden of adjustment to Britain and other countries seeking to reestablish and sustain a type of gold standard. Once Britain returned to the gold stan-

standard, it had to raise interest rates and deflate to defend its exchange rate. A more classical gold standard policy of lowering United States interest rates and allowing the country's prices to rise in response to gold inflows would have reversed some of the gold flows and reduced the need for deflationary policies abroad, at the cost of higher inflation in the United States.²

French policy added to the problems faced by Britain and others. France returned to the gold standard in 1927 at a rate that undervalued the franc; Britain returned in 1925 at an exchange rate that overvalued the pound. Under the rules of a full gold standard, gold would have flowed from Britain to France, the United States, and perhaps elsewhere. The countries receiving gold would have allowed prices to rise, and British prices would have fallen. But France and the United States were as reluctant to permit prices to rise as Britain was to let them fall. Without this mechanism, or a substitute, the gold standard could not work to adjust gold stocks and prices.

In practice, after 1927 the United States and France pursued mildly deflationary policies that drained gold from Britain, Latin America, and elsewhere. The collapse of the gold standard came in the 1930s, foreshadowed by the policies of the 1920s.

The result was failure to achieve three of the four aims. Qualitative controls failed to prevent a rise in stock prices and brokers' loans. The international gold (or gold exchange) standard collapsed, never to be restored. And the relative stability of the 1920s was followed by severe deflation and economic depression throughout the world.

NEW PROCEDURES

A more activist policy required more and better information, new procedures, and a new framework for deciding on policy actions. The procedures began to take shape after 1921, and though they evolved through the first half of the decade, the System had the main outlines in place by the end of 1923.

The prewar gold reserve had served as a signal for timing changes in the thrust of policy. That signal was now muted. During the first part of the decade, the United States was the only major country on the gold standard. The governors agreed that they could not rely on the gold standard mechanism to maintain price stability until currencies became convertible and countries restored the international standard. They favored restoration and worked toward that end, but until countries readopted the gold standard,

2. Between 1922 and 1926, the United States share of the world monetary gold stock rose from 43.3 percent to 45.5 percent, while the share held by the Treasury and Federal Reserve fell. The difference is explained by gold and gold certificates in circulation (Schwartz 1982, vol. 1, tables SC8 and SC10).

they needed a new guide for policy. Hence they developed the research function, first in New York and later at the Board, to provide indexes of industrial production, prices, interest rates, credit, and other measures of current and prospective economic activity.³ These measures, and the volume of discounts, replaced the gold reserve ratio as guides to policy action.

Development of Open Market Policy

Section 14 of the Federal Reserve Act authorized open market operations to make discount rates effective. The section reflected the belief that if banks were out of debt to the reserve banks, changes in discount rates would be ineffective.⁴ By selling in the open market, the reserve banks could reduce bank reserves and force banks to borrow, thereby restoring the effectiveness of discount policy.

Open market operations were not new. They had been known for at least one hundred years in England. As early as 1822, the Bank of England purchased and sold government securities to assist the Treasury in refunding the public debt by maintaining a particular market rate (Wood 1939, 5).⁵ After 1830, the bank bought and sold Exchequer bills at its own initiative on a limited scale.⁶

3. Adolph Miller, the only economist on the Board, urged creation of a statistical office. The office was located in New York mainly to accommodate Parker Willis, its director. It began publication of the *Federal Reserve Bulletin* in 1914. Willis took charge in 1918 after he resigned as secretary of the Board. The New York bank started its own publication, the *Monthly Review of Credit and Business Conditions*, and in 1920 it hired W. Randolph Burgess as its first editor. New York also had a statistics department led by Carl Snyder. In 1922 the Board's research office moved to Washington, D.C., when Walter Stewart was appointed director in July. See Burgess 1964 and Yohe 1982. Stewart left the Board in 1926 to enter private business, but he continued to serve as an adviser to Strong until Strong's death. He then served as economic adviser to the governor of the Bank of England from 1928 to 1930, where he initiated construction of statistical series similar to his work at the Board. During this period, the Board's staff developed the statistical data for the table called "Member Bank Reserves and Related Items." The "Index of Industrial Production" first appeared in 1922 as the "Index of Production in Basic Industries" and later (1927) as "A New Index of Industrial Production." Between 1922 and 1925, the statistical section of the *Federal Reserve Bulletin* introduced, among others, series on department store sales, agricultural movements, department store stocks, wholesale trade, factor employment, factory payrolls, and building contracts (House Committee on Banking and Currency 1926, 698). Yohe (1990) discusses the early history of the Research Division.

4. The House report on the Glass bill mentions two reasons for open market operations in "the classes of bills which it is authorized to rediscount" (Krooss 1969, 3:2318). The first is to make the discount rate effective. The second is to provide an outlet for investment of funds "when it was sought to facilitate transactions in foreign exchanges or to regulate gold movements" (*ibid.*).

5. Before 1819, the bank seldom bought Exchequer bills except at the Treasury's request (Wood 1939, 5). Other bills were bought, however.

6. Keynes (1930, 2:170, 229) is misinformed when he writes that in 1890 "open market policy had not been heard of." Sayers (1957, 49) claims that before 1914 the bank purchased

Open market purchases and sales were also well known in the United States before 1920. A few weeks after the reserve banks began operations, the Board authorized them to purchase government securities “within the limits of prudence as they might see fit” (Board of Governors of the Federal Reserve System, *Annual Report*, 1914, 16). The first Governors Conference in 1915 discussed whether each reserve bank should purchase and sell independently or as part of a coordinated effort.⁷ The reserve banks retained the right to purchase independently but agreed to combine operations in government securities and acceptances under New York’s supervision.

The Board’s hostility to the Governors Conference and the demands of wartime finance ended the first coordination effort. Although San Francisco, Chicago, and Cleveland continued to coordinate actions with New York in the acceptance market, the System did not have a common policy (D’Arista 1994, 82). After the war, the reserve banks renewed efforts to coordinate operations at the March 1919 Governors Conference. New York proposed centralization of acceptance purchases in New York and rules for reserve bank operations. New York wanted a no resale rule for acceptances, to avoid competition with member banks, and common rules for purchases made outside a reserve bank’s home market to restrict competition. Nothing happened. A year later New York tried again, this time urging a common program in which everyone would share and all would be obligated “unreservedly.” Boston argued for developing local markets, and Chicago argued that New York held acceptance rates too low, reducing reserve bank earnings.

The governors could not agree at the time on rules for allocating acceptances purchased commonly. The main decision in 1920 was to appoint a committee to develop a basis for dividing costs and income from joint operations in the acceptance market. A year later the committee recommended a uniform purchase rate and urged that purchases be made only from dealers and only after bills had been endorsed.⁸

Coordinated operations in acceptances laid the groundwork for coordi-

but never sold. Hawtrey (1932, 151) cites the 1847 experience when the bank sold current bills for specie and bought forward bills, thereby removing cash from the market at a time of stress. Testifying before the Lords in 1797, Thornton said it was immaterial whether the bank relieved market strain by discounting or by purchasing government securities.

7. The Federal Reserve Act gave each reserve bank responsibility for its own portfolio. Without voluntary agreement, the System could not have a common policy.

8. The committee included Governors Morss and Fancher and Edwin Kenzel, New York’s expert on acceptances and one of the first appointments Strong made in 1914. The recommendations were not entirely welcome at several of the reserve banks, so frictions about acceptance market practices continued.

nated government securities purchases. Three factors worked to force the next step. First, the New York bank, as the main fiscal agent, was responsible for distributing and refunding government debt. The Treasury complained that uncoordinated market activity by the reserve banks interfered with debt management operations, and some commercial banks complained about competition from the reserve banks in the debt market. Second, the reserve banks purchased heavily in 1921–22 to replace income from discounts during the recession and recovery. The Treasury objected both to the timing of purchases and to the magnitude of the reserve banks' holdings. Third, the New York bank observed that when the regional reserve banks purchased, New York member banks repaid some of their borrowings. The result was a transfer of earnings to the regional reserve banks at New York's expense.

The main impetus for coordination came from the Treasury following the large-scale purchases by the reserve banks. Between October 1921 and May 1922, the reserve banks added almost \$400 million to their holdings of government securities as partial replacement for the \$900 million reduction in discounts during the same period. Purchases were particularly heavy in February and March, when the reserve banks purchased \$200 million, doubling their holdings.⁹

The desire to avoid losses overcame scruples about real bills (Parthemos 1990, 12). In 1920, with high discount rates and heavy discounting, the reserve banks added \$83 million to surplus after paying a franchise tax of \$60.7 million and dividends of \$5.6 million. In 1921 the addition to surplus fell to \$16 million after similar franchise tax and dividend payments. By early 1922 all the reserve banks recognized that income would not be enough to cover their banks' expenses, franchise tax, and dividends. The volume of acceptances had declined along with discounts and discount rates, reducing earnings. Even with the large increase in their government portfolios early in the year, some of the reserve banks had to pay dividends in 1922 from their accumulated surplus.¹⁰

Secretary Andrew Mellon asked the Federal Advisory Council in November 1921 to recommend a policy for the reserve banks. On April 29, 1922, he sent Governor Harding the council's recommendations, opposing any use of the Federal Reserve System "for the purpose of carrying the

9. Purchases were not uniform. New York, Chicago, Cleveland, Boston, and Kansas City were heavy buyers (Board of Governors File, box 1441, March 8, 1922).

10. Inflation and expanded operations had greatly increased expenses. By 1921–22 the reserve banks' expenses were close to \$50 million, nearly ten times expenses in 1916. The general price level was about 50 percent higher, so in constant dollars expenses had increased about sevenfold while the number of member banks increased by 30 percent.

Government's obligations" and recommending that the reserve banks confine their purchases to bills of exchange and acceptances (Governors Conference, May 1922, 13–14). Undersecretary Parker Gilbert pursued the issue with great force in 1922 by writing and speaking to the governors, rejecting their argument about covering expenses, and repeatedly urging them to sell their holdings (Board of Governors File, box 1441, January, March, and April 1922).

Strong undertook three main tasks at the May 1922 governors' meeting. He wanted to coordinate purchases and sales and centralize responsibility in his hands and away from the Board. He had to satisfy the Treasury that the reserve banks would not interfere with fiscal operations and would reduce their holdings. And he had to satisfy the other governors that their autonomy and earnings would be maintained. The governors regarded government securities as a substitute for discounts and acceptances, hence subject to decisions by their directors.

At the May 1922 Conference, Strong read a letter from Secretary Mellon to Governor Harding, dated April 25, objecting to reserve bank purchases. The Treasury's policy was to not ask Federal Reserve banks for assistance. Mellon's letter recognized the desire for earnings, but policy was more important: "I should regard it as particularly unfortunate if incidental questions of expenses and dividends were to be permitted to control on questions of major policy" (Governors Conference, May 1922, 519). He reminded the governors that the reserve banks were not created to make a profit.

Treasury Undersecretary Gilbert wanted the reserve banks to liquidate all their current holdings of governments. To partially compensate for the reduced income, he offered to pay the reserve banks for their fiscal services. And he reminded them that the attorney general had ruled that they could pay dividends out of accumulated earnings when they had insufficient current income.

Most of the governors admitted they were investing for earnings. George W. Norris (Philadelphia) favored buying longer-term bonds to increase yield. Others argued, incorrectly, that since they bought mainly from district banks, they had no effect on the national market. David C. Biggs (St. Louis) reported that one of the reasons his directors agreed to purchase Treasuries was to keep the gold reserve ratio from rising.

Although New York was by far the largest investor in Treasury debt issues, Strong used the Treasury's complaints to advance his program. The reserve banks were fiscal agents of the Treasury. And, he insisted, the Treasury's complaints were correct. The reserve banks had a legal right to pur-

chase securities, but the Treasury wanted a policy of noninterference.¹¹ Not only was it their duty to meet these demands, Strong said, but the Federal Reserve Board could require them to do so.

James McDougal (Chicago) resisted centralization as an attack on the regional character of the System. Open market purchases were local decisions to be decided locally. If the Treasury was in the market, the reserve banks would stay out if notified. He offered a resolution expressing willingness to work with the Treasury but retaining local decision making (Governors Conference, May 1922, 113, 129).

Strong had no interest in solving the problem so simply. He saw the opportunity for a coordinated policy under his guidance. He wanted to build a portfolio that they could use later to prevent a repeat of the 1919–20 (or 1915) experience: “The first thing we know we will suddenly break into a run-away market such as occurred in 1919, with no means of checking it. It is not the intention of this bank to let go its hold upon the situation at the present time, and we would regard ourselves as derelict in our duty were we to do so” (quoted in Chandler 1958, 211).¹²

The main concern of most governors was their banks’ earnings, not System policy. McDougal moved, and the Conference agreed, that “each governor recommend to his directors that it be the policy of the bank to invest in Government securities only to the extent it may be necessary from time to time to maintain earnings in amounts sufficient to meet expenses including dividends and necessary reserves” (Board of Governors File, box 1434, May 2–4, 1922). The governors also agreed to allow their investment accounts to decline at maturity until they had eliminated earnings in excess of expenses and dividends.

Strong was able to gain approval for creation of a committee that would execute centrally all orders to buy or sell for the account of any of the Fed-

11. The Treasury’s policy seems a reversal of typical government finance. A reason for the Treasury’s desire to keep the reserve banks from buying or holding governments was that the Treasury had started to run surpluses in fiscal year 1920 and continued to run large budget surpluses throughout the decade. (At its peak in 1927, the budget surplus was 28 percent of Treasury receipts.) The Treasury used the surplus to retire debt. Between June 30, 1922, and 1929, the gross debt declined \$6 billion, 26 percent of the amount outstanding in June 1922. Hence the Treasury had no interest in having the Federal Reserve banks bid for and raise prices on outstanding debt that it would buy. The Treasury did not invoke the real bills view that the central bank should hold gold and real bills.

12. Strong added: “I would view the future with apprehension were we to commence now to liquidate the \$150 million or \$160 million of investments” (Chandler 1958, 211). These amounts refer to holdings at New York. The System held over \$500 million but began to liquidate in June when prices started to rise. Within a year, System holdings were less than \$100 million.

eral Reserve Banks. He saw this as a way of laying “a foundation for an investment policy” (*ibid.*, 497). The banks were to draw up statements of projected earnings and expenses including dividends. All agreed to stay out of the market when the Treasury issued or redeemed securities. This was the beginning of what was later called an “even keel” policy—keeping interest rates unchanged during Treasury operations.

The agreement did not satisfy McDougal, Norris, and Charles A. Morss (Boston). Chicago had nurtured a local market for government securities. A central committee in New York would favor the New York market. Strong offered to buy and sell in all active markets and suggested that decisions to purchase and sell be controlled by a committee consisting of himself, McDougal, Norris, and Morss. The governors voted to establish the Committee of Governors on the Centralized Execution of Purchases and Sales of Government Securities with the four members Strong had proposed. In October the committee added Governor Elvadore R. Fancher (Cleveland). Governors of these banks continued to serve as the executive committee during the 1920s.

As the committee’s name suggests, its role was limited to recommendations and to execution of orders sent by the reserve banks. Responsibility for decisions remained with the individual banks and their directors, who retained the right to purchase and sell at their discretion and to buy directly from member banks in their districts.

At the first meeting, the committee elected Strong chairman, with Deputy Governor J. Herbert Case of New York as his alternate. The committee began coordinated sales of securities in response to the Treasury’s request to reduce holdings and the reserve banks’ agreement to limit holdings to cover expenses. The sales occurred at a time of recovery and expansion. The Board’s index of industrial production rose 35 percent in 1922, and GNP increased at a 13 percent average annual rate for the four quarters of 1922, despite a decline at the start of the year. In June Boston, New York, and San Francisco responded to the continuing decline in open market rates by reducing their discount rates by 0.5 percent to 4 percent despite the expansion.

Undersecretary Gilbert wrote to Strong in mid-September, again urging that the reserve banks liquidate all their government securities. Sales would permit increased member bank borrowing, he said, expressing what was soon to be the System’s policy view. The reserve banks should reduce discount rates to encourage the additional borrowing. Further, he complained that even with the Committee on Centralized Purchases and Sales, reserve banks were purchasing independently to increase earnings. Strong replied that since May the reserve banks had sold \$150 million, one-

third of the account. The committee had no power to do more than act as agents for the individual reserve banks. And, Strong added, he opposed a reduction in the discount rate, since additional borrowing might prove to be inflationary (Board of Governors File, box 1434, September 13 and 15, 1922).

When the governors met in October, Gilbert continued to press for reductions in reserve bank holdings to be carried out without disturbing Treasury operations (Governors Conference, October 10–12, 1922, 425). The governors recommended no further purchases and modified their objectives.¹³ Henceforth they would conduct open market operations with less attention to earnings and dividends and more to the effects on the money market. Governor McDougal, though a member of the Committee on Centralized Purchases and Sales, spoke against the recommendation as a radical departure from practice and from the principle that made directors responsible for portfolio decisions. George J. Seay (Richmond) also objected. He was hesitant to give any committee the power to override the judgment of the individual reserve banks. Strong replied, perhaps disingenuously, that nothing of that kind was intended. The committee would make recommendations to the individual banks. The reserve banks' directors would make portfolio decisions. The committee had a "purely ministerial function"; it would not decide policy.¹⁴

The governors also took a major step away from the original plan for semiautonomous banks and toward a unified System. The Committee on Centralized Purchases and Sales now had responsibility for recommending to the reserve banks the advisability of purchases and sales.¹⁵ Decisions remained with the individual banks; they could refuse to participate, so

13. An exception to the decision allowed reserve banks to purchase so-called Pittman Act securities that the Treasury wanted to withdraw. Richmond, Atlanta, and Dallas purchased only these securities. Pittman Act securities had been issued under an April 1918 act that permitted the Treasury to withdraw silver certificates from circulation and replace them with Federal Reserve banknotes backed by Pittman Act certificates. The Treasury sold the silver to Britain to support India's silver standard. After the war, the Treasury repurchased silver and reissued silver certificates, and the reserve banks reduced Pittman Act certificates and the corresponding currency issues (Friedman and Schwartz 1963, 217n).

14. Strong recognized, however, that unless the directors objected, an individual reserve bank would receive securities under the formula for allocating purchases and sales. Hence a bank's portfolio would change with decisions by other banks, including particularly the decisions by the five largest banks, whose governors constituted the committee. But he did not mention this point in response to Seay.

15. Burgess (1964, 220) cites Strong's discussion of "credit control" at Harvard in October 1922, in which he does not mention open market operations, as evidence that there was no open market policy. The May and October 1922 meetings, however, show that Strong was clearly aware of the opportunity. The only coordinated action to that point had been sales at the behest of the Treasury.

centralization had not yet been realized. This is clear from the responses to a letter sent by Vice Governor Edmund Platt of the Federal Reserve Board early in February 1923.¹⁶ The letter asked each governor to explain his bank's policy with respect to purchases of acceptances and governments.¹⁷

The question is surprising. The reserve banks, by unanimous vote, had adopted a common policy statement at the October 1922 Governors Conference. The statement said that discount policy and "open market operations should be administered in each district in such manner as to assist the system in discharging, as far as it may be able, its national responsibility to prevent credit expansion from developing into credit inflation." The statement was included again in the minutes of the Committee on Centralized Purchases and Sales on February 5, 1923, when it decided not to make further purchases (Board of Governors File, box 1434, February 5, 1923). Except for New York, none of the responses to Platt's letter referred to the policy statement. The eleven banks gave no recognition to systemic or market effects. There were three types of responses.

Several banks reported that they executed all their purchases through the centralized committee. There were not many discounts, so purchases were made to increase earnings. Chicago acknowledged that the System's policy was to assist the Treasury by buying acceptances instead of governments. However, "the volume of bills . . . is at times inadequate to supply the Federal Reserve Banks with sufficient investments" (Board of Governors File, box 1434, February 7, 1923). Relying only on acceptances would depress rates and drive the commercial banks out of the market. A few banks wrote that they did not participate in the governors' centralized purchases. They bought governments from district member banks, at prices quoted in New York, as an accommodation because there was no market in their district. Only New York wrote that purchases were made as part of

16. Edmund Platt served as a member of the Board from June 1920 to September 1930 and was vice governor after July 1920. Platt trained as a lawyer but had worked as a journalist and an editor. In 1912 he was elected to Congress as a Republican when his opponent died. He voted against the Federal Reserve Act. In 1919 he became chairman of the Banking Committee (Katz 1982, 216–17). Platt was the senior operating official of the Board from August 9, 1922, when Governor Harding's term as a Board member ended, to May 1, 1923, when Congress confirmed Daniel R. Crissinger as governor. The most likely reason for the change was that Governor Harding was a Democrat, appointed by President Wilson. The *New York Times* wrote at the time that "his forced retirement would give a shock to the financial community," a comment repeated about many of his successors (Kettl 1986, 28). Subsequently, Harding became governor of the Federal Reserve Bank of Boston, where he served from 1923 to 1930.

17. The letter appears to have been sent after Adolph Miller raised the issue at the January 8 Board meeting. Miller understood that open market operations had a monetary effect. He wanted the banks to explain the reasons for their purchases and their plans for 1923 (Board Minutes, January 8, 1923).

a policy of keeping the volume of credit as stable as possible after allowing for seasonal demands.¹⁸

The Board's Response

From the very beginning of centralized purchases, the Board tried to find ways to control operations. Soon after the Treasury began to express concern about purchases, the Board asked its general counsel for an opinion about its powers. The counsel's report concluded that the "Board has legal right to impose any restrictions and limitations it may deem proper" (Board of Governors File, box 1434, April 14, 1922, 190). The memo left decisions to purchase and sell up to the reserve banks; the Board had general supervisory powers.

During the winter of 1923, the Board was pressed to adopt a policy from one side by Secretaries Mellon and Gilbert and from the other by Adolph Miller. The Treasury wanted the Board to stop the reserve banks' open market purchases and get the banks to liquidate their holdings (letter Mellon to the Federal Reserve Board, Board of Governors File, box 1434, March 10, 1923). Vice Governor Platt's response expressed general agreement with Mellon's concerns, but he noted that the Board could coordinate actions by the reserve banks but did not have authority to stop all purchases. Mellon's reply did not accept the Board's argument. Under its power of general supervision (section 11[j]), he wrote, the Board had ample authority to prohibit the reserve banks from investing in government securities. Mellon sharply distinguished investments from credit market transactions. Only the former should be prohibited. Credit market transactions "should not be hampered by regulations any more than is absolutely necessary" (Mellon to Platt, Board of Governors File, box 1434, March 15, 1923).

Miller wanted open market policy to be made with regard to the general credit situation. On March 8 the Board voted to ask Miller to draft a policy statement, and meanwhile it wrote to all the reserve banks urging them to allow their certificate holdings to run off without replacement. Two weeks later the Board considered Miller's proposed resolution. Citing its powers of general supervision of investments under sections 13 and 14 "to limit and otherwise determine the securities and investments purchased," the need to maintain a proper relation between discount and open market op-

18. The reserve bank governors' concern for earnings is shown by the votes on the resolutions offered at the October 1922 meeting. The governors defeated Strong's proposal that open market operations be used to regulate discounts and gold imports. When the resolution omitted "gold imports," the proposal passed unanimously. The difference affected earnings. Substituting securities for discounts leaves earnings unchanged; substituting securities for gold changes the earnings flow.

erations, and the embarrassment that past operations had caused the Treasury, the Board ruled that the reserve banks should conduct open market operations “with primary regard to the accommodation of commerce and business, and to the effect of such purchases or sales on the general credit situation” (Board Minutes, March 22, 1923, 177–78). The resolution abolished the Committee on Centralized Purchases and Sales and appointed the five members of that committee as the Open Market Investment Committee (OMIC). Miller’s resolution placed the committee under the Board’s control.¹⁹

To placate the Treasury, the Board’s resolution required the committee to conduct most of its operations in the acceptance market. Reflecting the real bills view incorporated in the act, the resolution instructed the committee to take account of the effect of purchases of government securities, “especially short-dated issues, upon the market for such securities, and to restrict open market purchases to *primarily commercial investments*, except that Treasury certificates be dealt in, as at present, under so-called repurchase agreement” (Board Minutes, March 22, 1923, 177–78; emphasis added).

The governors were meeting down the hall. A joint meeting with the Board, which Burgess (1964, 221) describes as “stormy,” discussed the Board’s resolution and its claim to general powers over portfolio decisions. W. P. G. Harding had replaced Morss as governor at Boston. Perhaps because he was the former governor of the Board and Strong was on leave, Harding led the governors’ criticism of the proposed resolution. He was not opposed to selling government securities, but he opposed doing so on the Treasury’s orders. This gave the Treasury a voice in open market policy and set a bad precedent. Further, he objected to the part of the resolution that severely restricted the banks’ right to buy government securities. The Board did not have power to prevent the reserve banks from buying securities. Its power was supervisory only, and the Treasury had no power at all (Joint Meeting of Governors and Board, Governors Conference, vol. 2, March 22, 1923, 669–70).

Miller responded that the banks’ purchases in 1922 had not been coordinated by the Committee on Centralized Purchases and Sales. The banks

19. Miller’s recommendation had the open market committee chaired by the Board. The Board removed this phrase to meet the objections expressed at the Governors Conference. Miller was not satisfied with the Board’s role. In the 1926 Stabilization Hearings, he urged the House Banking Committee to strengthen the Board’s role by making open market operations “subject to the approval and the orders of the Federal Reserve Board” (House Committee on Banking and Currency 1926, 866), and he proposed Board control again in 1928–30, when the committee’s size increased to twelve members. The Banking Act of 1935 transferred control to the Board.

had purchased \$400 million more than needed to meet expenses and dividends. This criticism angered McDougal, who argued that the additional purchases were made because discounts had increased more than expected as the economy recovered.²⁰

The Federal Reserve Act gave the Board general powers of supervision. None of the governors questioned the extension of these powers to open market operations. Harding, joined by Case and Norris, objected to the Board's claim that it would "limit and otherwise determine" the amount and type of open market purchases and sales. Norris said the Board lacked general authority over a reserve bank's portfolio decision. General authority would mean that the law created a central bank, in Washington, with the reserve banks as operating branches.

Miller's response recognized the importance of open market operations: "The open market operations of the system are going to be the most important part of the system, largely because it is through the open market clause of the Act that the reserve banks are in a position to take the initiative" (*ibid.*, 700).

The Board was the proper authority, Miller argued, because it had a national, not a regional, perspective. Harding replied that there was no general power in the Federal Reserve Act. The Board's counsel could not point to any place where the Board was empowered to limit the amount of government securities that the reserve banks could purchase.

Miller's response recognized the law's limitations but chose to ignore them. Without intending to prophesy, he foresaw what would happen: "The powers of the Board have been challenged in this matter. I regret to say that there has even been some question in the Board itself as to whether it had the power. A Board that doubts its power doubts its responsibility, and a Board that doubts its responsibility is very apt to be charged with responsibility later. . . . I think we have got the power; to me it is almost as clear as though it were there" (*ibid.*, 694).

Miller found no support for his interpretation among either the governors or his Board colleagues. The governors, on their side, did not question the Board's supervisory role or its power to replace the Committee on Centralized Purchases and Sales with the OMIC. Hamlin proposed that the offending paragraphs claiming general authority be stricken. With that change, the Board and the banks reached agreement. On April 7 the Board approved an amended version of Miller's resolution that omitted the offending language. The Board also issued a statement of objectives for open

20. Undersecretary Gilbert was present at the meeting. He did not participate in the heated exchanges, confining his remarks to urging additional liquidation first of certificates and then of notes (House Committee on Banking and Currency 1929, 741).

market policy. Open market investments were to be “governed with primary regard to the accommodation of commerce and business, and to the effect of such purchases or sales on the general credit situation.” Thus the new procedure was blended with the old and brought under the congressional mandate. The banks had thwarted the Board’s attempt to control policy operations, but the issue would return.

The compromise did not satisfy either side. Before the first meeting of the OMIC on April 13 at Philadelphia, Miller proposed that Vice Governor Platt tell the governors they must sell all their government securities before the Board would approve an increase in discount rates. Strong was annoyed repeatedly by the Board’s failure to endorse OMIC decisions and by the frequent delays and changes in the decisions reached by the committee. Miller continued to press for more control. As chairman of the Board’s Committee on Discounts and Open Market Operations, Miller was well placed to interpose his views of proper actions. Further, he tried unsuccessfully to reduce the committee’s power. Early in 1925 he proposed that the Board outlaw repurchase agreements. In 1928 he again asked the Board’s counsel to review the Board’s authority over open market operations. The resulting memo left no doubt that the Board lacked the power Miller sought. The memo also made it clear that the open market agreement was voluntary—that any bank could withdraw if it chose to do so:

The Board, under this Section [14(b)], is given the power to regulate, and probably it could prescribe, maximum and minimum amounts which could be sold during any one period, but it could not forbid sales or purchases absolutely, for the power to regulate is not the power to destroy. . . .

The formation of the Open Market Investment Committee grew out of a voluntary agreement entered into between the Federal Reserve Board and the Federal Reserve banks. Under this agreement, the individual authority and discretion of each Federal Reserve bank to buy and sell Government securities is taken away, and the power is given to the Open Market Investment Committee and the Federal Reserve Board. I believe a Federal Reserve bank could withdraw from this agreement at any time. . . .

In my opinion, the Federal Reserve Board has no legal right under the Federal Reserve Act to create such a Committee, or to take over to itself such functions, except by voluntary agreement. (Board of Governors File, box 1435, April 25, 1928)

What Changed?

The decision to create an open market committee did not introduce a new policy instrument. Open market operations had been used for more than

a century, and it was widely believed that purchases and sales could be used to change interest rates and expand credit and money.²¹

The principal changes were in interpretation or beliefs about the effect of open market purchases and sales, the role of the reserve banks, and their influence on national, as opposed to regional, financial conditions. Strong's view that the principal effect of open market operations fell on member bank borrowing, not interest rates or credit, became the foundation of a revised view of how monetary operations worked. The new view changed the role of the reserve banks in two ways. Burgess (1964, 220) reports the two conclusions drawn at the time:

First, as fast as the Reserve banks bought government securities in the market, member banks paid off more of their borrowings; and, as a result, earning assets and earnings of the Reserve bank remained unchanged. Second, they [the reserve banks] discovered that the country's pool of credit is all one pool and money flows like water throughout the country. . . . These funds coming into the hands of banks enabled them to pay off their borrowings and feel able to lend more freely.

Burgess (1964) recognized that the new policy view depended on the large gold reserve. This allowed policymakers to ignore any gold movements induced by purchases or sales. Reserve banks did not have to wait for gold movements or for member banks to borrow or repay; they could take an active role, forcing borrowing or encouraging repayment by reduc-

21. In September 1921 a private citizen, Albert Russell, wrote to Governor Harding urging action to stop the deflation. Russell wanted the Board to authorize purchases of bills, acceptances, and government securities to expand credit, lower interest rates, and reduce unemployment. Russell also wanted to let New York buy securities in districts with higher rates to bring rates toward equality in the various districts. Harding's reply did not disagree but claimed that the Board lacked authority. The "Board does not have the power to compel a Federal Reserve bank to make any investment which its own directors may deem inadvisable." Harding urged Russell to write to the reserve banks, "particularly the Federal Reserve Bank of Chicago," but he asked that the letter not mention Harding's reply. Russell wrote to both McDougal and Strong (and perhaps to others). The letters urged that "the Federal Reserve Banks force lower commercial rates by increasing on their own initiative the reserve funds of commercial banks." The letter went on to argue that there would be a multiple expansion of money and credit. McDougal replied that he could not comment because "I prefer not to be quoted" (Board of Governors File, box 1433, September 26 and 28, October 1 and 6, 1921). Strong replied that purchases would not lower interest rates or expand credit "but would probably result in the immediate repayment of borrowings for a like amount by the member banks." Strong added: "I agree that ultimately in more normal times . . . the operations of the Reserve banks will be principally through open-market purchases rather than discounting for member banks" (Chandler 1958, 207-8). Chandler criticizes this passage for its lack of understanding and comments on the change that occurred in Strong's thinking in the next two years (by 1923). In fact, the passage shows that Strong had already formed the main new idea he held in the 1920s—that open market operations drove banks to borrow or repay discounts.

ing or increasing bank reserves. Further, discount rates now had at best a secondary role of supporting open market policy. The System could curtail borrowing without raising rates to levels that brought political and public criticism.

The new view, developed in New York, was based partly on observation of the effects of open market purchases in 1921–22 and partly on empirical studies. At the time, Burgess summarized the empirical findings about interest rates from 1831 to 1922 as showing that the System's main effect on rates would be less seasonal variation. He reported that

- (1) there is no long-term effect of Federal Reserve operations on interest rates; in the long-run rates depend on the productivity of capital;
- (2) changes in the demand for and supply of money cause fluctuations around the long-term rate;
- (3) the Federal Reserve is one factor reducing interest rate variability; other factors include reduced speculation on natural resources, other improvements in money market organization, and increased wealth and saving;
- (4) a main effect of the Federal Reserve was a change in the seasonal; rates were lower in October to December, and higher in April to July, after 1914. (Board of Governors File, box 1240, December 1923)

As was customary at the time, and long after, Burgess did not distinguish between real and nominal interest rates.

The Board's Tenth Annual Report

Studies of policy actions and development of statistical series by the Board's staff, led by Walter Stewart, complemented the findings at New York. Stewart's work formed the basis for the most important policy statement of the period—the Board's tenth annual report—offering substitutes for the gold reserve ratio as a guide to Federal Reserve policy (Board of Governors of the Federal Reserve System, *Annual Report*, 1923, 29–39).

The report, written mainly by Stewart with Miller's support, blends the old and the new policy views by joining the real bills doctrine underlying the Federal Reserve Act with the more activist policy of responding to current and anticipated changes in the credit market.²² Instead of waiting for member banks to borrow or repay, the reserve banks could influence the supply of real bills. Instead of a portfolio consisting of real bills and gold,

22. "The discussion had moved away from the concept of the Reserve system as a mechanism responding semiautomatically to the demands made upon it to that of an organization responsible for taking the initiative" (Burgess 1964, 222).

the reserve banks would now choose to hold government securities as part of their portfolios.²³

The report offered two “tests” of policy, qualitative and quantitative. The qualitative test, as before, was whether credit was used for productive purposes. The new quantitative test replaced the gold reserve ratio with measures showing how credit changed relative to production. The report argued that the qualitative test alone could not be sufficient. Credit is fungible. A bank could offer real bills while financing speculative activities. Or a bank could borrow on government securities to finance production.

Both tests required judgment. The assets used to support bank borrowing need have no relation to the marginal extension of credit. Judgments about quantity could be made only by looking at many indications of business conditions, including indexes of production and employment.

The report rejected both the gold reserve ratio and the price level as the principal quantitative guides. The gold reserve ratio had the benefit of tradition and wide acceptance, but its usefulness depended on the reestablishment of the international gold standard. In response to critics who urged the Federal Reserve to adopt price level stability as its main objective, the report argued that there are many causes of price level changes. Several of the causes are independent of “the credit system,” so a central bank that tried to control the price level would fail. The quantity theory of money was brushed aside: “The interrelationship of prices and credit is too complex to admit of any simple statement.” The discussion of the price level ended with the following: “Credit is an intensely human institution and as such reflects the moods and impulses of the community—its hopes, its fears, its expectations” (Board of Governors of the Federal Reserve System, *Annual Report*, 1923, 32). Credit administration cannot be done by “mechanical rules.” It must be done by judgment guided by the principles of the Federal Reserve Act.²⁴

Some members of the Board, particularly Miller and Hamlin, did not accept the activist view of policy and the quantitative guides. They could accept the new policy as a means of getting banks to discount or repay, since that was consistent with the Federal Reserve Act and the real bills doctrine.

23. The report does not recognize, however, that making the latter change without changing the authorized backing for currency created a potential mismatch between assets and liabilities. If government securities became a relatively large part of the asset portfolio, there would be fewer real bills to back currency and bank reserves. The Glass-Steagall Act removed the problem temporarily in 1932. Permanent authority waited until 1945.

24. These statements reflect the strong belief that monetary (or credit) velocity was unstable. This was the basis of the statements by Miller and others that the Federal Reserve could control credit but not the price level.

Further, to satisfy proponents of real bills the report advocated a policy of qualitative control by “direct supervision” of the use of credit by member banks, contradicting the clear statement about the fungibility of credit.

These different statements became the basis later in the decade for disputes between the Board and the reserve banks. In 1924 and 1927, Miller objected to open market purchases made not to reduce discounts but to expand money and credit. In 1929, the Board and the reserve banks quarreled over reliance on direct supervision (qualitative control) to prevent increases in stock exchange credit.²⁵

Differences of Opinion

Burgess later claimed that most of the reserve banks regarded direct supervision of the use of credit as “theoretical and impractical” (1964, 222 n. 2). Clearly there was little enthusiasm for direct controls at some of the larger reserve banks, and New York was opposed. Governors of several reserve banks held to the real bills view, however, and accepted qualitative controls. They disliked Board interference in lending as a violation of their autonomy, but their views were closer to Miller’s than to Strong’s.

Case praised the discussion in the tenth annual report, calling it “a most excellent report and a good set of principles to follow” (Governors Conference, May 6, 1924, 240).²⁶ New York had applied the quantitative principles on April 30, lowering its discount rate in recognition of what appeared to be the start of a recession. At a joint conference of the Board and the Governors on May 7, Governor Daniel R. Crissinger²⁷ of the Board asked New York “on what theory they acted” (Joint Conference, Governors

25. Concerns about the quality of credit and real bills were common in the academic profession, the financial community, and Congress. Beckhart (1972, 214) quotes congressional testimony by leading academics who refer to “diversion of large amounts of credit into speculative enterprises which are bound to breed ultimate collapse.” This view is closely related to the alleged inevitability of depressions following increases in speculative credit that the System used to absolve itself of responsibility for the Great Depression.

26. At the time, J. Herbert Case was deputy governor at New York. Later he served as chairman and Federal Reserve agent. Case substituted for Strong on the Open Market Investment Committee (OMIC) in the 1920s when Strong was absent.

27. Daniel R. Crissinger was a boyhood friend and neighbor of President Warren Harding. He served as Comptroller of the Currency, and ex officio member of the Board, from March 1921 to April 1923. On May 1 he became governor of the Board. Crissinger was a small-town lawyer who had served as president of a small bank. Secretary Mellon opposed his appointment as governor, but President Harding insisted and he was confirmed, perhaps because he came from a rural and agricultural background (Katz 1992, 62). He is generally regarded as an ineffectual manager who could not achieve agreement within the Board or control Strong and the reserve bank governors. He resigned to join a mortgage loan firm in November 1927 after the Chicago discount rate controversy discussed later in this chapter.

Conference, May 7, 1924, 1).²⁸ This question started a lengthy discussion of discount rate policy that gives insight into prevalent views. Some of the differences reflected in the discussion became central issues later in the decade and help to explain the failure to act during the depression.²⁹

The governors had agreed at an earlier meeting that in place of a penalty discount rate, the discount rate should be held at the average of commercial paper rates and the lending rates at banks in the principal cities of the district (Governors Conference, May 6, 1924, 240). This set the level of the discount rate relative to a market rate, but it left the decision to the market, in contrast to the part of the tenth annual report that proposed activist Federal Reserve policy.

Case used this agreement to justify the New York decision. The decision was taken to align the discount rate with market rates and with the principles of the tenth annual report. Several governors, who disliked the lower discount rate, challenged the decision as an unduly activist policy out of keeping with the Federal Reserve Act. One reason for the criticism is that the lower discount rate in New York drew borrowing to New York, reducing the earnings of other reserve banks and encouraging Boston, Philadelphia, and others to lower their rates, further reducing their earnings. Governor Harding of Boston described business conditions in New England as showing “a very distinct recession,” but he did not want to lower the discount rate. A reduction would not stimulate business but would probably encourage speculation. Further, the member banks did not want a reduction because they did not want to reduce their lending rates (Joint Conference, Governors Conference, May 7, 1924, 9–11). Governor Norris supported Harding’s statement. Banks in the Philadelphia district also opposed a reduction in discount rates. Norris believed that any recession “should be allowed to run its course, provided it does not become too violent” (*ibid.*, 19 and 20).

Neither Norris nor Harding gave either recognition or support to the new policy principles. McDougal also opposed activist policy. In an exchange with Miller, he argued that lowering the discount rate was “squarely against the policy that Federal Reserve banks should pursue.” It would lead to an “abuse of credit [and] . . . encourage inflation.” The discount rate reduction was wrong because “it is not reflected in the demands

28. This particular report of the Joint Conference was treated as confidential within the System. It was not circulated to the governors or included with the report of the meeting. The report is filed at the end of the report of the Governors Conference, but the pages are numbered independently.

29. Wicker (1965) correctly distinguishes between quantitative and qualitative guides but separates their application by time period. A closer reading suggests that some members relied on one, some on the other, throughout the period.

upon the Reserve banks.” “I think we should not lead the rates down, and that is what has been done recently by one bank” (*ibid.*, 38–40). Although they were members of the OMIC, McDougal and Norris threatened to purchase securities for their banks to increase earnings.

John U. Calkins (San Francisco) and Fancher (Cleveland) criticized New York’s action also. Calkins took a standard real bills approach. The open market committee “has put money into the market when it is unduly easy and it will . . . be taking money out of the market when the market is beginning to tighten” (*ibid.*, 19). He did not oppose Strong’s purchases in principle, but the purchases had not lowered market rates. The failure was evident in New York’s decision to lower rates by reducing its discount rate. The only reason for reducing the discount rate that he had heard from Case was that it could be raised later.

Stewart then reported on business conditions. Wholesale prices had fallen by 6 percent in three months, and employment by 2 percent, since the start of 1924. Other indicators also showed the beginning of a moderate to steep decline.³⁰ The report had no perceptible effect on the discussion. The Board and the New York bank continued to argue for lower interest rates; the other reserve bank governors continued to oppose them. Seay (Richmond) thought 4.5 percent was attractive, since banks in his district paid 5 percent for time deposits. He challenged Miller to explain why a reserve bank should try to lead rates down (*ibid.*, 57). Roy A. Young (Minneapolis) and David C. Biggs (St. Louis) saw no reason for lower rates. Willis J. Bailey (Kansas City) put forward an argument that some of the others may have been hesitant to make—the effect on reserve bank income: “How are we going to pay dividends and salaries?” (80).

Miller and Crissinger said that rates should have been reduced in January or February. Miller made the argument for the Board, but all the Board members concurred (*ibid.*, 80, 83–84). Leading the market to rate reduction was the right policy unless the increase in credit was for speculation. Policy actions must be symmetrical. When the Federal Reserve “undertakes to use its rates for the purpose of restricting credit, it has got to show that it is also willing to do what it can to give the public and the borrowing community the benefit of lower rates when conditions warrant it” (59). If the recession continued or deepened, Miller said, New York should reduce

30. Industrial production reached a peak in May 1923, then fell until August 1924. The annual rate of decline reached 18 percent in July. At the time of the meeting, the year-to-year decline was 13 percent. Balke and Gordon’s GNP data show a 7 percent decline in the price level and an 8.6 percent decline in real GNP for the second quarter of 1924. The recession had started a year earlier but had been interrupted by a strong recovery early in 1924. The recovery ended, however, and the decline in the price level and real GNP resumed.

its rate to 3.5 percent: "It will be very much easier for the directors of the New York reserve bank and its officers to bring the rate up if they move from 3.5 percent than if they had stuck at 4.5 and desired to raise it from 4.5 to 5" (60–61). Miller concluded: "The Federal Reserve is on trial, and I do not want to acutely attract destructive attention to us through niggardly, parsimonious or hesitant action with respect to the discount policy" (75).

Much of this argument was political, so it was unlikely to persuade the governors who thought the Board was overly responsive to political pressures. The argument hardly spoke to the main concerns felt by most of the governors—concerns about earnings and dividends and what later became known as "elasticity pessimism," the belief that demand did not respond much to changes in interest rates. Although Miller claimed that rate reductions could have sizable effects on the amount of borrowing, many of the governors contended the opposite. This was particularly true of the governors from the agricultural regions, but the point was voiced by others, including Norris, McDougal, and Harding.³¹ None of the principals except Case (New York) made any reference to, or expressed support for, the principles in the tenth annual report.

Meeting in conference without the Board, the governors discussed whether to continue centralized purchases through the OMIC and, if so, the principles that should guide the OMIC. Calkins argued that reserve bank earnings were an inappropriate guide. Earnings would be low when borrowing and interest rates had fallen. If earnings were the guide, the reserve banks would purchase and ease the money market when the market was "easy" and conversely. Policy would be countercyclical. This, he said, is "exactly the reverse of what is desired" (Governors Conference, May 1924, 17). The reserve banks were supposed to take money out of the market in recession when the market was "unduly easy" because the supply of real bills had declined (19). This policy was procyclical.

McDougal, Fancher, and others criticized earlier decisions, taken in response to Treasury pressure, requiring reserve banks to sell all government securities. McDougal wanted to purchase long-term bonds to increase earnings (*ibid.*, 20). Case acknowledged that selling off most of the portfolio in 1923 was a mistake, but recently the Open Market Investment Committee had bought back \$235 million. The purchases had not increased reserve bank credit as Calkins implied. Reserve bank credit declined as purchases were made in recession. The effect of purchases, he said, was much more on the volume of discounts than on the aggregate portfolio.

31. These claims that the discount rate had only modest effect were not forgotten when the reserve banks wanted to increase discount rates in 1929 and the Board opposed.

The discussion turned again to earnings. The governors discussed three options: If earnings fell below expenses plus dividends, the reserve banks could curtail check processing, currency deliveries, and other services, purchase securities, or pay dividends from their accumulated surpluses. Three governors favored curtailing services. Nine favored paying dividends from surplus. The consensus was that open market operations should be conducted independently of earnings and dividend requirements and that the OMIC should continue. The governors retained the right to purchase or sell independently of the OMIC if their directors decided to do so.

Economists' Views

The tenth annual report marks a turning point in Federal Reserve policy and, later, in the policies of other monetary authorities. Leading economists commented on the development of more activist policy and the use of open market operations to adjust bank borrowing.

The British economist Ralph Hawtrey found the new view of open market operations “highly encouraging to those who hope for enlightened management of credit with a view to the stabilization of prices” (1924, 284). He praised the report for its contribution to solving some of the practical problems of monetary control. He found the analysis flawed in two respects, however. First was the continued reliance on real bills and the qualitative test. These are “time-honored fallacies from which practical bankers seem to be quite incapable of emancipating themselves.” (285) Second was the “delusion” that the United States received gold because of its balance of payments: “Apparently they have not yet learnt that they receive all this gold simply because they offer a higher price for it” (286). However, Hawtrey did not go on to say that, at the current gold price, the Federal Reserve’s aims of achieving price stability and restoring the international gold standard required continued deflation abroad or changes in exchange rates.

John Maynard Keynes (1930, 2:225–21) accepted the new role for open market operations but thought that Federal Reserve officials underestimated their effectiveness (2:231). He praised the Federal Reserve for its policy from 1923 to 1928. It had shown “that currency management is feasible in conditions which are virtually independent of the movement of gold” (2:231). Although he recognized that the policy failed after 1929, he did not relate the failure to the previous policy.³²

Charles O. Hardy (1932, 27, 273) was more representative of contempo-

32. One reason is that he misinterprets Federal Reserve policy in the 1920s. Keynes claimed that the policy worked because the United States public was willing to absorb “the remarkable growth in the volume of bank money.” In fact, base money and M_1 rose at average rates of 2 to 3 percent a year, slightly less than output growth.

rary views. He argued that the new approach missed an important difference between discounts and open market operations. Control of discounts provided quantitative and qualitative control, whereas open market operations controlled only the quantity of credit. Like many of his contemporaries, he accepted the central idea of the real bills doctrine.

THE RIEFLER-BURGESS DOCTRINE

The tenth annual report does little more than sketch a new framework for monetary policy.³³ During the 1920s, many people contributed to filling in the details. The best of this work was contained in two remarkable books by Winfield Riefler, an economist at the Board, and W. Randolph Burgess at the New York bank (Riefler 1930; Burgess 1936). I refer to the framework they developed as the Riefler-Burgess doctrine.³⁴

The central relation was the member bank borrowing function. Although the reserve banks had tried in the early years to operate an English system with a penalty rate, Riefler and Burgess discarded that approach; they explained that banks were reluctant to borrow, borrowed only if reserves were deficient, and repaid promptly.³⁵ To repay borrowing, banks called loans, raised lending rates, and sold government securities.³⁶ Discount rate policy reinforced open market policy. A rise in the discount rate lowered the level of member bank borrowing, reduced credit and money, and raised market interest rates; a reduction in discount rates lowered market rates. Thus policy actions influenced market rates by changing the level of member bank borrowing and the discount rate.

Riefler presented the reluctance view as a central element of his theory. The importance of bank indebtedness in the transmission of policy reflected the banks' inability to control borrowing and their unwillingness to remain in debt.

33. A complete statement of the Riefler-Burgess framework is part of Brunner and Meltzer 1964a. This section is based partly on that paper.

34. As already noted, Strong and Stewart contributed independently. Strong read and commented on an earlier edition of Burgess's book. The framework evolved to reflect major changes, notably the large increase in excess reserves in the 1930s. It remained as a guide to policy into the 1950s.

35. Riefler (1930, 21–22) compared the behavior of borrowing under the "reluctance" and "for profit" motives. Banks could have borrowed to equalize rates during the 1920s. When open market rates were above discount rates, banks would have brought them down if they borrowed for profit. This argument ignored risk elements.

36. "When the member banks find themselves continuously in debt at the Reserve banks, they take steps to pay off the indebtedness. . . . Conversely, when most member banks are out of debt at the Reserve banks, they are in a position to invest their funds; and money rates, including commercial paper rates become easier. The relationship rests largely on the unwillingness of the banks to remain in debt at the Reserve banks" (Burgess 1936, 220).

The most obvious theory is that member banks, on the whole, borrow at the reserve banks when it is profitable to do so and repay their indebtedness as soon as the operation proves costly. The cost of borrowing at the reserve banks, accordingly, is held to be the determining factor in the relation between the reserve bank operations to money rates, and the discount policy adopted by the reserve banks to be the most important factor in making reserve bank policy effective in the money markets. At the other extreme, there is the theory that member banks borrow at reserve banks only in case of necessity and endeavor to repay their borrowing as soon as possible. According to this theory the fact of borrowing in and of itself—the necessity imposed by circumstances on member banks for resorting to the resources of the reserve banks—is a more important factor in the money market than the discount rate . . . open market operations . . . contribute more directly to the effectiveness of the reserve bank credit policy than changes in discount rate. (Riefler 1930, 19–20)³⁷

Chart 4.1 shows that the relation between discounts and government securities is negative in the 1920s. The bivariate relation is much less than one-to-one, however. On average, open market purchases reduce discounts by less than the amount of the purchase. A more complete analysis in appendix A allows for other relevant factors and casts doubt on the posited relationship.³⁸

The discount rate has an ambiguous role in Riefler-Burgess. At times its role is modest; open market operations drive banks to borrow and repay at the prevailing rate. More often, open market operations prepare the way for discount rate changes. Strong testified in 1926 that the Federal Reserve continued to study and learn but had reached some preliminary conclusions:

If speculation arises, prices are rising, and possibly other considerations move the Reserve banks to tighten up a bit on the use of their credit, and we own a large amount of Government securities, it is a more effective program, we find by actual experience, to begin to sell our Government securities. It lays a foundation for an advance in our discount rate.

If the reverse condition appears, . . . then the purchase of securities eases the money market and permits the reduction of our discount rate. (House Committee on Banking and Currency 1926, 332–33)

37. The acceptance market differed from the market for borrowed reserves. The Federal Reserve announced a price, the discount charged on acceptances. Banks sold to the Federal Reserve, at their initiative, only if it offered a price above the going market rate.

38. The points at the upper right of chart 4.1 are for second quarter 1928 to third quarter 1929.

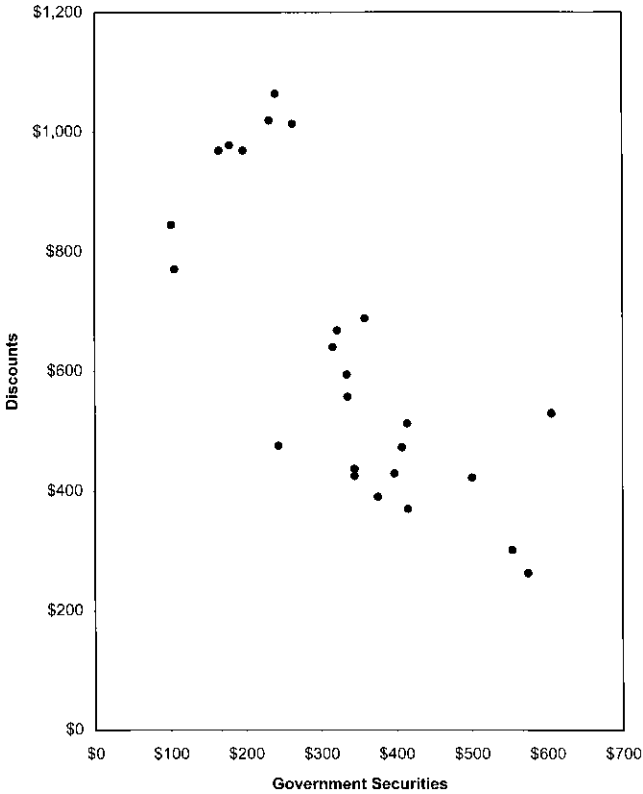


Chart 4.1 Discounts and government securities 1923.3 to 1929.3 (millions of dollars).

The Riefler-Burgess doctrine was compatible with the real bills doctrine and the Federal Reserve Act, but it permitted activist policymaking. Open market operations could be conducted so as to accommodate agriculture and commerce, as the act prescribed, but they could also be used for other purposes. However, nothing in either the Riefler-Burgess or real bills doctrine distinguished between real and nominal interest rates, a major reason for later misinterpretation of policy.

The “reluctance” view of borrowing is the weak link in the Riefler-Burgess doctrine. Banks borrowed heavily in 1920–21, when it was profitable. The Board’s annual reports and statements of members during the next few years seem intended to inform banks of the “tradition” against borrowing or to impose it on them through the administration of the discount window.³⁹

39. In 1922 Strong discussed borrowing in a talk at the Harvard Economics Club. He placed considerable emphasis on profitability. Banks repaid borrowing when other opportunities were less attractive: “Now, in the long run, it is my belief that the greatest influence

Being able to control borrowing without large changes in discount rates had strong appeal. If interest rates could be held in a narrow range without jeopardizing control of inflation, System policy would be effective and criticism would be muted. Until the end of the decade, discount rates stayed within a narrow range, 3.5 percent to 4.5 percent at New York.

Neither Riefler nor Burgess completed the framework to link money, credit, interest rates, and borrowing to income and the price level. Instead, they relied on the real bills notion that if productive lending expanded at about the same rate as production, prices would be stable. It was an easy, but invalid, inference to rely on member banks' borrowing or a market interest rate as the proper measure of the thrust of monetary policy. If borrowing and interest rates were low, policy was easy; if the two were high, policy was tight. By the mid-1920s, high and low borrowing were defined as member banks' borrowing above and below \$500 million.

The System had adopted measures of tightness and ease that misled them at critical times. A principal problem was the failure to distinguish between an individual bank and the banking system. An open market sale removed reserves, but if banks were induced to borrow, reserve bank credit and the monetary base remained unchanged. The increase in borrowing may have induced some banks to repay, as Riefler-Burgess claimed. But unless all banks behaved that way, others borrowed at the unchanged discount rate.

During many of the cycles in Federal Reserve history, both member bank borrowing and the monetary base moved procyclically, rising relative to trend in expansions and falling relative to trend in contractions. The Federal Reserve interpreted increased (reduced) aggregate borrowing as evidence of restrictive (expansive) policy even if the monetary base and the money stock accelerated (decelerated).

Differences in regional discount rates and in the reserve position of member banks produced a market innovation. In 1921 banks with surplus reserves—reserves above current and near-term requirements—began to sell reserves to banks with deficient reserves. These sales (or loans) and purchases made better use of existing reserve balances and supplemented the correspondent banking system as a means of putting idle balances to work. The market also supplemented the discount facilities.

The new market was known as the federal funds market (Board of Governors of the Federal Reserve System 1959). Banks with surplus reserves

upon the member bank in adjusting its daily position is the influence of profit or loss" (Strong 1930, 181). Possibly Strong and others revised their earlier opinion. An alternative explanation is that policy changed, and the reluctance theory of borrowing reflected constraints that reserve banks imposed on borrowers. The "reluctance theory" failed later in the decade when the Board tried to reduce borrowing by exhortation.

exchanged checks drawn on their accounts at a reserve bank for checks drawn on the purchasing bank payable through the clearinghouse the following day (or later). The difference between the two checks included interest for the term of the sale. Most transactions were made in New York, and transfers occurred on the books of the New York Federal Reserve bank.

Once the banks established the market, its convenience attracted other users. Acceptance dealers, commercial paper dealers, and others settled transactions in federal funds—reserve balances at Federal Reserve banks. Brokers began to canvass regularly.

The market languished in the 1930s. Early in the decade, risk increased as bank failures rose, so far fewer banks were willing to accept the default risk. Later, gold flowed in and excess reserves accumulated. The market disappeared until after World War II (*ibid.*, 29–30).

GOLD POLICY

Although the United States remained on the gold standard, Riefler and Burgess did not dwell on the role of gold and did not state a policy with respect to gold. The explanation may be that both authors sought to develop policy guidelines in place of the gold reserve ratio. Nevertheless, gold policy played a secondary, but important, role in the 1920s.

A contemporary reader has difficulty comprehending the strength of commitment to the gold standard by bankers, officials, and many economists. Federal Reserve officials were unanimous in their commitment to restore some form of gold standard. Strong and others took many trips abroad, motivated in part by efforts to restore fixed parities tied to gold.

Montagu Norman, governor of the Bank of England, expressed an opinion representative of the ideas of informed central bankers. Failure to restore the gold standard would mean “violent fluctuations in the exchanges, with probably progressive deterioration of the values of foreign currencies vis-à-vis the dollar; it would prove an incentive to all of those who were advancing novel ideas for nostrums and expedients other than the gold standard to sell their wares; and incentives to governments at times to undertake various types of paper money expedients and inflation” (Chandler 1958, 311).

The ruling orthodoxy of the period sharply separated governments and central banks. The decision to fix the exchange rate was typically taken by the government. Central bankers negotiated support operations among themselves, usually keeping their governments informed about their progress. Continuing prewar practice, Strong was the principal negotiator of these agreements for the United States.

It is convenient to treat gold policy in the 1920 as three separate topics: the monetary response to changes in gold; circulation of gold and gold cer-

tificates; and actions to foster or sustain the gold standard. The last of these raises the issue of international cooperation, about which much has been written (Nurkse 1944; Clarke 1967; Eichengreen 1992).

Gold and Money

The Federal Reserve has been both criticized and praised for not following gold standard rules during the 1920s (Brown 1940; Keynes 1930). To contemporary observers at the Federal Reserve, the rules did not apply in the circumstances of the period. These officials believed that the gold reserve ratio was not an adequate policy indicator as long as no international gold standard existed. New procedures had to be found while they waited for, and worked toward, convertibility of the principal European currencies into gold and elimination of embargoes and other impediments to gold flows.

The problem, as seen in the early 1920s, was that the United States gold stock had increased much more than expected. By the end of 1921, the System's gold reserve ratio reached 72 percent; it continued to rise in 1922, and by midyear it had nearly doubled from its low point in 1920. The Federal Reserve did not want to monetize the entire increase, as required under gold standard rules, both from fear of a new inflation and from concern about subsequent deflation if gold should leave when foreign governments restored an international gold standard. The Federal Reserve had used the fall in the gold reserve ratio as a main reason for raising interest rates in 1920. Many in Congress and the public interpreted the rising gold ratio as a signal that the Federal Reserve banks should lower interest rates in 1922.

At the beginning of 1923, discount rates at New York, Boston, and San Francisco were 4 percent, 0.5 percent below the rates at other banks. Concerns about inflation prompted these banks to consider raising the discount rate, as they subsequently did, despite their gold reserves. Concerns about public interpretations of the gold reserve ratio prompted the Governors Conference to approve a resolution urging the Board to issue a statement about the diminished importance of the gold reserve ratio (Governors Conference, March 28, 1923, 379). Case (New York) expressed the dominant view: "The average person cannot understand why we should be thinking of high rates with that reserve ratio" (*ibid.*, 768).⁴⁰

Contemporary observers report a difference in the Federal Reserve's response to gold movements before and after 1925 (Hardy 1932, 148). Table

40. Once again, Adolph Miller had a different view. He asked: "Suppose it [gold] doesn't presently flow back?" And he warned that it was risky "to predicate a policy upon a possibility that may or may not materialize" (Governors Conference, March 28, 1923, 769). The Board did not follow the governors' recommendation. It did little to change opinion about the gold reserve ratio. Chandler (1958, 191) reports that this irritated Strong and other governors,

Table 4.1 Changes in Gold, Base, and Discounts, 1923–29 (millions of dollars)

PERIOD	GOLD	MONETARY BASE	DISCOUNTS	GOVERNMENT SECURITIES
1923.1–1925.2	+393	+406	-182	-10
1925.2–1929.3	0	+145	+624	-198

Source: Board of Governors of the Federal Reserve System 1943.

Note: Quarterly dates.

4.1 divides the period 1923–29 at the second quarter of 1925, the date at which Britain returned to the gold standard. These data support Hardy; the monetary base more fully reflected the gold flow in the earlier period, before the Europeans returned to the standard. Chart 4.2 gives more detail, using quarterly data for the period.⁴¹

If the Federal Reserve had followed strict gold standard rules, gold movements would be fully reflected as changes in the base, and changes in the base would reflect only changes in gold. All points in chart 4.2 would lie on a straight line through the origin with a unit slope. We know that the Federal Reserve allowed discounts and open market operations to change the base. The points in the upper left quadrant suggest that large gold inflows were more than offset at times; the lower right quadrant shows that the base could rise while gold flowed out, contrary to gold standard rules. Nevertheless, there is a weak but clear positive relation between current quarterly gold movements and current quarterly changes in the base for the period as a whole. The Federal Reserve did not follow gold standard rules, but it did not ignore them entirely in the short run.

Together the data in chart 4.2 and table 4.1 suggest that gold flows often affected the base on arrival. In this sense the Federal Reserve “followed the rules” to a degree, most likely as a result of fixing the interest rate on discounts and acceptances and allowing reserves to respond to unanticipated gold flows. After Britain returned to the gold standard, the long-term change in the base was independent of gold flows.⁴²

who faced this issue when talking to bankers, businessmen, and farmers. It seems likely, however, that the Board produced the policy statement in the tenth annual report partly in response to these demands. Friedman and Schwartz (1963, 283) point out the Federal Reserve continued to cite the possible withdrawal of gold as a reason for sterilization after the gold standard was restored, when the argument was no longer valid.

41. Appendix 4B describes the monetary base and its relation to Federal Reserve policy operations. Appendix 4A analyzes the statistical relation between gold and the base.

42. Short-term and lagged responses are shown in appendix 4B. The long-term relation is positive but small. Criticism of gold sterilization was common abroad. Criticism of the United States and France is a main point of the League of Nations (1932) retrospective study of the interwar gold exchange standard. On the other hand, Keynes (1930, 2:258) praised the Federal Reserve for showing that “currency management is feasible in conditions which are virtually independent of the movements of gold.”

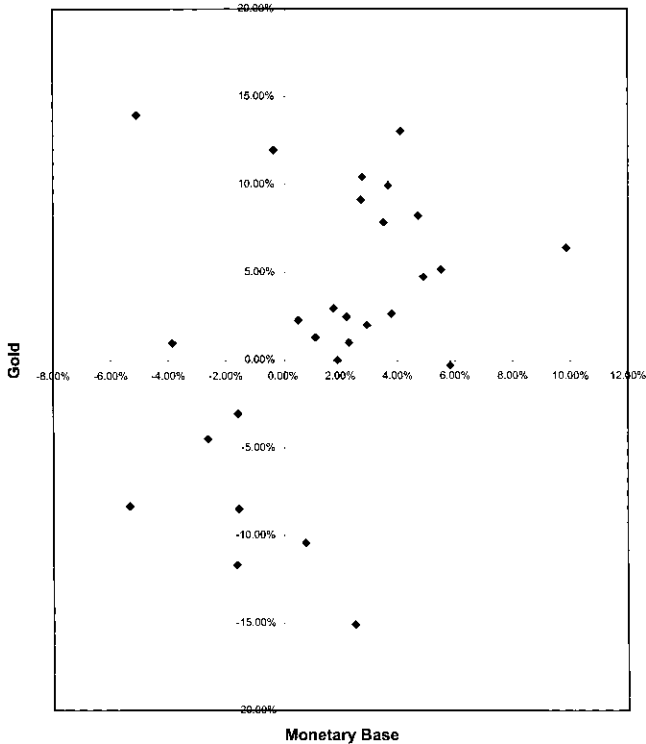


Chart 4.2 Rates of change, gold and monetary base 1923–29.

Gold as Currency

One aim of the Federal Reserve Act was to pool reserves by centralizing gold holdings in the reserve banks. In its first decade, the System worked to achieve this objective by replacing gold certificates with Federal Reserve notes.

Policy changed in the 1920s. Unwilling to allow prices to rise and concerned about the political pressures to expand as a consequence of a high reserve ratio, the governors looked for ways to reduce the reserve ratio without inflating. Early in 1922 Secretary Mellon proposed to substitute gold certificates for Federal Reserve notes. Gold certificates had 100 percent gold backing instead of the 40 percent behind Federal Reserve notes, so they reduced the gold reserve but had no effect on money or inflation.

The Federal Reserve was at first reluctant to change its policy of centralizing the gold reserve. Miller proposed instead raising the 40 percent gold reserve behind currency issues. This proposal, like Mellon's, seemed

too transparent to defuse political pressure. A second alternative kept the gold in Europe on “earmark” and, by ruling of the Board, excluded from reported gold reserves. At first the amount earmarked was relatively small, \$20 million or less. Earmarked gold rose to \$50 million in 1924–25 and again in the first half of 1926. The maximum during the decade was \$200 million, about 5 percent of the monetary gold stock.

Despite Mellon’s request, in May 1922 the Governors Conference approved a proposal that made issuing gold certificates to the public a last resort. Gold inflows continued. In August, New York began issuing gold certificates and sent a letter to the Board asking all reserve banks to do the same. The other large bank, Chicago, did not accept the policy until February 1924, after repeated requests from Undersecretary Gilbert at the 1923 Governors Conference and by letters. The two banks had issued over \$700 million in certificates by the end of 1924. The gold flow then reversed, so after discussion with the Treasury, Strong changed policy. The new policy kept total gold certificates equal to \$1 billion, the amount outstanding in 1925. This policy remained in effect until mid-1928 (Governors Conference, March 1926, 126–29).⁴³

In testimony before the Royal Commission on Indian Currency and Finance in 1926, Strong gave four reasons for changing gold certificate policy in 1922. First, the amount of gold certificates in circulation had fallen to \$170 million; continued reduction might give gold certificates a scarcity value relative to Federal Reserve notes. Second, although the economy was recovering from the 1920–21 recession, “there was prevalent, especially in the agricultural sections, a feeling that possibly it would be a good thing for the country to have some expansion of credit” (Strong 1930, 301). Third, to restore the working of the gold standard, a country like the United States could fix the amount of gold in domestic circulation and permit inflows and outflows to be reflected in the monetary base. Fourth, he feared that the high reserve ratio would become the norm, so that a reduction from 85 percent to 65 percent would be considered serious (301–2).

Strong gave greatest weight to his third reason, letting the monetary base respond to gold movements, although the Federal Reserve did not follow this policy subsequently. His reasoning probably reflects the period in which he spoke, after Britain had returned to gold. Initially, the princi-

43. The \$1 billion was about equal to the value of gold certificates in circulation at the start of the Federal Reserve System. The Treasury also tried to increase the circulation of gold coins, but this policy was not successful, suggesting that the reserve banks were now sufficiently established in the public’s mind as the main source of money that the public was unwilling to bear the costs of using gold coins.

pal concern was the pressure from agricultural representatives to expand credit.⁴⁴

The net new issues of gold certificates, about \$800 million from 1922 to 1926, equaled about 20 percent of the gold reserve. Together, the policies of earmarking gold and issuing certificates reduced the gold reserve by about 25 percent at peak issuance.

Restoring the Gold Standard

The Federal Reserve consistently favored restoration of the gold standard in the principal countries, and it worked toward that end as long as it was consistent with domestic policy.⁴⁵ At the end of the war, this meant that foreign governments had to either deflate or devalue prewar parities. Britain chose deflation; France, Germany (and others) chose devaluation.

Wholesale prices in Britain had increased 115 percent from the beginning of the war (August 1914) to March 1919, when the pound was allowed to float. In the following year, the pound declined 30 percent against the dollar. Devaluation and the effect of removing wartime price controls contributed an additional 40 percent price increase. From this inauspicious starting point, the Bank of England began to reestablish the prewar parity at \$4.86 per pound by deflating rapidly. By the end of 1922 the Sauerbeck index (1867–77 = 100) had fallen almost 50 percent, from 251 to 131. At the 1922 level, the index was lower than in 1925, when Britain restored convertibility. The dollar exchange rate reached \$4.61 per pound.

Achieving the remaining 5 percent appreciation took more than two additional years. Political and economic tension over reparations, including occupation of the Ruhr by French and Belgian troops, contributed to the fluctuation in the European exchange rates against the dollar during this period. The Dawes Plan of 1924 rescheduled reparations payments and provided loans to Germany that removed a major source of instability, at least for a time, by ensuring prompt payment of reparations and wartime debts.⁴⁶

44. McDougal had a very different reason for issuing gold certificates—they reduced expenses by the reserve banks for issuing and replacing currency. In 1928 he proposed replacing all Federal Reserve notes with gold certificates to save \$700,000. All other governors were opposed (Governors Conference, April 1928, 199–213).

45. The 1924 annual report relates the opinion of the Federal Advisory Council that it was “imperative” that England and Germany return to the gold standard. At the time, French restoration seemed unlikely.

46. The Dawes Plan removed reparations as a source of current instability but did not resolve either the reparations problem or the transfer problem. The latter problem arose because German reparations payments required a surplus on the German current account. Hence other countries collectively had to be in deficit relative to Germany. The Dawes Plan did not settle the total reparations to be paid by Germany. Instead, the plan required Germany to pay reparations of £50 million, rising to £125 million in the next five years. To stabilize the

Germany's return to the gold standard, or more accurately, the gold exchange standard, put pressure on Britain.⁴⁷ Further, the British embargo on gold exports expired at the end of 1925. Aided by lower rates in the United States and speculation that the embargo would not be renewed, the pound rose toward its prewar parity (Howson 1975). On April 28 Winston Churchill, chancellor of the Exchequer, announced that Britain would not extend the embargo. This decision made the pound convertible de facto. Two weeks later Parliament passed the Gold Standard Act of 1925, restoring the prewar parity de jure.⁴⁸

To achieve and maintain the \$4.86 parity, the Federal Reserve offered the Bank of England a two-year standby loan of \$200 million. On two occasions, 1924 and 1927, to help Britain it encouraged gold exports from the United States by lowering interest rates.⁴⁹

The financial press and Congress criticized the loan as beyond the authority of the New York Federal Reserve bank.⁵⁰ Strong responded at length

German mark against gold, loans of \$190 million were offered to support the currency. The plan did not restrict import tariffs by the receiving countries or assess Germany's ability to pay. However, by limiting and rescheduling German payments and stabilizing the mark, the plan removed a major source of European instability. The Dawes Plan achieved its reparations targets because stabilization encouraged foreign loans to Germany, principally from the United States, but also from Britain. Germany received more loans than the amount of its reparations payments under the Dawes Plan, so foreigners financed the reparations payments that Germany made. According to Hjalmar Schacht (1955, 211), governor of the Reichsbank between 1924 and 1932, Germany paid only \$10 billion to \$12 billion of the \$120 billion promised. Germany never achieved a current account surplus; all the payments were made from the proceeds of \$20 billion in loans that foreigners "pressed upon her to such an extent that in 1931 it transpired she could no longer meet even the interest on them" (211). The result was that foreign governments received the \$10 billion to \$12 billion, and the lenders lost their money.

47. To conserve limited gold stocks (and earn interest on reserve balances) countries other than the United States, Britain, and later France held part or all of their reserves in dollar or pound securities, exchangeable for gold. These dollar or pound claims could be exchanged for gold reserves on demand as long as the United States and Britain maintained convertibility; hence the name gold exchange standard.

48. Norman was the main proponent; Churchill was a reluctant follower of his advice and the advice of Otto Niemeyer in the Treasury. Churchill, influenced by Keynes, was concerned about the effect on industry and employment.

49. Strong negotiated the loan to the Bank of England on behalf of the Federal Reserve, not the United States government. This was a standard feature of international monetary policy at the time; central bankers negotiated with other central bankers. Typically they informed their governments and kept them apprised of foreign developments and negotiations. Governments borrowed in the market using investment bankers as agents. Britain used J. P. Morgan.

50. Parker Willis, former secretary of the Board and editor of the *Commercial and Financial Chronicle*, was a main critic. He had worked for Carter Glass at the House Banking Committee in writing the act, so his criticisms were taken up by members of Congress. Willis favored Britain's return to the gold standard and recognized that section 14 authorized

in congressional hearings (House Committee on Banking and Currency 1926). The loan was secured by British Treasury obligations, payable in dollars. Governor Crissinger of the Federal Reserve Board had been present when it was discussed, and he had asked for and received approval from all members of the Board. The Open Market Investment Committee approved the loan unanimously, with Secretary Mellon present: "Mr. Mellon asked specifically if there were any objections to the arrangement . . . and the making of the commitment, and no objection being made, he stated it was understood that I was to go ahead" (Chandler 1958, 315).⁵¹

International Cooperation

As part of its policy to help countries return to the gold standard, the Federal Reserve lowered discount rates in August 1924. The United States was in recession, so the System had a domestic as well as an international reason for acting. Wicker (1966, 77) claimed that "the desire of the Federal Reserve Bank of New York to establish a rate spread between New York and London to encourage capital outflows and reduce gold imports was indeed the chief determinant of policy. It was not, however, the only one."⁵² Chandler (1958, 241) was at the opposite pole, claiming that the policy was mainly an anticyclical policy that also was expected to encourage a capital outflow. This was also the view of Hardy (1932, 108), who found "a great deal of exaggeration" about the attention given to international considerations in setting Federal Reserve policy. Hardy recognized that Strong held

transactions with foreign banks. He criticized the size of the loan and the use of section 14 to aid a foreign government. Willis interpreted the act narrowly. He wanted a penalty discount rate, and he opposed the issuance of gold certificates as a violation of the principle that the act intended to centralize gold holdings. Currency should be backed by gold and commercial paper only, and the Federal Reserve should limit its activity to discounting real bills. Similar views were held, perhaps not independently, by Senator Carter Glass.

51. The loan was fuel for Strong's critics, who feared that Strong acted like the head of a central bank instead of being one member of a system of semiautonomous banks. After the loan commitment was announced, Miller changed his opinion about the legal authority for the loan. He is recorded as "not voting" when the Board approved a resolution confirming the transaction (Board Minutes, May 19, 1925). The credit expired after two years and was never drawn upon. Miller was a strong supporter of the gold standard and a partisan of the policy of restoring the standard. He described restoration this way: "The fantastic vagaries which a certain school of economics on both sides of the Atlantic embraced in their efforts to find a substitute for the gold standard have given way before the world's resolution to tie its fate in monetary matters . . . to something more objective and less capricious than fallible human discretion" (Miller 1925b, 4).

52. Wicker (1966, 90) based much of his argument on the decline in New York member bank borrowing after February or March 1924. Total system borrowing remained above \$400 million until June and did not fall below \$300 million until August. Open market purchases began in March and ended in November. These data are consistent with the Riefler-Burgess view that high borrowing in recession called for open market purchases.

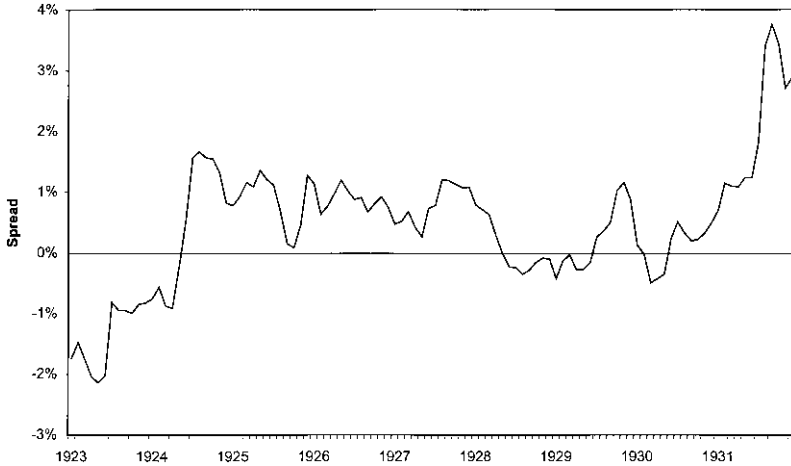


Chart 4.3 Interest rate differential, United Kingdom–United States. Source: National Bureau of Economic Research. Three-month banker's bills, London, minus banker's acceptances, New York, monthly.

such views, and stated them often, but he noted correctly that there was little evidence that other members of the OMIC shared them. They agreed on the desirability of reestablishing the gold standard but were more skeptical about using policy actions to help the British. Friedman and Schwartz (1963, 269) agreed with Hardy.

Chart 4.3 leaves no doubt that the spread between short-term rates in London and New York turned sharply in favor of capital flows to London during the summer and fall of 1924. The spread again moved in favor of Britain in the summer of 1927, the second occasion that some observers cite as evidence that international considerations had an important influence on United States policy. The covered interest parity shows the same general pattern, though the changes are smaller (Clarke 1967, 129). The difficult problem for an international explanation of policy action is that the spread reversed early in 1925, just as Britain was about to restore the gold standard. The reason for the reversal was a rise in the discount rate in New York on February 27, two months before the British decision. The reversal came for domestic reasons. The trough of the recession had occurred the previous July. By early 1925, recovery and expansion were well under way and the price level was rising. Despite the emphasis Strong gave to capital movements and restoration of the gold standard, he did not hesitate to raise the New York discount rate. This action required Norman to raise rates in London by 1 percent in early March to keep the spread in favor of London. Strong was fully aware that the British decision on gold was imminent; he was negotiating the standby credit at the time.

With hindsight, Strong told Congress in 1926 that policy in the summer of 1924 might have been too expansive for too long: “I think myself, if it were to be done over again, we might have stopped a month earlier or even sixty days earlier. We might have bought \$50 million or even \$100 million less, but there is no mathematical formula that will tell you where to stop or to begin” (House Committee on Banking and Currency 1926, 336). In a memo to his files written in December 1924, he defended the policy as a response to the recession in business starting in the fall of 1923 and problems in the farming and cattle industries. These “became perilously near a national disaster, and feeling became so strong throughout the West that all sorts of radical proposals for legislation and other government relief were being urged” (quoted in Chandler 1958, 242). The memo mentioned international considerations as a third reason for open market purchases “when [domestic] prices were falling generally and when the danger of a disorganizing price advance in commodities was at a minimum and remote” (243).

What remains of the role of international cooperation as a reason for easing policy in 1924? In his testimony to Congress, and in his conversations with Norman about the stabilization credit, Strong always insisted that international cooperation could not run counter to domestic policy considerations.⁵³ Control of domestic inflation had priority for both political and economic reasons. Strong and others understood that a 10 percent United States price increase would make restoring the international gold standard easier, particularly for Britain. The Federal Reserve might have defended such action by appeal to gold standard rules or to the gold reserve ratio. Instead, Strong made price stability a more important goal and sought to avoid a repetition of the damaging 1920–21 inflation cycle.

Again in the summer of 1927, international cooperation played a role during a recession and at a time of falling prices. The Federal Reserve made larger than seasonal open market purchases during the fall, and all reserve banks reduced discount rates by 0.5 percent, to 3.5 percent, in August and September.⁵⁴ Once again, the gold inflow reversed after the policy change.

53. One of many examples of Strong’s view of limited international cooperation is in a letter to Norman in March 1921: “I have always taken the position that both you and we had three possible courses in our relations with each other. One was to deal wholly independently with our respective problems . . . in other words to ignore each other; another might be to pursue a wholly selfish policy . . . ; and the third might be to adopt a policy of complete understanding, and exchange of information and views, and to cooperate where our respective interests made it possible” (Chandler 1958, 247).

54. Chicago at first refused to reduce its rate. The Board ordered the reduction. The incident is discussed more fully below.

The 1927 reduction in discount rates was part of an agreement between Strong, Norman, Governor Hjalmar Schacht of the Reichsbank, and Deputy Governor Charles Rist, acting for Governor Émile Moreau of the Bank of France, made at a secret meeting in New York held in July.⁵⁵ Capital flows to Germany, fiscal reform and stabilization in France in the summer of 1926, the aftermath of the 1926 British general strike (implying that further deflation was unlikely), and continued gold flows to the United States weakened the British position. French interest rates were considerably above rates in Germany, Britain, or the United States, adding to the British problem of attracting short-term balances from abroad. Between January 1926 and February 1927, the Reichsbank reduced its discount rate in steps from 9 percent to 5 percent to slow its capital inflow (Board of Governors of the Federal Reserve System 1943, 656). The reductions soon produced a short-term capital outflow and a fall in the Reichsbank's gold reserve that threatened its gold parity. Higher German rates, widely expected, implied increased short-term capital flows from Britain to Germany (Clarke 1967, 114). By the end of 1927, the German discount rate was back to 7 percent.

In May the Bank of France began to sell pounds against gold, withdrawing gold from the Bank of England and weakening the British position. Both central banks wanted the capital flow to slow or stop, Moreau because he resisted both appreciation of the franc and inflation, Norman because a large loss of reserves would force Britain to raise interest rates or suspend gold convertibility. At a meeting in late May at the Bank of France, Moreau told Norman that France would stop exchanging pounds for gold if Britain increased its discount rate. Norman responded that an increase was difficult given the weak state of the British economy. He told Moreau that the French capital inflow would not be solved by higher rates abroad. Moreau's notes of the meeting record Norman's comments:

Is it surprising that . . . you have an influx of capital! . . . Never before have such favorable conditions existed. 6½% for life with, in addition, the hope of a premium on the revalorization of the currency which may be considerable! In these circumstances, it is a hopeless task to check the influx of foreign exchange whatever you do. . . .

If you buy gold in order to cut short credits for speculation, people will say: "The franc has more gold behind it, it is therefore worth more." If you

55. The meeting had been planned before the crisis began in May. Norman had wanted a meeting of the principal banks for a long time. Strong had been hesitant but changed his mind. The location of the meeting, New York, shows the shift in power toward the United States.

abolish the law on the export of capital, many Frenchmen will conclude that there is no longer any risk in repatriating and they will bring their money back. . . .

At all costs reduce the price of money. (Moreau 1954, as quoted in Clay 1957, 231)⁵⁶

Norman hoped to end speculation that the franc would appreciate by having Moreau announce that France would maintain its exchange rate. Instead, the Bank of France lowered its official discount rate to 5 percent. By late summer, open market rates had fallen to 2 percent (Board of Governors of the Federal Reserve System 1943, 656). Norman argued that any British rate increase must come later, after the British economy improved. He feared riots if he raised interest rates at once, but he promised to raise the discount rate a full 1 percent if conditions in industry improved (Clay 1957, 231).

The central bankers' meeting in New York began on July 2 and continued through the week. To maintain secrecy about decisions, the group met at the summer home of Ogden Mills, undersecretary of the treasury.⁵⁷ It did not keep minutes, and members of the Board were not informed about the agreements.⁵⁸ After the meeting, on July 9, the central bankers met with the Board and Treasury officials in Washington but did not discuss details of the agreement.

Strong did not make notes of the New York meeting. Our information

56. Moreau published the account in the late 1930s; 6.5 percent was the French long-term interest rate at the time of the Paris meeting.

57. Norman and Schacht traveled to the United States incognito, but their arrival in New York was well known and the subject of much speculation. Mrs. Ogden Mills describes Norman at the meeting. Despite warm July weather, Norman dressed in a large velvet-collared cloak and sat in a fan-back chair placed at the end of the room (CHFRS, March 1, 1954). The Committee on the History of the Federal Reserve, organized at the Brookings Institution in the mid-1950s under the direction of Allan Sproul, interviewed several participants in Federal Reserve policymaking and administration. The unpublished notes are at the Brookings Institution. The principal publication from the project is Chandler's book on Strong. At the time, Sproul was president of the Federal Reserve Bank of New York.

58. After these meetings, the Open Market Investment Committee met with Norman. Governor Crissinger represented the Federal Reserve Board, but no other members were invited. Wicker (1966, 111), relying on Hamlin's diary, reports that their exclusion irritated members of the Board and added to their animosity toward Strong. We know most about Miller's irritation because he testified at length about the 1927 meetings and his own meeting with Schacht before the luncheon. He described the luncheon at the Board as a "social" event (House Committee on Banking and Currency 1928, 216–220). On June 15, in advance of the meeting but after it was scheduled, the Board reviewed the authority of reserve banks to conduct foreign business and the Board's supervisory role. The secretary was instructed to open and read the sealed agreement with the Bank of England, signed in December 1916. The legal opinion of the Board's counsel was that the act authorized the reserve banks to enter into such agreements and to lend abroad.

comes from Moreau (1954, 367–72) and Clay (1957, 237). The conference considered four problems: discount rates, gold movements, the pound-franc relation, and the worldwide decline in commodity prices. Strong offered to lower the discount rate to 3.5 percent, citing domestic reasons for the action. This pleased the British and Germans but not the French, who favored higher rates in Britain and Germany as a classical response to a weakening currency.⁵⁹ Strong offered to sell gold to France and Germany at a price equal to the London price and absorb the extra transport cost; Germany and France agreed to buy gold in New York under these conditions.⁶⁰

After the meeting, the Federal Reserve banks reduced discount rates and began large-scale purchases of acceptances and government securities, and the Bank of France began forward sales of French francs and purchases of pounds in the Paris market.⁶¹ The capital flow reversed. The pound rose to the highest value reached since the war, and gold flowed to London. By year end, cooperation—both Federal Reserve and French action—appeared to have improved the foreign exchange position of the Europeans and encouraged domestic expansion in the United States. Despite Norman's statements to Moreau in May, Britain maintained the 4.5 percent discount rate unchanged until February 1929. France lowered its discount rate to 4.5 percent in December.

Eichengreen (1992, 213) regards this episode as “an admirable instance of international cooperation.” There is ample evidence in the minutes that international considerations influenced the decisions as to timing and magnitude of the actions and the uniform reduction in discount rates at reserve banks. Although some officials justified their votes by appeals to the beneficial effects on the sale of United States crops abroad and others were influenced by falling commodity prices, the minutes report that

the most important consideration at the meeting was undoubtedly the fact that the differential between the rates in New York and the rates in London was not today sufficient to enable London, and therefore the rest of Europe, to avoid general advances in rates this autumn unless rates here were lowered, and the consequence of such high rates as would result in Europe would be unfavorable to the marketing of our export produce abroad and

59. Goldenweiser's diary reports on a 1949 letter from Rist that claims the reduction was agreed to in a meeting between Norman and Strong by themselves. Schacht and Rist approved it after the fact. See Wicker 1966, 112.

60. In late June 1927 the London price (in dollars) was \$20.64 per fine ounce, above the price in the Netherlands or Switzerland but below the \$20.669 in the United States. Strong's offer lowered the price in New York and absorbed shipping costs (memorandum, Harrison to Strong, Sproul files, December 2, 1927).

61. Kindleberger (1986, 51) reports the total of these transactions as \$440 million in May 1928 and almost \$600 million in June 1928.

would have an adverse effect generally on world trade. (OMIC Minutes, Board of Governors File, July 27, 1927)⁶²

Federal Reserve action improved the short-term problem but did nothing about the long-term problem.⁶³ French and British exchange rates were misaligned relative to gold, the dollar, and each other. The franc had depreciated officially by 80 percent, the pound not at all. After adjusting for price level changes, the franc was undervalued, the pound overvalued. Sooner or later, capital was bound to flow from Britain to France, the United States, and elsewhere.

Cooperation had not resolved the basic problem. Although the governors discussed falling commodity prices at the July meeting, they did not discuss a policy to stabilize price levels and exchange rates. Short-term concerns dominated a long-term solution. A choice had to be made between parity changes and price level changes. Both were ruled out politically. Neither France nor Britain was willing to adjust its exchange rate. Britain was unwilling to deflate further; France and the United States were unwilling to inflate. Temporary United States interest rate reductions, United States loans to Europe, or French decisions to buy gold in New York rather than London, as in 1927, could postpone but not prevent a long-term solution. If governments maintained the misalignment, the only issue was when financial markets would begin to force price level or parity changes.⁶⁴ The answer, we know, was September 1931, when Britain left the gold standard.

Breakdown

The Board's annual report for 1928 defended the 1924 and 1927 actions as factors "favoring the redistribution of gold [that] . . . contributed to the maintenance of the gold standard [and] . . . reduced the fluctuations of the exchanges to a range within the gold points" (Board of Governors of the Federal Reserve System, *Annual Report*, 1928, 16).⁶⁵ By emphasizing the

62. Goldenweiser's summary of policy from mid-1927 to 1929, based on his records but written later, repeats this argument but adds that higher rates abroad "would have endangered the maintenance of the gold standard" (Goldenweiser to Miller, Board of Governors File, box 1449, October 30, 1934).

63. The gold flow reversed quickly. In the first six months, the United States received \$200 million in gold. From July 27 to December 28, 1927, it sold \$193 million. Open market purchases offset the domestic effect of the gold outflow.

64. The problem was repeated in slightly different form in the 1960s with similar outcome—the breakdown of the standard.

65. Board members, governors, and leading members of Congress shifted their views in the 1930s. They blamed Strong's policy change for subsequent credit expansion, and they blamed the rise in stock prices on the credit expansion. The result, they said, was an inevitable collapse.

distribution of gold instead of the exchange rate misalignment, the Board's statement overemphasized the benefits of short-term activist policies while neglecting the long-term problem. The same mistake was repeated in the 1960s in the efforts to "save" the Bretton Woods system of fixed exchange rates without correcting the misalignment of exchange rates.

The Board was not alone. Many observers at the time saw the maldistribution of gold as the core problem, just as they were to regard the "shortage" of gold as the core problem of Bretton Woods (League of Nations 1932).⁶⁶

The distribution of monetary gold stocks had changed from prewar values. Table 4.2 shows the principal changes for the United States, Britain, and France. Estimates for the world are imprecise, but greater precision is unlikely to change main conclusions: Britain had a larger relative share in the 1920s than in 1913; France had restored its 1913 share by 1928; the combined United States and French shares rose from 50 to 55 percent in 1929, draining gold from the rest of the world; and the most significant change during the years 1926 to 1931 was the relative and absolute increase in French gold holdings.

The French view of the period 1927 to 1929 claimed that purchases by the Bank of France "tended to establish a better balance in the world's distribution of gold" (Aftalion 1931, 8). After the *de jure* stabilization of the franc in June 1928, the Bank of France was no longer permitted to purchase foreign exchange. Foreigners had to pay in gold: "It was hoped, however, that foreign banks of issue, by raising their discount rates, would prevent the flight of their gold to France." Writing soon after these events, Aftalion recognized the overvaluation of the franc, but he saw the solution as coming principally from an end to British investment abroad, not a change in French policy (8–10).

Despite the gold inflow, French wholesale prices, after declining rapidly in 1926, remained unchanged between the *de facto* stabilization in December 1926 and March 1929. In the next eighteen months, wholesale prices fell 16 percent, a compound annual rate of 11 percent a year, somewhat faster than the decline in the United States during the same period (League of Nations 1932, 46; Aftalion 1931, 10). Stable or falling prices re-

66. Perhaps one reason for the emphasis on maldistribution in the 1920s is that the stock of monetary gold increased much more than commodity prices. The 1925 commodity price index for the world increased 60 percent from 1913 to 1925; the world monetary gold stock doubled. For the rest of the decade, the commodity price index fell and the monetary gold stock rose. The world's price index is the wholesale price of commodities from League of Nations (1930, 84). The stock of monetary gold is from Board of Governors of the Federal Reserve System (1943, 544).

Table 4.2 Monetary Gold Stocks and Shares, 1913–31

YEAR END	MILLIONS OF DOLLARS				SHARES (%)		
	UNITED STATES	FRANCE	BRITAIN	WORLD	UNITED STATES	FRANCE	BRITAIN
1913	1,290	679	165	4,589	28.1	14.8	3.6
1926	4,083	711	729	9,234	44.2	7.7	7.9
1927	3,977	954	737	9,593	41.4	9.9	7.7
1928	3,746	1,254	748	10,058	37.2	12.5	7.4
1929	3,900	1,633	710	10,336	38.9	16.3	7.1
1930	4,225	2,100	718	10,945	38.6	19.2	6.6
1931	4,051	2,699	588	11,325	35.7	23.8	5.2

Source: Board of Governors of the Federal Reserve System 1943, 544, 545, 551.

flected the combined effect of increased demand for francs by domestic and foreign holders after stabilization and the policy of the Bank of France.⁶⁷

The law required the Bank of France to stop purchases of foreign exchange after June 1928. It did not require sales. Between 1928 and 1932, France reduced the share of foreign exchange in central bank reserves from 51 percent to 5 percent, an aggregate sale of more than \$1 billion, 9 to 10 percent of the world gold stock. Many other countries reduced foreign exchange reserves in 1931, anticipating or following the British devaluation. France began large-scale sales of foreign exchange for gold in 1929 and continued to sell throughout the period (Nurkse 1944, app. 2, 234–35).⁶⁸

French policy and French growth redistributed gold from the United States to France in 1928. In the next three years, France and the United States absorbed gold from the rest of the world. The redistribution toward France made the gold standard more deflationary after the French stabilization than before.

The French response to criticism denied the relevance of the quantity theory of money, linking prices to past or current changes in money and gold, and cast doubt on any effect of higher discount rates on price levels. The Bank of France kept its discount rate below the levels in other countries, and the government reduced taxes on sales of foreign securities in

67. The increased demand for francs despite falling interest rates reflected not only stabilization but the rapid growth of the French economy after 1927. Between 1927 and 1929, GDP rose 13 percent and industrial production 17 percent compared with GDP growth of 4 percent in Britain and 7 percent in the United States. French M_1 growth was 15 percent, approximately equal to growth of production (data from St. Etienne 1984).

68. Nurkse's data differ slightly from the data in table 4.2. French sales were usually made in the forward market by selling pounds forward. This policy began in August 1927, possibly reflecting an understanding at the New York meeting in July, to avoid sales in the spot market that were more easily monitored by private speculators and the Bank of England.

the French market to stimulate capital exports (Aftalion (1931, 11–13). But the bank's sales of foreign exchange dwarfed any effect of these efforts.⁶⁹

The particular crises that ended the interwar gold standard, in the summer and fall of 1931, have been analyzed many times, for example in Eichengreen (1992). The timing of these crises depended on the patterns of lending and borrowing that helped to sustain the system in the late 1920s and the subsequent reduction in lending. In this sense, international cooperation to “rescue” currencies by larger loans from surplus countries could have kept the system viable for a longer time. Without a willingness to permit price levels and exchange rates to adjust, crises seem to be the inevitable, but costly, means of adjusting exchange rates.

Federal Reserve policy of restoring the gold standard and maintaining stable prices failed. The principal fault was not insufficient cooperation but failure to follow the rules.⁷⁰ The United States and France shared responsibility, but Britain's (and other countries') unwillingness to deflate also contributed. When Britain abandoned the gold standard on September 21, 1931, the *London Times* wrote:

The international economic crisis has played a large part in the temporary abandonment of the gold standard. The responsibility for this belongs to those countries that have hoarded gold on an unprecedented scale. . . . Prohibitive tariffs keep out goods, and unless the creditor nations relend the credits due to them, the debtor nations must pay in gold to the extent of their resources and then default. The gold standard game can only be played according to its well-proven rules. It cannot be played on the new rules practiced since the War by France and the United States. (Quoted in Crabbe 1989, 434)

PRICE STABILITY AND POLICY RULES

Inflation and deflation in 1920–21 heightened interest in the Federal Reserve's choice of policy objectives. Some economists, influenced by Irving Fisher's work on the purchasing power of money, favored price level stability as the main goal of Federal Reserve policy. Others supported price

69. Like Strong, Moreau wanted to build his country's financial center at Britain's expense. One part of this policy was to shift French reserves into gold until France, like Britain and the United States, held only gold as a reserve. See Chandler 1958, 379–80. There was in addition France's desire to divide Europe into two spheres of financial influence, one British, one French. See Moreau 1954, 489. Personal relations may also have been a factor. Moreau and Norman did not have a warm or cordial relationship. There is a parallel in the 1960s when France insisted on converting dollar reserves into gold to reduce “American hegemony.”

70. For a different view, stressing the absence of international cooperation, see Eichengreen 1992.

stability as an interim solution, pending the return to an international gold standard.

The severity of the inflation-deflation cycle, particularly in the heavily agricultural regions, gave popular support and created political pressure for stable prices. Stable money societies, influenced and encouraged by Fisher, campaigned actively for price stability. With the return of price stability during the 1920s, the Federal Reserve received credit for the more stable conditions; this encouraged advocates of a congressional mandate to believe that a stable price level rule was feasible.⁷¹

Congress held hearings on legislation setting price stability as the policy goal in 1922–23, 1926–27, and 1928. With the important exception of Benjamin Strong in 1928, all Federal Reserve officials and staff opposed the legislation, and it never became law.⁷² The extensive hearings go much beyond the reasons for the Federal Reserve's opposition; Strong, Miller, and others from the Board and the reserve banks explained how monetary policy worked and the reasons for specific policy actions. The testimony showed the deep divisions and confusion within the system about how to conduct monetary policy.

In 1922–23, the Banking Committee considered House Resolution 11788, Irving Fisher's proposal for a compensated gold dollar. The resolution, offered by Congressman T. Alan Goldsborough of Maryland, would have replaced the fixed price of gold, \$20.67 per fine ounce, with a fixed number of grains of gold, the number of grains to be adjusted every two months based on changes in a basket of one hundred wholesale prices. The proposal restricted the maximum adjustment at each two-month period to 1 percent. If the wholesale price index rose, the relative value of gold declined, so the number of grains of gold had to increase to keep the real purchasing power of money constant. Conversely, a decline in the price index required a reduction in the number of grains of gold in a dollar.

Fisher testified at length, explaining the proposal, the benefits of the standard, and the advantages of price stability. He lectured on the differences between nominal and real interest rates and the effect of inflation on nominal rates, a topic that does not appear in Federal Reserve discussions for the next forty or fifty years (House Committee on Banking and Currency 1922–23, 13–14).⁷³

71. Berg and Jonung (1998) report on the successful efforts of the Swedish Riksbank to stabilize the price level after 1931 using a price level rule.

72. Legislation passed the House in 1932 by a vote of 289 to 60 but was defeated in the Senate, owing largely to opposition by Carter Glass. The Federal Reserve opposed the bill.

73. E. W. Kemmerer, John Bates Clark, Henry Wallace, and many others testified for the proposal.

The witnesses who criticized the proposal emphasized the uncertainty and unreliability of price index numbers. Federal Reserve officials did not testify at these hearings. At the time they had not formulated either the Riefler-Burgess doctrine or the policy statement in the tenth annual report. The hearings forced them to recognize the need for publicly stated guides or policy indicators to replace the gold reserve ratio.

Soon after the congressional hearings ended, the governors discussed a proposal by Professor Charles Bullock of Harvard that they announce the factors affecting discount rate changes. Anticipating later arguments about the importance of credibility, Bullock argued that the announcement would benefit businesses by letting them know how the discount rate would change in the near term. The statement would not be a precise rule, but it would require the System to name the factors that replaced the gold reserve ratio as an indicator of policy action.

Case, who substituted for Strong at the meeting, favored the proposal. He listed the main factors: the volume of credit relative to production, interest rates on various classes of paper, and gold movements. Most others opposed. Governor Seay (Richmond) expressed the dominant (and classic) view: "It is never the custom . . . for central banks to give out to the public their reasons for raising rates" (Governors Conference, March 1923, 46).

Nothing more was done until Congress called for hearings on stabilization policy in 1926–27 and 1928 to discuss an amendment to the Federal Reserve Act making price stability an explicit policy goal. The proposed legislation in 1926 added the words "promoting a stable price level for commodities in general" to section 14 of the act. The resolution also amended the purposes of the act by adding: "All the powers of the Federal Reserve System shall be used for promoting stability in the price level" (House Committee on Banking and Currency 1926).

The legislation was the work of Congressman James Strong, a Kansas Republican, who was influenced both by the events of 1920–21 and by Fisher's work.⁷⁴ In addition to Congressman Strong, members of the House Banking Committee included eight Democrats, five from cotton-growing states, and thirteen Republicans, about half from other heavily agricultural states. Their presence on the committee contributed to the wariness with which Federal Reserve officials considered the legislation.⁷⁵

74. Congressman James A. Strong was not related to Governor Benjamin Strong. I will refer to the congressman as Strong (Kansas) when needed to avoid confusion. The wording of the mandate changed many times to respond to objections from Federal Reserve officials and others.

75. Cotton was by far the most important export crop at the time. In most years the value of cotton exports exceeded the combined value of the next four or five export items. The Sys-

The bill generated unanimity within the Federal Reserve on the need to avoid any “mechanical formula” for setting policy and on the inapplicability of the quantity equation as a guide to price stability. Beyond that, there was not much agreement about how policy should be conducted. Although the spokesmen for the Board and the reserve banks opposed the bill, their reasons differed in several ways.

Strong’s Testimony

Governor Strong gave three main reasons for opposing the Strong bill. First, the mandate was difficult to carry out precisely because monetary velocity was unstable. The price level depended on velocity, and velocity depended on confidence or, in modern terms, anticipations (House Committee on Banking and Currency 1926, 482).⁷⁶ Second, changes in money, or credit, were one of many factors affecting the price level.⁷⁷ Third, as noted, he feared that price stability would be interpreted as the stability of individual prices, particularly agricultural prices: “Much of the discussion of prices recently has arisen from the great misfortune which the farmers of the country have suffered, which we all recognize and deplore. If the Federal Reserve Act is amended in these words, is it possible that the farmers of the country will be advised, or will be led to believe upon reading it, that a mandate has been handed to the Federal Reserve System to fix up the matter of farm prices?” (House Committee on Banking and Currency 1926, 293).

tem was concerned that it would be expected to stabilize the prices of individual commodities, especially cotton.

76. Strong had written many of the same objections to Professor Bullock in 1923. His first objection criticized “quantity theory extremists,” by which he almost certainly meant to include Fisher (Chandler 1958, 203–5).

77. “Mr. Goldsborough: . . . You [Strong] have said that the Federal Reserve System, by its open market operations and by changes in the discount rate, would influence the supply of credit, which, of course, influences the price level. Now, that being so, what is the objection to a general direction of the Federal Reserve System to use such powers as it has for the purpose of stabilizing the general price level? That is certainly one question in which the committee is deeply interested. Governor Strong: It might be possible, Mr. Goldsborough, to frame some language as an amendment to the act . . . that would safeguard the system against misinterpretation of the intention of that declaration. . . . [I]t certainly would need to contain the limitation, or the recognition of the fact, that credit alone does not control prices. Mr. Goldsborough: Is not that generally understood? Do you not think that is generally understood? . . . Governor Strong: No. If I felt so, I would not feel as strongly as I do about this amendment, which I would fear on that account principally” (House Committee on Banking and Currency 1926, 299). Goldsborough persisted, citing evidence from farm publications. Strong responded by citing the blame heaped on Federal Reserve policy for agricultural problems in 1920–21. This was a non sequitur. The Federal Reserve had contributed to the problems, but Goldsborough did not make that point.

A member of the committee reminded Strong that the bill referred to the price level, not prices in general. Strong was not persuaded. He doubted that noneconomists would recognize the distinction (*ibid.*, 293).

Strong used the opportunity to cite the accomplishments of the Federal Reserve System and to criticize the real bills doctrine as a guide to policy. Using charts to drive home his points, Strong pointed out that the System had eliminated seasonal swings in interest rates, reduced the spread in rates between New York and Chicago (and by inference the spread with other regions) and between different maturities of commercial paper, and lowered the amplitude of interest rate fluctuations (*ibid.*, 426).

The real bills doctrine offered no guidance. He insisted, repeatedly, that the Federal Reserve could control the quantity of credit, not the type of credit outstanding. Asked by a congressman whether the Federal Reserve could direct the way credit was used, Strong replied: "We have no power to do that" (*ibid.*, 260).⁷⁸

Although Strong opposed the bill, he favored the principle that the bill represented. His testimony included several offers to help the committee redraft the bill and remove his objections, despite his conviction that the legislation was unnecessary (see, *inter alia*, House Committee on Banking and Currency 1926, 517–18). He told the committee that restoring the international gold standard was a better solution to the problem that concerned them: "I earnestly believe that the greatest service that the Federal Reserve System is capable of performing today in this matter, is to hasten . . . monetary reform in the countries that have suffered from the war. We can not do it until the time is ripe, and the conditions are favorable in each country" (518).⁷⁹

78. In contrast to Miller's testimony (see below), Strong described the Board as solely a supervisory body. Operations were conducted "in cooperation with the Board, and subject to their review." "Policy results from the discussions and recommendations that are made by the operating officials of the banks; that would necessarily be so." Strong recognized a change in his own views: "I believe in this regional system. . . . Textbook knowledge had always led me to believe that a central bank was the proper thing. This system suits the needs and feelings of the country much better socially, politically, and in every way." Then he warned: "The danger in a regional system might be that if each Reserve bank goes its own way, the system as a system would have no policy" (House Committee on Banking and Currency 1926, 341).

79. The gold standard also removed power over the price level from central banks and governments: "When you speak of a gold standard, you are speaking of something where the limitation upon judgment is very exact and precise and the penalty for bad judgment is immediate" (House Committee on Banking and Currency 1926, 295). Like many of his contemporaries, Strong did not recognize that the gold standard did not guarantee a stable long-run price level.

Miller's Testimony

Miller's testimony differed markedly from Strong's. He emphasized accommodating the needs of commerce and preventing speculative uses of credit. He rejected the price level as a policy objective, and he used the opportunity to urge Congress to increase the authority of the Federal Reserve Board over credit decisions. Where Strong, the practical banker, looked for principles to guide policy, Miller, the trained economist, came close to denying that such principles existed.

Miller's response to the central issue before the committee used a quotation from the Board's tenth annual report: "No credit system could undertake to perform the function of regulating credit by reference to prices without failing in the endeavor" (House Committee on Banking and Currency 1926, 634). The reason he gave was that the price index records an "accomplished fact." Credit administration could be based only on judgment. He quoted from the tenth annual report on the role of judgment and the importance of judging each set of circumstances separately:

The Chairman: You [the Federal Reserve] have not, I understand from what you have just said, a definite plan on which you work in dealing with the question of stabilization?

Doctor Miller: We have nothing with reference to stabilization of prices as such.

The Chairman: You deal with the situation as the conditions are presented to you?

Doctor Miller: We deal with the credit situation.

The Chairman: And there is a good bit of human equation there in dealing with the subject, is there not?

Doctor Miller: Yes. . . . I think it is important to realize that no two situations are identical. They do not repeat themselves with such accuracy that the method by which you successfully deal with one situation will insure an equally satisfactory result in another situation. (Ibid., 636)

Asked for what end the System regulated credit, Miller replied: "To the end of 'accommodating commerce and business' as the act instructs" (ibid., 637). How did it decide when to act? "I should say, gentlemen, that action by the Federal Reserve Board usually lies midway between a deliberate or calculated action, such as is taken with full appreciation of the consequences, and what you may call unconscious action. I could not undertake to give any clear definition of just what considerations move my colleagues from time to time" (647).

Miller, like Strong, argued that restoring the international gold standard would restore price stability.⁸⁰ But he saw risks in restoring the gold standard that Strong neglected. The principal risk he cited was that the demand for gold by countries restoring gold convertibility could cause a worldwide tightening of credit. Miller compared the current period to the years 1870 to 1880, when many governments restored or joined the gold standard. He concluded: "While the gold standard had very much of the quality of an automatic regulator before the war, it would never do to trust purely and in all situations to devices automatic or quasi automatic in their qualities" (*ibid.*, 695). Miller thought that the price index was the wrong target. Price increases came late.

To the extent that the Federal Reserve System can do something useful and constructive . . . , it has got to have a far more competent guide than the price index offers. . . .

Assuming that we want price stability—I prefer to put it as I have already put it, economic stability with price stability as a concomitant or resultant of that—in order to obtain it we have to look at things closer to the source or beginning of troubles than the price index. . . .

If you are to have competent control of credit, you cannot wait until inflationary developments register themselves in the price index. By that time the thing will have already gotten considerable momentum. (*Ibid.*, 837–38)

Controlling inflation did not depend on the quantity of money or credit. Miller's remarks on expectations and speculation paralleled many statements by Latin American officials and economists in the inflating economies of the 1970s and 1980s. Inflation was a "vague term" without "precise or generally accepted meaning." He discussed one type of inflation, inflation due to rising expectations. Businessmen observed "a disturbance in the market for a commodity or group of commodities. . . . You have an inflated state of commercial expectation that leads men to make plans and conceive projects and then make commitments and then, only after a lapse of considerable interval, does [the] thing [inflation] show itself in the form of a demand for increased credit. . . . By that time the thing will have already gotten considerable momentum" (*ibid.*, 838).

Miller had rejected the quantity theory in the tenth annual report. In the 1928 hearings on a revised version of the Strong (Kansas) bill, Miller rejected the theory because it had two incorrect assumptions: "Changes in the level of prices are caused by changes in the volume of credit and cur-

80. "It will not be a great while before we shall see restored this condition of price stability that was insured to the commercial world before the outbreak of the great war, under the operation of the gold standard" (House Committee on Banking and Currency 1926, 694).

rency; . . . [And] changes in the volume of credit and currency are caused by Federal Reserve policy. Neither one of those assumptions is true of the facts or the realities” (House Committee on Banking and Currency 1928, 109).

Later, returning to the role of money, Miller explained the irrelevance of the money stock in words that Federal Reserve officials repeated many times in the next fifty years: “The total volume of money in circulation is determined by the community. The Federal Reserve System has no appreciable control over that and no disposition to interfere with it” (*ibid.*, 180).

For Miller, the way to provide economic and price stability was to prevent speculation based on credit. The Federal Reserve must “stop and absolutely foreclose the diversion of any Federal Reserve credit to speculative purposes” (*ibid.*, 671).

Miller used the two hearings to comment on his colleagues, the role of the Board, policy in 1927, and the role of open market operations. Unlike Strong and the reserve bank governors, he claimed not to fear political influence on the Federal Reserve Board. Washington was the right place for the Board. The threat to good Federal Reserve policy came from bankers, not politicians: “The atmosphere of Washington keeps an administrative body on its feet, keeps them alert . . . I am not at all afraid of politics getting into the Federal Reserve Board because the Federal Reserve Board has its headquarters in Washington. I would be afraid of banking and financial interests getting undue preponderance in the deliberations of the board if the board were located in one of our great financial cities” (House Committee on Banking and Currency 1926, 727).⁸¹

Miller urged the committee to strengthen the Board’s role in policymaking, especially over open market operations (*ibid.*, 678–79, 865–66). To strengthen his case, he criticized Strong’s 1927 open market purchases and blamed the policy for stock exchange speculation, neglecting to note that he had voted for the policy: “The money that was released by the Federal Reserve banks to the market through its policy of open market purchases had to go somewhere. . . . [T]he low money rates that resulted from Federal Reserve policy, in the light of subsequent developments, appear to have been particularly effective in stimulating the absorption of credit in stock speculation” (House Committee on Banking and Currency 1928, 172).

Earlier in the hearings he had urged a return to reliance on the discount rate as the principal policy instrument: “I am of the opinion that open-market operations have been the cause of almost as much mischief in credit and economic situations as of good” (*ibid.*, 125).

81. The context makes it difficult to judge whether this statement was a reflection of Miller’s beliefs or a pandering to southern and western congressmen with their traditional fear of “Wall Street.” Perhaps both.

This was not a new view. Miller had written much the same in an article explaining Federal Reserve operations (Miller 1928). There he restated the “needs and reluctance” view of borrowing. The economy required “a credit control device less leisurely in character and less openly deliberate than that of the discount rate” (75). This was an “expedient solution” to a temporary problem. With the restoration of the international gold standard and recovery of the world economy, “primary reliance in the future will be [on] the discount rate rather than the open market operation” (75).

Other Testimony

The committee heard from many other witnesses, including other Federal Reserve officers and officials, economists, and bankers. Irving Fisher supported the bill but urged the committee to attach the Goldsborough bill for a compensated dollar.⁸² Price stability could not be achieved without a rule of that kind. Fisher argued that the Federal Reserve had worked to stabilize the price level but refused to admit it. Oliver M. W. Sprague opposed the bill but favored “avoidance of considerable advance in the general level of prices” (House Committee on Banking and Currency 1926, 415). He opposed Fisher’s rule, or any other, on the usual ground that good policy required judgments not formulas.⁸³

Governor Norris (Philadelphia) and Emanuel A. Goldenweiser were two of the more interesting witnesses. Their testimony suggests the level of understanding reached by officials and advisers outside New York. Norris testified against the bill. He regarded the bill as a doubtful and dangerous experiment (*ibid.*, 395) The Federal Reserve dealt with currency and credit. Why was it asked to stabilize the price level? (384). Price stabilization, if it were to be done, should be left to the Commerce Department or the Bureau of Labor Statistics (395). Though a permanent member of the OMIC, he thought open market operations were too small to have an effect on credit supply. A committee member questioned his judgment:

Mr. Beedy: You would not deny that the purchase of Government securities, or the refraining from purchase . . . would either accelerate or retard the tendency [of prices and interest rates to change]?

82. Fisher paid the salary of John R. Commons, who stayed in Washington to work on the Strong (Kansas) bill (Fisher 1946, 8). I am indebted to Wayne Angell for providing a copy of Fisher’s 1946 letter to Clark Warburton.

83. Sprague defined inflation as “a rapid rise in prices continued for a number of years,” thereby distinguishing persistent from temporary price level movements much more clearly than his friend Benjamin Strong (House Committee on Banking and Currency 1926, 404). Like Strong, he recognized that real bills failed as a regulatory principle because the type of collateral could not change the (marginal) use of credit.

Mr. Norris: It has an immediate effect on the volume and, therefore, to a certain extent on the price.

Mr. Beedy: It has a consequent proportional effect on the price.

Mr. Norris: I think before you translate those operations into an effect on credit and further dilute it by considering the effect of the cost of credit upon the cost of goods, it is very much like the homeopathic prescription of putting a drop of medicine in the Mediterranean and then a drop of that mixture in the Atlantic Ocean." (*Ibid.*, 391)

Other members of the committee joined the discussion, reminding Norris that changes in reserves increased credit by a multiple of the change in reserves. At last Norris admitted that open market operations could have an effect on credit supply, but he said they had been used "to take care of more or less temporary or local conditions" (*ibid.*).

Goldenweiser was the longtime director of the Board's research division and one of its leading economists. Like Norris, he doubted there was any relation between open market operations and the price level. Asked by a committee member if supplying more credit would have "no appreciable effect on the price level," Goldenweiser replied: "In general, I should say that is correct" (House Committee on Banking and Currency 1928, 46).

The 1928 Act

Irving Fisher wrote that Governor Strong favored the principle of the 1926 Strong (Kansas) bill but feared that legislation would be harmful. Fisher reported on a private conversation with Strong in which Strong threatened to resign if the bill became law: "If you will let me alone, I will try to do the best I can, but if you make me do by law what I am trying to do without legislative control, I will be so afraid that I cannot fill the bill that I will not accept the responsibility" (Fisher 1946, 3).⁸⁴

Strong changed his mind in 1928, according to Fisher.⁸⁵ He worked with Congressman Strong to redraft the 1926 bill and remove his three principal objections. As a result, the preamble to the revised bill included "to further promote the maintenance of a stable gold standard" and "to assist in re-

84. Fisher claims to have responded: "I will trust you as long as you live but you will not live forever and when you die I fear your policies will die with you." Fisher says that Strong replied: "I have trained my assistants so that they know these policies and they will be continued" (Fisher 1946, 3). Hetzel (1985, 8) reports very similar statements in Fisher 1934, 151. Fisher's recollection is probably correct. Very similar statements were made by Congressman Strong in the 1926 hearings (House Committee on Banking and Currency 1926, 569, 601).

85. Fisher (1946, 5) claims that Strong could not favor the bill in public without the approval of the Federal Reserve Board. Strong asked the Board if he could favor the legislation, but they refused.

alizing a more stable purchasing power of the dollar.” The bill itself directed the Federal Reserve to use its powers “to maintain a stable gold standard . . . [a]nd a more stable purchasing power of the dollar, so far as such purposes may be accomplished by monetary and credit policy” (House Committee on Banking and Currency 1928, 1, 5, 6). Congressman Strong met with the Reserve Board accompanied by Professor John R. Commons and, after discussion, made other changes to meet their objections.

Congressman Strong concluded his opening remarks at the hearings with a warning that was prophetic: “There is but one principal objection . . . that I would not meet in this bill . . . that the American people will not understand what is meant by the powers that they have given to the Federal Reserve System. . . . To my mind . . . that is not to be compared with the danger that may result from the failure to use these powers for the stabilization of the purchasing power” (*ibid.*, 8).

The Board resolutely opposed the bill. Governor Strong began his testimony by noting that he spoke only for himself, not the System. He recognized that the new bill removed many of his earlier objections. Nevertheless, he did not endorse it. He preferred “a scientific application of the well-known principles of the gold standard” (*ibid.*, 13). This would achieve “everything in the act” (17). He favored the gold standard because it was a rule that did not depend on human judgment: “When you are speaking of efforts to stabilize commerce, industry, agriculture, employment, and so on, without regard to the penalties of violation of the gold standard, you are talking about human judgment and the management of prices which I do not believe in at all” (21).

Governor Young of the Board testified for the Board, opposing the bill as requiring a central bank instead of an association of regional banks; reversal of the increases in agricultural prices that had recently occurred; and price fixing by the Federal Reserve. His arguments were superficial and showed little understanding. The first two arguments, however, appealed to widely held political views about a central bank and to the representatives of agricultural districts. Congressman Strong answered at length, denying Young’s claims by reading from the bill (*ibid.*, 413–22). Young also defended the 1927 policy as “purely an American policy” to assist exports (415).

Miller’s testimony repeated many of the ideas he advanced at great length in the 1926–27 hearings. He continued to oppose the Strong (Kansas) bill. At one point he accused Governor Strong of not understanding the relation of Federal Reserve policy to price stability:

Mr. Strong: [T]he language you refer to has been dictated and suggested by members of the Federal Reserve System.

Doctor Miller: . . . The Federal Reserve System is a pretty big organization. There are many persons in it. We have a considerable number of amateur economists, and from my point of view they constitute one of its dangerous elements. . . . I venture to say that some of the men you have consulted do not know what this is all about. These are high sounding and captivating words you are using in your proposed statement.

Mr. Strong: Of course, one of them has been Governor Strong.

Doctor Miller: Of course, he is a very able man. But when it comes to economic insight and understanding . . . that is very unusual in any group of men anywhere. (*Ibid.*, 212–13)

Miller's views prevailed. The committee did not report the bill to the House. It is an understatement to say this was a missed opportunity. If the mandate for price stability had been passed and followed, the Federal Reserve could not have permitted deflation during the Great Depression of 1929–33 or inflation during the Great Inflation of 1965–80. Possibly a recession would have occurred in 1929, but the United States and the world would have avoided the deflationary policy and its consequences. The Federal Reserve would have had to choose price stability over the real bills doctrine and to lose gold, thereby reducing or preventing deflation elsewhere.

PERSONALITIES AND CONFLICTS

Miller's testimony about Governor Strong suggests some of the rivalry and animosity between the two. As is often the case, the causes of the dispute were both substantive and personal, but it is not clear from the record which came first. Some of the differences had roots in the Federal Reserve Act itself. Miller resented Strong's leadership in domestic and international policy, but he also believed that the Board, not the reserve banks, should lead the System. Only the Board considered the whole system.

Some of the substantive issues were the type that arise in many organizations. Particularly when discount rates were reduced, reserve bank governors often announced the changes, or leaked them to the press, before the Board acted. The Board believed that it was its prerogative to make these announcements. The governors complained that the Board acted as if it controlled rate changes, while the Board complained that the governors blamed the Board for discount rate increases when talking to member banks. The Board often irritated Strong and some of the other governors by delaying or modifying decisions about open market purchases.

The governors complained that the Board was not well organized, de-

layed decisions, failed to answer questions, and lost communications. Governor Crissinger, appointed by President Harding to head the Board, had no knowledge of central banking. William McChesney Martin Sr., who served at first as chairman and then as governor of the St. Louis bank from 1914 to 1941, described Crissinger as a “good natured man” but added that that was the only good thing that could be said of him (CHFRS, Martin, August 4, 1954, 2). Strong complained to Mellon about the Board’s functioning, but nothing was done until Crissinger resigned in September 1927 (Chandler 1958, 257).

Three more substantive issues underlay the antagonism between Strong and Miller. First, Miller was a firm believer in the power of the real bills doctrine and the importance of the quality of credit for controlling the quantity of credit and inflation. Strong recognized early in the decade that the marginal use of credit was unrelated to the type of paper a bank discounted. Second, Miller opposed reliance on open market operations to control the amount of credit and money. He favored reliance on discount policy and classical (British) central banking. Strong regarded the discount rate as a secondary instrument. He preferred to force bank borrowing and repayment by using open market operations. The Riefler-Burgess doctrine, with its emphasis on open market operations and quantitative control, could be called the Strong-Riefler-Burgess doctrine, to recognize Strong’s role in developing a policy framework based on observation and experience. Third, both Strong and Miller favored the restoration of the international gold standard, but Miller was skeptical about the relationship between Strong and Governor Norman of the Bank of England. He believed that Strong at times altered United States policy to benefit Britain, allowing the quantity and quality of credit to change unfavorably and inappropriately.⁸⁶ This probably meant that Strong did not wait for banks to borrow or repay.

Oral transcripts of the recollections of Federal Reserve officers show Miller and Strong with powerful personalities. It is not hard to see why they would clash even if there had been no substantive issues. Both wanted to dominate decisions, but Strong was a decisive leader and Miller was not.

Charles J. Rhoads, the first governor at Philadelphia, who admired Miller, described him as “didactic,” “quite sure he knew the answer to every question” (CHFRS, Rhoads, June 29, 1955, 3). George L. Harrison, who

86. Chandler (1958, 255) reports Herbert Hoover’s references to Strong as a “mental annex to Europe” and “Strong and his European allies.” Hoover was friendly with Miller. Chandler claims that Hoover took these views from Miller.

worked at the Board as an attorney from 1914 to the mid-1920s before moving to New York, described Miller as unwilling “to admit that he was ever wrong” and difficult to persuade about the worth of an idea that was not his own (CHFRS, Harrison, April 19, 1955, 2).⁸⁷

Unlike Miller, Strong had not gone to college and had not formally studied economics, but he had learned a great deal from his experience as a banker and central banker and from discussion with leading economists. Miller distrusted and possibly disdained this type of learning, and he envied the respect and acclaim that Strong received from economists such as Fisher, Sprague, and Bullock.

William McChesney Martin Sr. described Strong as ambitious personally and determined to make the New York bank the dominant force in the system. According to Martin, if the Aldrich bill had passed, Strong would have been the head of the central bank. The Glass bill created a regional system instead of a central bank, but Strong succeeded for a time in getting control (CHFRS, Martin, August 5, 1954, 2). Jay Crane, who worked in the New York bank from 1913 to 1935 and later became its chairman, described Strong as a powerful leader. He talked frequently about central banking with the junior staff who “sat at his feet and worshipped him” (CHFRS, Crane, March 5, 1954, 1). He was the only governor who tried to learn about central banking from European experience. Another officer of the New York bank, Leslie Rounds, referred to Strong’s great influence over policy and his clashes with Adolph Miller. But he also described Strong as certain that “he knew what was right” (CHFRS, Rounds, January 29, 1954, 3).⁸⁸

George Harrison, who replaced Strong as governor, had a very different personality. Rounds described Harrison as diplomatic and thoughtful. Strong, he said, “moved directly from thought to speech,” whereas Harrison “thought first and talked afterward” (CHFRS, Rounds, January 29, 1954, 4).

On the critical question of whether Strong would have forced a change in policy in 1929 or after if he had lived, his contemporaries have mixed opinions. Rounds (CHFRS, May 2, 1955, 3) was uncertain whether Strong could have changed policy in 1928–29, but he believed that Strong would

87. Young described Miller’s love of argument: “If no one on the Board started arguing with Mr. Miller, he would argue with himself” (CHFRS, Young, March 1, 1954, 2).

88. Eugene Meyer, governor of the Board from 1930 to 1933, did not share in the adulation. He described Strong as “an ignoramus in international banking” (CHFRS, Meyer, February 16, 1954, 3). Irving Fisher thought highly of Strong and believed he would have prevented the deflationary policy of the 1930s. Fisher had contempt for Meyer. He claimed that in 1931, when told that demand deposits were falling, Meyer did not know what a demand deposit was and did not know that they had fallen (Fisher 1946, 4).

have insisted on an increase in the discount rate in 1929 (13).⁸⁹ Roy Young was doubtful. Strong “thought he had more power in the System than he really had” (CHFRS, Young, March 1, 1954, 3). J. Herbert Case, one of Strong’s deputies, asserted the opposite (CHFRS, Case, February 24, 1954, 7). Several governors, led by Miller, blamed Strong’s policies, particularly the 1927 open market purchases, for the increase in speculative activity and the growth of stock exchange credit.⁹⁰ He would have had difficulty persuading them to follow his (nonreal bills) policies again.⁹¹

Other active members of the Board and the banks at the time included Charles S. Hamlin, the first governor, who served on the Board from 1914 to 1936; Roy A. Young, governor of the Board from 1927 to 1930 and governor at Boston from 1930 to 1942; James B. McDougal, governor at Chicago from 1914 to 1934; and George R. James, a member of the Board from 1923 to 1936. Contemporary descriptions of these men give no evidence of leadership, understanding, or an ability to resolve the conflict between Miller and Strong.

Paul Warburg described Hamlin as a “second class Governor” (quoted in Yohe 1990, 479). Young reported that Hamlin seldom spoke at Board meetings: “He sat with his diary at hand and made notes” (CHFRS, Young, March 1, 1954, 1). Chester Morrill, in the Board’s Secretariat (secretary after 1930), claimed that Hamlin’s diary is “far from accurate as he grew older” (CHFRS, Morrill, May 20, 1954, 9). Others described him as “a man of no particular force who usually went with the majority” (CHFRS, Morgan, April 23, 1954, 5).

Harrison described Young as extremely stubborn and very vocal, and Young described James as “a diamond in the rough.” Meyer thought James lacked financial ability but was otherwise all right. Morrill held a very different view. He thought James had great respect for authority. Since Meyer

89. Leslie Rounds compared Strong with Gates McGarrath, who served as acting governor for a few months after Strong died: “McGarrah could present a case quite effectively, but when it got to the arguments, he was through. . . . McGarrah just wasn’t built on a plan to permit him to argue and win. Strong loved it. He thoroughly enjoyed getting into a fight and coming out on top, as he always did” (CHFRS, Rounds, 13). McGarrath and the New York directors voted for discount rate increases repeatedly in the spring of 1929, but the Board would not approve.

90. Early in 1928, Miller and others at the Board worked to dilute Strong’s authority by replacing the five-person OMIC, dominated by Strong, with a twelve-person committee consisting of all reserve bank governors. The change, discussed below, was made in 1930 after Strong died.

91. There are two issues. First is whether Strong would have convinced the Board to raise the discount rate early in 1929. The other, more important issue, is whether he would have convinced the open market committee to expand in 1930 or 1931. I return to that issue in chapter 5.

was governor, James took Meyer's word and spent no time studying issues. In return, Meyer sponsored his reappointment (CHFRS, Harrison, April 19, 1955, 2; Young, March 1, 1954, 1; Meyer, February 16, 1954, 6; Morrill, May 20, 1954, 6).⁹²

James McDougal, the governor at Chicago, was a man of few words. Bentley McCloud, who served as McDougal's assistant governor, said that if he was asked the time of day, he would not answer but would show you his watch. McDougal came to the Federal Reserve from the Chicago clearinghouse, where he had worked as an examiner. Meyer described him as "a mere bookkeeper" (CHFRS, McCloud, July 27, 1954, 5; Meyer, February 16, 1954, 5).

The other Board members during most of the 1920s were Edward H. Cunningham and Edmund Platt, the vice governor. Cunningham was a farmer who went into Iowa politics and was active in the American Farm Bureau. He filled the agricultural seat created after the 1920–21 deflation. He often opposed rate increases because he believed they hurt farmers and small businesses (Katz 1992, 67). He served from 1923 to his death in 1930. Platt's biography appears above (see note 16). He was usually in favor of raising interest rates during 1927–29.

The general picture that emerges has two features. Many of the principals responsible for policy in the 1920s, and during 1929 to 1933, were weak men with little knowledge of central banking and not much interest in developing their knowledge. There were a few strong-minded individuals, but they were often at loggerheads. Policy decisions became a contest of wills between Strong and Miller and later between Miller, Meyer, and Harrison or Burgess.

Edward Smead, who served throughout the period as head of the Division of Reports and Statistics, described the scene. At first "Benjamin Strong was more powerful than anybody on the stage." Later "Eugene Meyer was in constant opposition to Harrison in the New York bank" (CHFRS, Smead, June 14, 1954, 2).⁹³ Meyer confirmed and strengthened Smead's comments. During his period of service at the Board, he claimed, there was constant strife at the Board and ill feeling between the Board, New York, and Chicago. The "New York bank had built up its power entirely out of proportion with the intent of the Act" (CHFRS, Meyer, February 16, 1954, 4).

92. Morrill reports that James was from Tennessee and believed that the mule, the horse, and hay were "the basic elements of any economy." He was "wrapped up in organic fertilizer." He disliked the automobile and believed that by doing away with the horse and the mule, automobiles contributed to the "decay of the country" (CHFRS, Morrill, May 20, 1954, 6).

93. Smead added that in the 1940s the "New York–Washington feud" continued under Allan Sproul and Marriner Eccles.

The struggle for power and control that was inherent in Wilson's compromise had gathered momentum by the late 1920s. The Federal Reserve entered a critical period for policy decisions with a conflict that made decisions easy to postpone and left basic policy issues unresolved.

POLICY ACTIONS

New York and some of the Board's staff followed the Riefler-Burgess doctrine as a general guide to policy actions. Miller relied mainly on the qualitative test, based on the real bills doctrine, underlying one part of the tenth annual report. Regional reserve bank governors were often more interested in their bank's earnings than in issues of money or credit management. They were more willing to follow Strong's leadership and participate in System policy when policy increased earnings. Those who voiced opinions about System policy usually held orthodox gold standard and real bills views.

The deflation of the early 1920s ended by 1922, but it continued to shape interpretations and actions. Many of the banks in the South and Middle West held distressed agricultural and livestock loans. The problem was particularly acute in the upper Middle West and in the northern plains states. Bank suspensions continued to rise, particularly in these states, during the middle twenties. As late as 1926, the peak year for suspensions in that decade, 976 banks with deposits of \$260 million closed. More than one-third of the number of suspensions occurred in three states: Minnesota, Iowa, and South Dakota.

The potential political impact of agricultural interests heightened the effect of the regional economic problem. Since deflation was widely regarded as the inevitable consequence of prior inflation, avoiding inflation became a paramount interest. Strong had been impressed, however, by the reports of distress in agricultural regions during his appearance before the Joint Commission on Agricultural Inquiry and, despite concerns about inflation, he believed it was prudent to lean to the side of ease in 1922 (Burgess 1964, 223).

The 1923–24 Recession

The wholesale price index rose during most of 1922, sharply in the early part of the year, more slowly later. In the fifteen months ending in March–April 1923, the index (base 100 in 1913) increased from 140 to 160. Concern spread that inflation had returned.⁹⁴

94. In late April 1923 the National Bureau of Economic Research wrote: "We will soon have a boom, with the standard trimmings and the standard ending" (quoted by Miller in House Committee on Banking and Currency 1926, 701).

Although it was eager to take credit later, the Federal Reserve's response was largely fortuitous. Under pressure from the Treasury, the reserve banks began to sell securities after May 1922. By the end of the year they had sold more than one-third of their holdings, \$220 million. Sales continued in the first half of 1923. By June, System holdings were \$150 million, one-fourth of their peak in May 1922. The System relied on discounts to satisfy seasonal credit demand in the fall. To the surprise of many in the System, after a small seasonal decline in January, member bank discounts continued to rise throughout the spring and summer.

The Federal Reserve increased discount rates at Boston, New York, and San Francisco by 0.5 percent in late February and early March. Rates were now uniform for all classes of paper, at 4.5 percent, at all reserve banks. Open market rates rose following the rise in discount rates.⁹⁵

With market rates above the discount rate, prices and production rising, and speculation developing in stocks and commodities, Platt, the acting governor, wrote to Treasury Undersecretary Gilbert on March 24, 1923, reflecting the general uncertainty about how to conduct policy: "The old Bank of England guides appear to be inapplicable. . . . It may not always be necessary to have reserve bank rates above or exactly even with open market rates, but an increasing spread between them is certainly an invitation to inflation" (Board of Governors File, box 1240, March 24, 1923).

The March Governors Conference discussed additional discount rate increases. McDougal thought that economic conditions were similar to 1919–20. He favored an advance of 1 percent, to 5.5 percent, at all reserve banks. Calkins (San Francisco) and Norris (Philadelphia) were less aggressive, but both favored rate increases. Case thought another increase would be appropriate by mid-April. All other governors saw no reason for change. Chicago voted on April 6 to raise the discount rate to 5 percent, but the Board refused to approve the increase. The next day the Board sent a letter, proposed by Miller, to all reserve banks saying that discount rates should not be increased until the reserve banks had substantially liquidated their portfolios of governments. This was a reversal of traditional policy; open market sales were supposed to make discount rates effective. The new policy, under pressure from the Treasury, had the sales precede any increase in discount rates.

The Board's correspondence leaves no doubt about the reason for the policy change. The Treasury continued to press the reserve banks to elim-

95. Strong wrote to Norman that the discount rate increases had been delayed until it was clear that Congress would approve a loan to Britain. As reason for the increase in the discount rate, Strong cited the increase in borrowing, market rates 1 percent above the discount rate, rising stock market loans, and production "practically at a maximum" (Chandler 1958, 221).

inate all government securities. On April 20 Platt wrote to Secretary Mellon, calling attention to the large open market sales in the previous year and pointing out that the System holdings of governments were about equal to the capital and surplus of the reserve banks. The reserve banks were eager to hold governments at this level to ensure sufficient earnings to pay dividends on their capital stock. They wanted the Treasury to agree that additions to surplus could be matched by increases in government securities. Mellon opposed, and Undersecretary Gilbert continued to press for additional sales (Board of Governors File, box 1434, April 20 and 27, 1923, and box 1433, May 3, 1923). Platt replied that additional sales would force higher discount rates and, by eliminating the portfolio, reduce the reserve banks' ability to influence the market and prevent inflation should it occur.

The Board had abolished the governors' Committee on Centralized Purchases and Sales and established the Open Market Investment Committee (OMIC), with the same membership but operating under regulations and subject to supervision by the Board. The Board's resolution gave two guidelines to the OMIC. First was the effect on commerce, business, and credit markets. Second was the effect on the market for Treasury securities. At its first meeting, April 13, the OMIC adopted a statement, similar to the Board's, directing open market operations to "the accommodation of commerce and business." The statement added that a penalty rate of discount "is not always suited to the American bill market" and expressed concern that attempts to maintain a penalty rate "would quickly drive the dollar credit from those [bill] markets" and benefit London. The statement indicated that, although government securities would be bought and sold in the market, acceptances, once bought, would be sold only to another reserve bank. The latter policy represented New York's view that sales should be avoided to prevent competition with member banks and encourage a domestic bill market (Policy Governing Open Market Purchases by Federal Reserve Banks, Exhibit A, Board of Governors File, box 1436, April 13, 1923).

Strong was on leave for health reasons from March to November 1923, so he missed the first OMIC meeting, in April. The meeting elected him chairman and selected Case, his deputy, to act in his place. Acceding to the Treasury, the OMIC allowed \$36 million of maturing securities to run off and proposed raising the buying rate on acceptances by 0.125 percent. Four days later, New York raised the buying rate.⁹⁶

96. The meeting also considered an issue that continued throughout the decade. Banks in California allowed a limited amount of check writing against "special savings deposits, subject to a 3 percent reserve requirement ratio." By a vote of seven to five, the governors agreed

The following month the OMIC recommended open market sales of \$50 million, about one-quarter of remaining holdings, with sales distributed among the reserve banks in inverse relation to a bank's earnings. Crissinger had become governor of the Board at the beginning of May. On May 31 he wrote to Case reversing Platt's position and expressing concern at the restriction to \$50 million: "The Board sees no reason why there should be any limitation. . . . [G]overnment securities should be disposed of as rapidly as possible until they are out of the banks" (Crissinger to Case, Board of Governors File, box 1434, May 31, 1923).

Case's reply expressed surprise that the Board had not objected to the limitation at the time of the meeting, but his tone was conciliatory. His only criticism of the Board's action was its timing, coming so soon after the Board had not objected to the decision. But he appended to his letter a letter from Philadelphia denying the Board's authority to specify the volume of sales (Case to Crissinger, Board of Governors File, box 1434, June 11, 1923).⁹⁷ Strong was more forceful. From Colorado, he wrote to Miller using the economic arguments of the Riefler-Burgess doctrine. Additional sales of \$130 million would force the banks to borrow \$130 million, reducing bank profits and increasing pressure to liquidate loans. There were signs of "hesitation in business" and rising bank failures: "Had I been home recently when these failures were popping, I would have bought \$25 to \$50 million" (Chandler 1958, 232).

The Treasury continued to urge the OMIC to get rid of all government securities. Despite the OMIC's decision to support the acceptance market, the Treasury urged that the acceptance market be allowed to develop on its own "without artificial support from the Federal Reserve Banks." The Treasury wanted the OMIC to limit its actions to the acceptance market, arguing that this could be done if the acceptance rate was a market rate and the reserve banks sold as well as bought (Letter Gilbert to Case, Board of Governors File, box 1434, May 25, 1923). Strong did not share this view, and the Treasury did not press it further.⁹⁸

to keep the prevailing policy. The problem spread to other states, and though it was discussed many times, the policy was not changed. The policy allowed banks to lower the applicable reserve requirement ratio and blur the distinction between demand and time deposits.

97. Case circulated Crissinger's letter to the members of the OMIC. Philadelphia's reply suggests the way many of the reserve banks looked at the issue. The Philadelphia directors had approved sharing in the sale only to accommodate the Treasury. The Board's program would require selling securities at a loss. Decisions about purchases and sales were not the province of the Board, and the Board lacked authority to have a policy about sales. His directors reserved the right to dissent from future OMIC recommendations (Norris to Case, Board of Governors File, box 1434, June 8, 1923).

98. Gilbert continued to develop and modify this view and to urge it on the Board until August. (See Letter Gilbert to Crissinger, Board of Governors File, box 1434, August 3, 1923.)

By fall the country was in a deep recession. The National Bureau of Economic Research ranks the recession as one of the most severe in the years 1920 to 1982, surpassed by only three others. The Board's index of industrial production (1919 = 100) reached a peak of 127 in May 1923. The NBER trough is in July 1924, with the index at 94, a 23 percent decline (Reed 1930, 45).⁹⁹ Balke and Gordon's (1986) real GNP declined 4.1 percent. The decline was irregular, with some recovery in the fall.

At its November 1923 meeting, the OMIC mentioned "the possibility of harm to business when business is hesitating" but took no action to expand. Most of its attention was on the continued imports of gold and the seasonal increase in borrowing. A principal policy concern at the time was the small size of the open market portfolio available for sale if gold imports continued.

Strong had returned. His report to the committee, as chairman, noted that purchases would not be inflationary if total earning assets did not increase. He did not urge purchases at that time, however, because he did "not think the Federal Reserve Board would consider that" (Report of OMIC, Board of Governors File, box 1436, November 10, 1923, 29-35).¹⁰⁰

A few weeks later, the OMIC voted to make its first purchases but, mindful of Treasury concerns, added that purchases should not disturb the money market. The Board approved purchases of no more than \$100 million on December 3, but it reserved the right to discontinue purchases and resume sales if market conditions changed (Board Minutes, December 3, 1923).¹⁰¹

Although New York favored the decision to purchase, Strong and his directors feared that purchases of governments would be regarded as inflationary. They wanted the Board to issue a statement endorsing the view

The Federal Advisory Council accepted Gilbert's suggestions in principle but decided that the time was not right for further sales. In August Gilbert accepted that the reserve banks' position was "well liquidated," ending the issue.

99. A later index, base 100 in 1992, puts the decline at 18 percent. The Miron-Romer index has an overall decline of 36 percent for the period. Their index has an initial decline of 38 percent between May and September 1923, followed by a rise to February 1924 and a renewed decline to July 1924.

100. In September the Board approved a request from Dallas to purchase \$10 million of long-term Treasury bonds for income. The Board approved because of the weak earnings of the Dallas bank. It denied a similar request from Boston in November. These incidents suggest, correctly, that much of the interest in open market purchases at the reserve banks continued to be for earnings. The tenth annual report had not been written. Strong's statement at the meeting anticipated part of the report.

101. Purchases were made for a new Special System Investment Account to be used for all purchases and sales by the committee. Allocation to individual reserve banks was based on earnings needs of the reserve banks. The reserve banks paid or received payment by transferring gold on the books of the gold settlement fund.

that open market operations changed the composition, but not the size, of the Federal Reserve's earning assets. The Board adopted a statement prepared by Strong, Walter Stewart, and Pierre Jay (chairman at New York) that reviewed evidence of the close negative relation between open market operations and member bank borrowing in 1922 and 1923 and emphasized the relation between discount policy and open market policy as a means of accommodating commerce and business (Board Minutes, December 19, 1923). Although the act authorized open market purchases, the emphasis on commerce and business appealed to beliefs about real bills. The Board published the statement in the *Federal Reserve Bulletin*.

Strong was cautious. The System bought only \$30 million in December. At its January 1924 meeting, the OMIC adopted a "waiting policy" at a time of "extreme caution" (Board of Governors File, box 1436, January 14, 1924). The committee purchased only \$15 million. The reason for caution was the fear of inflation caused by adding securities purchases to a continued gold inflow.¹⁰² The background memo prepared for the meeting mentioned stock market speculation as a possible sign of inflation but noted that commodity prices showed no sign of inflation. In February, with a renewed decline in industrial production, the OMIC resumed purchases. On February 25 the Board approved purchases of an additional \$100 million. By November 1924, the OMIC had bought more than \$500 million in twelve months, with the bulk of the purchases between February and August, nine to fifteen months after the recession started.¹⁰³

The reserve banks easily reached agreement on purchases. Nine of them, including New York, had negative earnings. In May, the OMIC revised the allocation formula to reflect the projected earnings positions. New York took 51 percent of purchases in June (instead of its previous 29 percent), and Chicago took 10 percent. Thereafter, allocations changed monthly.

Treasury officials did not oppose purchases by the reserve banks, but they asked for a limit on the size of the System account (OMIC Minutes, Board of Governors File, box 1436, April 22, 1924). The Board and the Treasury continued to resist purchases of long-term securities. The Federal Advisory Council supported the Board's position, and the Board used the

102. The bulk of the gold was in bullion. Beginning in January, governors agreed to ask the Treasury to increase gold coinage and to issue more gold certificates until coins and certificates equaled 20 percent of notes and deposits, 6 percent in coin and 14 percent in certificates (Governors Conference, May 6, 1924, 340–47; November 10–14, 1924).

103. Wicker (1966) interprets the 1924 purchases as made mainly for international reasons. He dates the principal purchases as occurring between June and August (88). This neglects \$100 million made in March 1924. As noted below, Strong later testified that purchases should have stopped in June.

council's opinion to reject Chicago's request to purchase long-term securities for income (Letter Board to McDougal, Board of Governors File, box 1434, May 23, 1924).¹⁰⁴ The issue did not die. In November 1924, with most of the reserve banks in deficit, the governors voted on a proposal to defy the Board by purchasing long-term governments to increase earnings. The motion was defeated on a tie vote.

Early in May 1924, New York reduced its discount rate to 3.5 percent in two steps.¹⁰⁵ By July only Minneapolis remained at 4.5 percent. Open market rates for commercial paper fell to 2 percent. For the first time, some member banks began to report rising excess reserves. The difference in discount rates suggests, correctly, that there were sizable regional differences. Excess reserves at banks in large cities accompanied heavy borrowing in agricultural districts, particularly in June and July. A large United States crop and small crops abroad raised farm prices and improved the farmers' position, so discounts declined in the fall, counter to the usual seasonal pattern. Strong later described the effect on the United States market:¹⁰⁶ "The outcome of the crops made it necessary for Europe to make unprecedented purchases of our small grains at very high prices compared to recent years. But the coincidence of low rates for money in this market and higher rates in London enabled foreign . . . borrowers to place a billion and a quarter of loans in this market" (House Committee on Banking and Currency 1926, 337).¹⁰⁷

The recession ended in July, but open market purchases continued. As noted earlier, gold outflow from Britain threatened Britain's return to the gold standard. With United States interest rates below British rates, the United States gold stock reached a peak in June 1924 and declined slowly through the fall. Following a recommendation of the Federal Advisory Council, the OMIC discussed purchases of future sterling bills at its October meet-

104. The Board was divided on the issue. The vote was three to two to reject Chicago's request. Crissinger abstained. Hamlin believed the Board exceeded its authority.

105. This was a year after the start of the recession. The only discount rate change in 1923 was a 0.5 percent increase by San Francisco two months before the cyclical peak. Chandler's claim (1958) that the Federal Reserve, particularly Strong, had discovered countercyclical policy (along Keynesian lines) is not consistent with the long delay at the start of the 1923-24 and 1927 recessions. What Strong and other proposed, and did, depended mainly on credit markets, particularly the level of borrowing. Although Strong talked about measures of production, his actions were based on discounts and interest rates as suggested by the Riefler-Burgess doctrine.

106. In July, the OMIC voted to allow its chairman to sell and repurchase securities in the new Special System Investment Account to smooth the market during tax payment periods. New York and Chicago had been smoothing on their own earlier.

107. The statement is based on a memo that Strong wrote in December 1924 and read to the Banking Committee at the 1926 hearings.

ing but decided that the futures market was too small. The committee was uncertain about its next move. It voted to give the chairman authority to buy or sell up to \$100 million, but the Board would not consider giving the decision to Strong. By November, market rates were rising. The reserve banks' acceptance rates were below market rates, so they supplied the usual seasonal demand for reserves and currency through the acceptance market.

Strong prepared a lengthy congratulatory report for the November meeting on the first full year of the OMIC's operations. Purchases had added \$500 million to the System account without adding directly to the volume of credit. Credit had shifted from discounts to government securities with little change in the total. As a result, gold imports and currency had their full effect on the credit markets and contributed to ease markets during the recession, and later a gold outflow contributed to the "readjustment of world finance" (Riefler 1956, 26).¹⁰⁸

Further, Strong said, the System had built its portfolio so that it was now in a position to offset gold inflation. All of this had been achieved "without business disturbance or price inflation but rather with considerable benefit to business" (ibid., 26). The report argued that by changing the amount of credit available the Federal Reserve could smooth the business cycle, and that by reducing interest rates in recession it could help foreigners to finance recovery abroad. The report cited the financing of the Dawes loan to Germany that year as an example.¹⁰⁹

Within a few weeks, the atmosphere at the meetings changed. The early months of recovery were very strong. Consumer prices rose at a 4.5 percent annual rate in October and November, and stock prices were 25 percent above 1923. At the December 2, 1924, Board meeting, Adolph Miller introduced a resolution calling on the reserve banks to raise discount rates by 0.25 percent above open market rates, restoring a penalty rate. The motion failed four to two. Reserve bank credit and the monetary base continued to increase despite the redemption of \$65 million from the open market account. The M_1 money stock rose at an annual rate of 10 percent for the quarter and 12 percent for the second half of the year. When the OMIC met with the Board on December 19, Miller favored an increase in the acceptance rate to 3 percent to slow the rise in stock prices and brokers' loans. He

108. W. W. Riefler prepared a summary of open market decisions for 1923 to 1931 based on the principal documents for the period. His summaries are in the Board's files.

109. Strong also responded to criticism of the policy by the American Bankers Association. The bankers accused the Federal Reserve of accentuating financial swings and competing for securities with member banks. They suggested that Federal Reserve banks return "to their primary functions as banks of issue and rediscount" (Riefler 1956, 30). Strong recommended that the Board reply in the *Federal Reserve Bulletin*. The Dawes loan was part of the Dawes Plan to reduce German reparations payments and restore convertibility of the mark.

feared that businesses would start to borrow, requiring a rapid increase in interest rates: "We have an enormous volume of credit poured into the market, and member banks are going to be put to it to meet demands. They will go to the reserve banks to get it" (OMIC Minutes, Board of Governors File, box 1436, December 19, 1924, 11).

Strong urged caution. December was not the time for a shift in policy. He wanted the Board and the OMIC to wait for the January meeting, when the market situation would be clearer, but he did not oppose an increase in the acceptance rate to 3 percent on ninety-day paper. Within a few days, New York increased the rate. During the rest of December discounts rose, and the System allowed government securities to mature without replacement. At year end the System account stood at \$540 million—about \$50 million below its peak but \$40 million above the amount set as a maximum in November.

The minutes have no evidence that Strong wanted to delay sales in December to assist Britain's return to the gold standard. Foreign borrowing and low rates in the United States helped the pound to appreciate nearly 9 percent against the dollar from the summer low, with no further increase in the Bank of England's discount rate. In January the pound appreciated further, driven by rumors of a return to gold. On the record, Strong's position at the December meeting is not very different from Miller's and others'. All shared some uncertainty about the strength of the recovery and the size of the seasonal movement at the end of the year. The committee voted not to increase the OMIC account and to respond to demand for reserves by discounting.¹¹⁰

Recovery and Expansion

Despite a mild recession beginning in October 1926, real GNP grew at an average rate of 6 percent a year in 1925 and 1926. Prices remained within a band from -2 percent to +4 percent monthly, at annual rates. Common stock prices rose 24 percent in 1925, and total return to equities reached nearly 12 percent in 1926.¹¹¹ These figures suggest a strong and steady expansion. Closer examination shows a much more variable pattern in 1925.

110. The following week, Strong wrote a lengthy memo to the files summarizing the events of 1923-24. Subsequently he read from this memo at a congressional hearing, as cited above. One part of the memo refers to the gold inflow as "one of the greatest menaces to our ultimate security against inflation." Recognizing the role of United States interest rates as helpful for the recovery of the pound, he concluded that Britain was now able to resume gold payments: "A lower interest level . . . was a further influence in turning the tide of gold away from the United States" (House Committee on Banking and Currency 1926, 337).

111. Beginning in 1926, I rely on appendix table A-1 in Ibbotson and Sinquefeld 1989 for annual returns on common stocks.

Industrial production rose rapidly in January, then declined unevenly until late summer, so much of the rise for the year was completed in the first month. Balke and Gordon's (1986) data on real GNP shows strong positive growth in the first and fourth quarters of 1925, declines during the second and third quarters, and renewed growth in 1926. Prices rose in 1925 and fell in 1926 following a decline in money (M_1).

The OMIC met in Philadelphia on January 9, 1925, with Crissinger and Platt present. The secretary's report showed that since the December meeting the open market committee had sold \$57 million of governments and bought \$125 million of acceptances, mainly in December. In the first week of January, as market rates fell, acceptances ran off. The committee anticipated that the market would firm in February and March. It voted to continue sales to prevent undue ease (OMIC Minutes, Board of Governors File, box 1436, January 9 and 10, 1925).

The February meeting renewed the decision to sell. Between November and March, the System sold \$210 million. In the same period, member bank discounts rose \$170 million and acceptances rose \$30 million, offsetting the sale, as Riefler-Burgess implied. The gold stock fell almost \$200 million, and open market rates rose. New York responded in late February by raising the discount rate from 3 to 3.5 percent, where it remained for the rest of the year. Strong coordinated the increase with Norman both during his visit in January and by cable (Governors Conference, April 6–7, 1925, 21).¹¹²

Strong credited the open market sales and the rise in the discount rate with reducing speculative activity on the stock exchange and lowering stock prices. He made no mention of the decline in business that occurred about the same time (Riefler 1956, 44).¹¹³

At the April 1925 meeting of the Governors Conference the governors considered a problem that continued for the rest of the decade—the use of credit by securities brokers and dealers. Strong explained how New York analyzed the problem. A tightening of the money market reduced loans by brokers to their customers if the New York banks were in debt to the reserve bank. Higher money market rates in New York also brought loans from banks in the interior. Governor Willis J. Bailey (Kansas City) asked

112. Strong wanted to increase the rate before the British resumed gold convertibility (Governors Conference, April 6–7, 1925). The Bank of England preceded New York by raising its discount rate in February and again in April (to 5 percent). Board of Governors of the Federal Reserve System 1943, 656, shows the British increase in April but not in February. This record is not consistent with discussion at the time.

113. Reed (1930, 93) suggested that the slow shift to tighter policy and the aggressive ease in 1924 were the forerunners of the aggressive policy of ease in 1927 and the slow reversal in 1928.

how the interior banks could be prevented from sending money to the call money market. Strong replied: "I do not know that it can be done" (Governors Conference, April 6–7, 1925, 16).

Adolph Miller pressed Strong on the role of the discount rate as a factor affecting member bank borrowing and the volume of stock exchange lending. Strong, as usual, said he was uncertain about the effect of the discount rate. Gold flows and open market operations were the factors he cited as driving banks to borrow or repay discounts. Strong's reasoning later made it difficult to persuade the Board to increase the discount rate in 1929, when New York wanted a 6 percent rate (Joint Meeting, Governors Conference and Board, Governors Conference April 8, 1925, 27–29).¹¹⁴

The April 1925 meeting reversed direction by purchasing up to \$50 million to offset continuing gold outflows. This decision brought the power struggle into the open. The Board did not consider the action for two weeks and neither approved nor rejected it.¹¹⁵ No purchases were made. On May 21, 1925, the Board revoked the authority to purchase without its approval.

The OMIC met again on April 30 but devoted most of its attention to the reserve banks' earnings. Strong defused pressure for purchases of long-term securities by agreeing to reapportion \$83 million of the existing portfolio to increase the earnings at reserve banks with losses. Payments were made through the gold settlement fund.¹¹⁶

114. At its April joint meeting the Board and governors also appointed a committee to consider legislation introduced by Congressman Louis T. McFadden. The legislation included renewal of the Federal Reserve's charter. The Board appointed O. M. W. Sprague of Harvard and Walter Stewart, a former research director, to work with the Board. Sprague also undertook a study of member bank borrowing. He found that, contrary to the "reluctance" theory, a large number of member banks in agricultural areas continued to borrow, to carry loans made in 1918–20. He urged the reserve banks to notify members that continuous borrowing was not permitted.

115. The authorization to buy or sell up to \$100 million, agreed to in November 1924, was still in effect. Critics of Strong's policies in 1924 and 1927 never mentioned this decision to sterilize the gold outflow just at the time Britain resumed convertibility.

116. After the April 6 meeting, Adolph Miller challenged the argument that System purchases should be made to prevent individual bank purchases. That undermined the case for a System account and a System policy. Miller added that purchases should not be made to increase earnings. Strong and McDougal defended the purchases as consistent with the agreement under which they participated in the OMIC. Although the OMIC made no purchases, the incident brings out the concern of many governors for their earnings and the pressure on Strong to accede to these demands in the interest of maintaining a System policy. The pressure came mainly from the reserve banks in the South and West. In March, Dallas had made purchases for its own account until March 26, when the Board ordered it to stop. Governor Lynn P. Talley of Dallas replied that the Board had approved purchases in October 1923 and never revoked the authority. Chicago, Kansas City, and Minneapolis made small purchases also. At the time, Dallas and some of the others were probably below efficient size. They owed their existence to the decision to establish twelve reserve banks rather than eight.

In late June 1925, the OMIC described the economy as in recession but above the level reached a year earlier. In the same month, the stock market reached a new high. The committee ignored the possible recession; it discussed sales to tighten the money market seasonally, if needed during the summer.

Stock prices continued to increase. When the OMIC met on September 21, the Standard and Poor's index had risen 24 percent in twelve months, and volume was at a record level. Brokers' loans to September 30 had increased more than \$1 billion in a year, a 50 percent increase, and so-called street loans to finance stock purchases were \$700 million above the previous year. Much of the increased lending to brokers and dealers came from outside New York.

Miller proposed open market sales, to be followed by an increase in the New York discount rate if discounts increased seasonally, as they were likely to do. The motion was defeated. The OMIC suggested that purchases might be needed in December, followed by sales in January, for seasonal reasons. The only action at the meeting was to suggest that reserve banks carefully consider whether discount rates should be raised (OMIC Minutes, Board of Governors File, box 1436, September 22, 1925; Board memo, box 1434, July 1, 1927). The following day, Boston voted to increase its discount rate to 4 percent. Miller was strongly in favor, but the Board was not, so it tabled the increase and did not approve it until November 10, 1925, six weeks later.

The semiannual Governors Conference met from November 2 to 4. The agenda included McDougal's (Chicago) proposal to discuss discount rates, normally reserved for the individual banks. He believed New York's rate was too low. Other governors shared his view, possibly to increase earnings. Norris (Philadelphia) argued that if the 3.5 percent rate in New York had been appropriate in midsummer, it was now too low because business conditions had improved and open market rates had increased. Others supported the increase, using as a main reason the increase in stock exchange credit.

Strong defended New York's policy. He saw no sign of speculative borrowing for inventory accumulation.¹¹⁷ The main problems were local—real estate speculation in Florida and stock exchange speculation in New York. He then made the argument that he had made earlier and that New York would repeat many times in the next four years: loans to finance stock

117. At about this time, Miller (1925a) publicly criticized the financing of speculation and urged his readers to accept greater variability in discount rates, as in England. To real bills advocates like Miller, increases in speculative credit were evidence of inflation even if commodity prices remained unchanged.

market accounts came from all over the country. A rise in the New York discount rate would reduce discounting in New York but increase discounting in the rest of the country without any effect on the call money market. Strong argued that at \$210 million, the open market account was too small for additional sales to be useful. Member banks were already in debt to the reserve banks; increased indebtedness would not matter much. Higher rates would bring more gold to the United States, and that “would make the situation worse” (Governors Conference, November 2–4, 1925, 353).

Harding (Boston) urged a general increase in rates, to 4 percent at Boston, New York, Philadelphia, Cleveland, and San Francisco, but Calkins and Norris argued that the effect on speculative credit would be small. Fancher (Cleveland) and Norris agreed, however, that their rates should go to 4 percent. In the next two or three weeks the Board approved increases in discount rates to 4 percent at Boston, Philadelphia, Cleveland, and San Francisco. New York remained at 3.5 percent until early January 1926.

Underlying the discussion was the widely held belief that Strong was holding New York’s rate at 3.5 percent to help the Bank of England. Under pressure from British industry, the bank had lowered its rate from 5 percent to 4 percent in September and October. Gold flows to the United States stabilized during the summer and began to reverse. With United States commodity prices falling, Strong could help Norman without sacrificing price stability at home. This was always his policy, as he told Norman many times. Norman agreed and accepted it.¹¹⁸

In November 1925, after Britain removed restrictions on foreign lending, the gold flow reversed again. Norman was not disturbed. The size of Britain’s gold stock was now large enough to absorb the loss. In correspondence with Strong, he expressed concern about the effects of gold inflows on future inflation, either directly or through public pressure to reduce interest rates. The loss of gold gave him the opportunity to raise interest rates back to 5 percent in early December 1925.

Strong was in Europe during the summer of 1925. His correspondence with Norman and with the New York bank showed him shifting between two positions. Growing stock exchange speculation and concern about possible commodity price speculation and future inflation suggested the time had come for an increase in the New York discount rate, but higher rates would reverse the gold outflow and force higher rates in countries that had restored gold payments—Britain, Germany, Switzerland, and

118. In his 1926 testimony to Congress, Strong said (about the standby credit to the Bank of England): “[The New York bank] is free to raise and lower its discount rate; quite as free, in fact, as though no such arrangement had been made” (quoted in Chandler 1958, 320).

Holland. From Europe he explained the dilemma as seen by the four European banks. They were concerned about having gold forced on them and the inflation that would follow. They believed “that their own future depends upon establishing lower prices for what they produce and consume, especially what they produce for export” (Chandler 1958, 325).

The United States faced a classical central banking problem under a fixed exchange rate system. The gold outflow was deflationary but not large enough to offset increased borrowing. Higher rates seemed called for, but they would attract more gold, with longer-term inflationary consequences. Further, stock market speculation had increased. From New York, Strong wrote to Norman in November 1925: “Now all of this reads very much like an attempt to manipulate the stock market. I confess I hate it. It is repugnant to me in every possible aspect. It is the sort of thing that would not be necessary at all if general resumption of gold payment had been effected throughout the world and we had been able to effect some distribution of our excess vault reserve. . . . It is merely another chapter in the argument against a managed currency” (*ibid.*, 329).

I believe this statement is as close as Strong ever came to recognition that he, Norman, and others had to choose between short- and long-term objectives. To get the gold standard operating as automatically as before World War I, either Britain had to deflate or the United States had to inflate. Reaching this long-term solution involved short-term changes that neither country would accept.

The problem was not, as is often suggested, lack of cooperation or unwillingness to cooperate. The failure was a failure of a managed system operating under inconsistent objectives on both sides. Forecast errors about short-term responses added to the problem, but these errors were minor compared with the inconsistent objectives: restoring the prewar gold standard at prevailing exchange rates without additional adjustment of the relative prices of traded goods on both sides of the Atlantic. European countries wanted to lower the real cost of exports, and the United States wanted to avoid inflation. All of them wanted the gold standard, but none wanted more gold. Coordination could not solve this problem; the countries’ objectives were incompatible with the international monetary system they had adopted.

Strong was more than a little misleading when he complained to the November 1925 Governors Conference about the “unjustified assumption that there was some arrangement with the British which made it impossible for us to increase our rates.” The key word is impossible. He had not pledged to keep rates unchanged. His correspondence with Norman during this period shows, however, that foreign considerations were impor-

tant. His report on open market policy at the November meeting stated that “this country has a definite responsibility to determine its monetary policy with some regard to the effects of such policy outside of our own borders.”

Some of the governors were openly skeptical about Strong’s commitment. To Strong’s statement denying an arrangement with the British, Governor Calkins replied: “It is an assumption that still prevails, I believe” (Governors Conference, November 2–4, 1925, 351–52). Soon after, Calkins added: “I believe there is a widespread belief throughout the country that the Federal Reserve banks will not raise their rates because of some understanding with England.” Strong did not reply on the record. Discussion went off the record at this point.¹¹⁹

With the recovery and increased borrowing, all reserve banks could cover expenses and pay dividends. The November 1925 meeting, however, reconsidered the apportionment of the portfolio. The OMIC approved a resolution apportioning acceptances among the banks, based, first, on estimated expenses and dividends and, second, after these expenditures were covered, to take account of charge-offs for loan losses. By accommodating some of the regional reserve banks, Strong was able to maintain support for his policy actions. The November meeting suggests, however, that this support could not be taken for granted. The real bills view was firmly held, and several of the governors were openly critical of a policy they regarded as inflationary.¹²⁰

The November conference also discussed an issue that continued to irritate some of the governors. Differences in reserve requirement ratios, combined with nonpayment of interest on required reserve balances, gave banks an incentive to minimize required reserves by encouraging customers to shift deposits from demand to time account. The customer received higher interest payments on the deposit, and the bank reduced its required reserves. The reserve banks’ desire to increase membership worked in the opposite direction. Oliver M. W. Sprague, as part of his work with the

119. Short-term changes at year end induced New York to purchase \$50 million to prevent an increase in call money rates to 6 percent. The Board agreed reluctantly when New York explained that it had bought \$18 million and would put the purchases in its own portfolio instead of the System account (Board memo, Board of Governors File, box 1434, July 1, 1927; Riefler 1956, 63–64).

120. At the November 1925 Governors Conference, Strong raised the issue of charter renewal. Although the original charter did not expire until 1933, Congress had started consideration. Strong urged the governors to make sure that no scandals would be uncovered if Congress examined the System’s operations before renewal. His list includes issues of discrimination for religious or political belief, nepotism, favoritism for one or another person or group in purchasing, dealing in securities, and similar matters. No officer at the New York bank was allowed to borrow money without Strong’s approval. He urged the other governors to adopt similar standards.

legislative committee, proposed a reduction to 2 percent in reserve requirements on savings deposits, with time deposits remaining at the 3 percent rate. The objective was to strengthen the System's political base by increasing membership by savings banks. The reserve banks overwhelmingly rejected the proposal. Although the issue did not die, they took no action in the 1920s.¹²¹ Partly as a result of inaction, the ratio of time to demand deposits increased by 10.8 percentage points from 1920 to 1929. Inaction permitted bank credit to grow relative to money by about \$1.5 billion.

The OMIC held meetings in January, March, June, August, September, and November 1926, but it made few decisions to purchase or sell government securities other than temporary changes to smooth the money market or replace maturing issues. Concern about renewed recession prompted purchases of \$65 million in May and a reduction in New York's discount rate to 3.5 percent. These decisions were soon reversed: in August New York restored the 4 percent rate, and the OMIC voted to sell \$80 million.

Inactivity reflected an atypical year of general consensus on appropriate actions.¹²² Total return on common stocks was less than 12 percent, so total brokers' loans and the stock exchange rose modestly, satisfying the real bills faction. Reserve bank earnings not only covered expenses and dividends but increased earned surplus by \$8.5 million, satisfying those for whom earnings were the primary concern. The gold stock increased modestly, and member bank discounts remained between \$500 million and \$650 million throughout the year. This range reflected moderate pressure. Strong reminded the governors of the Riefler-Burgess principle:

Experience in the past has indicated that member banks when in debt to the Federal Reserve Bank of New York, and in less[er] degree at other money centers, constantly endeavor to free themselves from that indebtedness, and as a consequence such pressure as arises is in the direction of curtailing loans. . . .

The total volume of borrowing undoubtedly exerts some pressure upon the business community. Should we go into a business recession while the member banks were continuing to borrow directly 500 or 600 million dol-

121. Seventy years later, banks used computer programs to shift deposits from demand to time account overnight, reducing bank reserves. The System reduced the reserve requirement ratio against time deposits to zero.

122. Agricultural problems continued. A drought in Texas increased the demand for discounts at the Dallas reserve bank. Governor Talley tried to be selective, angering local bankers who thought they had a right to borrow. A local congressman introduced a bill to remove Talley, and there was a congressional hearing in 1928. Talley remained (CHFRS, Dreibilbis, March 4, 1955).

lars, (if bills [acceptances] are included nearly 800 million dollars,) we should continue taking steps to relieve some of the pressure which this borrowing induces by purchasing government securities and thus enabling member banks to reduce their indebtedness. (OMIC Minutes, Board of Governors File, box 1436, March 20, 1926, 3-4)¹²³

Notwithstanding general agreement on actions, conflict between the Board and the OMIC continued. The Board was often reluctant to give the OMIC standby discretion to purchase or sell without prior approval by the Board. For example, in November 1925 the OMIC voted no change in open market policy but asked for authority to purchase up to \$100 million, if necessary, to offset near-term seasonal movements. Purchases would reverse in January if business conditions warranted. The Board rejected the request.

The Board continued to press the governors about continuous borrowing and stock exchange lending by member banks, particularly banks that discounted at the reserve banks.¹²⁴ Despite his frequent claim that banks were reluctant to borrow, Strong agreed that governors should stop “continuous borrowing.” He reported that nine hundred banks had borrowed continuously for at least one year. The reasons differed. Some were problem banks, others were heavy seasonal borrowers or large borrowers that repaid.

Strong recognized that pressure on small banks to repay borrowing would shift the borrowing without affecting the total. Small banks would borrow from their correspondents. Given the stock of reserves, the correspondents would borrow from the Federal Reserve or, if the Federal Reserve would not lend, credit would contract. The question, he said, is, “Who is going to borrow this money from us to make good the reserves of the banking system as a whole? Somebody has got to do it” (Governors Conference, March 1926, 53).

Strong’s answers did not satisfy the Board. In April it asked the governors to supply the names of banks that borrowed continuously in 1925 and to identify those that could liquidate loans by selling government securities or other securities—nonreal bills. The Board justified this intervention in the management of the reserve banks as a means of helping individual

123. Later in the same report, Strong added an additional condition—borrowing by New York City banks of \$100 million or more. With only \$50 million borrowed, there is less tendency for credit to flow to New York (in the form of call loans). Thus, for Strong, the key to reducing call loans was to reduce borrowing by New York banks without increasing borrowing elsewhere.

124. Stock prices fell sharply from February to April, then renewed their rise. Every month in 1926 is above the corresponding month of 1925.

member banks “to conserve their capacity to borrow at the Reserve banks” (Board of Governors of the Federal Reserve System, *Annual Report*, 1926). The reserve banks did not welcome the interference. The policy difference that paralyzed decision making in 1929 had begun.

Member bank borrowing rose to \$650 million in the fourth quarter, about 30 percent of total reserves. The Board continued to press the reserve banks. In November some governors proposed that members be required to repay all borrowing at least once a year, but the only decision was to review the issue at the next meeting in spring 1927. By that time, borrowing had declined.

The Board took an additional step; it urged New York to collect data on loans to New York Stock Exchange members. Strong was reluctant, but he discussed the issue with the governors of the stock exchange. They agreed to collect and publish the data, but the published data included only borrowings in New York. A stock exchange firm that borrowed at a branch outside New York did not include those borrowings in its report (Governors Conference, March 1926, 83–85).¹²⁵ The report also excluded non-member firms (124).

Differences between New York and Washington on this issue continued for the rest of the decade. The Board wanted the governors to reduce loans for speculative, stock exchange credit. New York replied that the uses of Federal Reserve credit could not be controlled “once it leaves our doors” (*ibid.*, 122).

In addition to these substantive issues, there were minor irritants. In March, just before the Governors Conference, the Board tried to return to the policy it had enforced before 1920. It voted to require that all meetings be held in Washington. The governors responded by voting that the action was an “inadvisable restriction upon the freedom of the Committee” (OMIC Final Minutes, Board of Governors File, box 1436, May 20, 1926).

Banks could choose to participate in open market purchases. Even if a governor voted to approve purchases at the Governors Conference, the directors of the bank did not always agree to share in the purchases. Several banks did not participate unless they were operating at a loss. Other banks—Dallas, Kansas City, and Minneapolis—were usually short of earnings, so they participated more than proportionally in the System portfolio. Table 4.3 compares the relative size of the open market portfolio at each bank in December 1926 and 1928 with the bank’s relative size.

The table suggests that Strong used New York’s portfolio to increase

125. Strong admitted, however, that he was startled by the amount, more than \$1 billion, above the highest estimates before the data were reported (Governors Conference, March 1926, 124).

Table 4.3 Government Securities and Reserve Bank Size, December 1926 and 1928 (percent)

BANK	1926		1928	
	GOVERNMENT SECURITIES	NOTES AND DEPOSITS	GOVERNMENT SECURITIES	NOTES AND DEPOSITS
Boston	3.2	7.4	3.6	7.2
New York	18.7	31.2	21.6	31.3
Philadelphia	6.4	6.7	9.4	6.5
Cleveland	11.5	9.8	14.4	9.4
Richmond	2.4	3.8	1.5	3.6
Atlanta	0.6	5.7	3.2	4.7
Chicago	15.5	13.8	15.7	15.7
St. Louis	6.7	3.2	9.2	3.5
Minneapolis	5.4	3.0	4.8	2.9
Kansas City	9.3	3.9	4.6	3.8
Dallas	7.4	2.8	4.4	2.8
San Francisco	12.9	8.7	7.5	8.5

earnings at the regional banks. In December 1926 and 1928, New York's holdings were ten to twelve percentage points below its proportional share.¹²⁶ Together, St. Louis, Kansas City, and Dallas held ten to thirteen percentage points more than their proportional share. These banks were not members of the OMIC, but they had an incentive to support Strong's policies at the Governors Conferences, particularly when he wanted to purchase. On the other hand, Richmond and Atlanta typically participated much less than proportionally, often not at all.

Rising Conflict

A turbulent 1927 followed the relative calm of 1926. Weaknesses of the Federal Reserve Act and the inconsistent objectives and divergent beliefs of officials hindered the System in choosing and maintaining policies. The

126. Comparison of bank participation in the System account in 1928 with the initial distribution of securities when the System account started in 1924 shows that Boston, New York, Richmond, and Atlanta reduced their shares while Cleveland, St. Louis, Minneapolis, Kansas City, and Dallas increased by relatively large percentages. As suggested above, New York, possibly assisted by Boston, appears to have worked systematically to redistribute income within the System toward the small, mainly agricultural regional reserve banks. For comparison with table 4.3, the distribution in January 1924 is as follows (percentage):

Boston	8.4	Chicago	16.3
New York	27.0	St. Louis	3.5
Philadelphia	8.1	Minneapolis	2.7
Cleveland	9.7	Kansas City	3.4
Atlanta	4.8	San Francisco	9.1

Source: Letter Rounds to Smead, System Open Market Account (Board of Governors File, box 1452, January 3, 1924).

recession that started in October 1926 called for open market purchases and lower discount rates to expand money and credit. Bond yields declined and stock prices rose throughout the year. Credit to carry securities rose, renewing and strengthening concerns about speculative credit expansion. The pound depreciated against the dollar, particularly in the winter and spring. Renewed gold flows to the United States increased the gold reserve ratio. Beginning in April, the Federal Reserve tried to hide the gold inflow by keeping the gold on deposit under earmark abroad.¹²⁷

The Board, the New York bank, and the open market committee could not agree on which of these changes was most important. Strong's views finally dominated; the System reduced interest rates during the summer and early fall, long after the recession had started, in part to support the pound. Miller blamed Strong for making a serious error, and he later told Herbert Hoover that Strong bore "a large measure of responsibility" for the 1927 increase in reserves (quoted in Kettl 1986, 34). Many contemporary observers shared this view. Reed (1930) called the credit expansion in 1927 excessive and argued that it contributed to a sustained rise in share prices.

In fact, growth of the monetary base was only slightly above 1 percent for the year; modest positive base growth in the first half turned negative in the second half. Growth of the money stock, currency, and demand deposits was slightly faster, about 1.5 percent for the year. More rapid growth of bank lending was achieved by growth of time deposits, in part encouraged by bankers' efforts to reduce required reserves while increasing deposits.

The 1926–27 recession did not reach its trough until November 1927, thirteen months after it began. The National Bureau of Economic Research ranks the recession as one of the mildest in the years since 1920. Industrial production fell only 7 percent from peak to trough, one of the smallest reductions on record.

The Federal Reserve began open market purchases in May 1927, about halfway through the recession. Purchases added a total of \$240 million to reserves, but much of the increase was offset by a decline in borrowing and in the reported gold stock.

On February 25, Congress passed the McFadden Act.¹²⁸ Section 18

127. Earmarked holdings were excluded from reported gold holdings, so they did not appear in the Federal Reserve published reports or in the monetary base. In 1927 earmarked gold rose \$160 million, but the Federal Reserve was able to report a decline in gold holdings of \$113 million for the year (Board of Governors of the Federal Reserve System 1943, 536).

128. The McFadden Act began as an effort by the comptroller to revitalize the national banking system. To escape restrictions in the national banking laws, national banks converted to state banks in the mid-1920s. Before the McFadden Act, national banks could not establish branches or purchase investment securities.

renewed the Federal Reserve's charter and extended its term "until dissolved by Act of Congress" (Krooss 1969, 4:2656). The act also expanded the powers of national banks by permitting them to make loans on real estate for more than one year.¹²⁹ And it permitted national banks to establish branches under the rules that applied to state-chartered banks in the state of domicile. This effectively prevented the spread of interstate and, in many states, intrastate banking for more than fifty years.

Despite the recession, the February meeting of the Federal Advisory Council found no reason to reduce discount rates or change open market policy. The OMIC did not meet until March 1927. With Strong once again on leave for health reasons,¹³⁰ the committee voted to replace \$25 million of expiring securities and to purchase an additional \$50 million if the situation required. The preliminary memo prepared for the meeting offered three reasons for not selling securities or permitting them to expire without replacement: to hold the portfolio to protect against future inflation; to avoid attracting more foreign balances and gold "from countries who need them, to us who do not want them"; and to prevent higher interest rates worldwide in a period of falling commodity prices (OMIC Final Minutes, Board of Governors File, box 1436, March 21, 1927).¹³¹

Hamlin moved that the Board accept the OMIC's recommendations. Miller offered a substitute motion permitting replacement of the \$25 million but rejecting standby authority to purchase up to \$50 million. The Board approved the substitute, keeping decision power at the Board; only Hamlin voted no (Board Minutes, March 21, 1927, 235-37).

Strong returned at the end of April. Early in May, he informed the Board that the Bank of France was in the process of shipping \$90 million in gold

129. Before the change, loans were for one year, renewable at the one-year rate. Telsor (1996, 19) claims this change contributed to the severity of the depression by increasing bankers' risk. In fact, real estate loans by national banks were a modest share of national bank portfolios and did not increase rapidly after February 1927.

130. His deputy at the OMIC, Pierre Jay, resigned as chairman of the New York bank in December 1926. His replacement was Gates McGarragh, who served from May 1927 to February 1930, when he resigned to become president of the Bank for International Settlements. McGarragh would not accept appointment as chairman until the Federal Reserve Board agreed that he could remain a member of the general council of the Reichsbank set up as part of the Dawes agreement.

131. This was a change of mind. In February, New York had concurred with the Federal Advisory Council's recommendation that the March maturities should not be replaced. The change reflected the increase in securities market activity and rise in stock prices (Riefler 1956, 95). The Board staff's memo for the meeting gave an additional reason for inaction: belief that the recession had ended. The memo shows industrial production back to the level of the previous year. The National Bureau of Economic Research dates the end of the recession eight months later. The memo reports the price level as 6 percent below the previous year (Board of Governors File, box 2461, March 18, 1927).

to a New York bank: \$30 million had already been shipped. The gold had served as collateral for a loan from the Bank of England. The Bank of France prepaid the loan, releasing the gold for sale. After discussion with the other members of the OMIC, Strong bought the remaining \$60 million from France and held it on earmark at the Bank of England. New York offset the effect of the purchase on the New York market by selling the Bank of France securities from the open market account.¹³²

The preliminary memo, prepared for the May 9 OMIC meeting, mentioned a number of special factors—floods, problems in the oil industry, collapse of some real estate speculation—but made no reference to the general recession, then six months old. The report noted that a considerable fall in commodity prices had affected agricultural and nonagricultural prices and expressed concern about the growth of total credit (estimated to have increased \$1.5 billion in the past twelve months), renewed gold flows to the United States, and the reduced size of the open market account after sales to France. The Federal Reserve had the same problem as in 1916; the remaining balance in the OMIC account, about \$100 million, was too small to prevent future inflation or sterilize additional gold inflows.

Chart 4.3 (p. 173) shows a main source of the problem. The difference between New York and London rates had decreased, along with the covered spread, so New York was a relatively more attractive market for foreign and domestic accounts. Moreover, the Treasury paid up to 98 percent of the value of imported gold when it acquired the gold. This gave sellers a few additional days to earn interest, raising the effective price above prices abroad.¹³³

Strong presented twelve ways of responding to the problem but did not recommend any action pending a meeting with the Board (OMIC Minutes, Board of Governors File, box 1434, May 11, 1927). The following day the OMIC voted unanimously to stop selling securities to offset gold inflows and to begin seasonal purchases no later than August 1 to bring the account up to \$250 million, if it could be done “without undue effect on the money market” (OMIC Final Minutes, Board of Governors File, box 1436, May 11, 1927). The committee defined “undue effect” to mean that interest rates and borrowing would remain approximately unchanged during the summer. The decision permitted purchases of \$150 million.

132. These actions avoided showing an increase in the gold stock on the weekly release. The bank reported the earmarked gold on the published statement as “gold held abroad,” a new item. Since the gold had originally been offered to the Irving Trust, there was no secret about the Bank of England’s changed position.

133. One of twelve possible actions discussed at the meeting was to stop this practice, thereby lowering the gold price by the amount of interest lost on delayed payment.

Once again, Hamlin moved for approval by the Board and Miller offered a substitute that delayed the decision. Miller's substitute passed on a close vote. The next day, with Mellon present, the Board reconsidered. Hamlin again moved for approval; Miller again proposed delay, and Vice Governor Platt proposed to permit purchases up to \$250 million but at a slower rate. Platt's motion passed seven to one.¹³⁴

The Board staff's presentation to the May Governors Conference noted that the Bureau of Labor Statistics price index had fallen 10 percent in two years and was approaching its postwar low. The staff report mentioned the return of many countries to the gold standard, but it rejected this reason for the price decline. Although the staff produced no evidence to support its argument, it concluded that the price decline resulted from increased productivity (Governors Conference, May 9–12, 1927, 506). The Board made no mention of falling prices as a reason for open market purchases. Miller was generally opposed to using open market operations for such purposes. He preferred to let prices result from the ebb and flow of real bills relative to output.

Surprisingly, none of the governors disagreed with the staff argument that a return to gold convertibility by many countries had not lowered prices by increasing the world demand for gold. The price declines of the 1880s, when several countries adopted the gold standard, were well known. Even Miller, who had made this point in the 1926 hearings, did not insist on the deflationary effect of restoration.

Between May 16 and June 8, the System's portfolio increased \$180 million to \$316 million, well above the limit established by the Board. On June 9, Strong wrote to Crissinger explaining that only \$16 million of the \$180 million was for the System account.¹³⁵ The rest had been purchased to offset gold movements, changes in earmarked gold, and Treasury overdrafts. Later in the week, New York sold the Bank of France the \$60 million in gold that it had acquired from the Bank of England. Britain's gold sales renewed pressure on the pound.

Strong had considerable difficulty explaining the purchases to the Board. In letters written in mid-June, he described the technical changes in the money market resulting from Treasury operations, seasonal factors, gold flows, and actions of the Bank of France. France had withdrawn

134. Miller's principal concern was the rising stock market. The vote on his proposal to delay was five to three against. He argued that the Federal Advisory Council was to meet and report on its proposal to change the OMIC's methods and objectives and that delay would give an opportunity to purchase after trade (and discounts) expanded. The last, real bills view was repeated frequently during 1929–33 as a reason for delaying purchases.

135. The monetary base increased less than 1 percent in the twelve months ending in May.

\$100 million of deposits, converted them to gold, and shipped the gold. This alone would have reduced reserves and base money by \$100 million if Strong had not purchased securities. Strong did not want to count the purchases made to offset these disturbances against the purchases authorized in May. His aim was to lower, not raise, market rates in New York (Strong to Crissinger, Board of Governors File, box 1434, June 9, 16, 20, 1927).

Strong argued that if open market rates increased, acceptances would come to the bank. To avoid the increase, the bank's discount on acceptances would have to increase, followed by an increase in the discount rate to restore the rate spread. He gave three reasons for opposing higher rates. Higher rates would hurt business, reduce the sterling exchange rate and other foreign rates, thereby renewing the gold inflow, and interfere with a large Treasury refunding operation then in process (*ibid.*, June 20, 1927).

Miller prepared the Board's response. He acknowledged Strong's argument about Treasury operations, made no mention of the other reasons Strong gave, and insisted on holding the System account within the limits agreed on in May. Additional purchases would have to be approved by the Board (Crissinger to Strong, Board of Governors File, box 1434, June 22, 1927).

By going to Washington to discuss the issue, Strong was able to get a majority of the Board to exclude the \$100 million of purchases made to offset the gold outflow. Miller, joined by Edward Cunningham, did not agree; both voted against the resolution. Miller explained that he believed all authorizations to purchase and sell should be approved explicitly by the Board. He was not in favor of higher rates; his concern was the Board's control of open market policy.

Shortly after the New York meeting between Norman, Schacht, Rist, and Strong, the OMIC met with the Board in Washington. Miller was on vacation. The meeting was free of conflict. The Board unanimously approved an additional \$50 million of purchases. The members also discussed discount rate reductions:

There was no exception to the view that the time had arrived, or was approaching, when the discount rate in New York should be reduced, and with one or two exceptions, there was no dissent from the view that a System policy of lower discount rates should in general prevail. It was pointed out, however, that local conditions in some of the interior reserve districts did not indicate any demand for rate reductions in those districts. . . .

The most important consideration at the meeting was undoubtedly the fact that the differential between the rates in New York and the rates in London was not today sufficient to enable London, and therefore the rest of Eu-

rope, to avoid general advances in rates this autumn unless rates here were lowered, and that the consequences of such high rates as would result in Europe would be unfavorable to the marketing of our export produce abroad and would have an adverse effect generally on world trade. (OMIC Final Minutes, Board of Governors File, box 1436, July 27, 1927, 2)

The reasoning taken from the minutes shows that, at the time, the Board accepted Strong's policy of helping Britain. Although the statement mentions domestic factors, they are not the main reason for acting. Later, many of those who voted for the rate reduction disavowed the decision and blamed Strong for the stock market boom that followed.

The background memo showed that the spread between market rates and the (penalty) discount rate had narrowed in London and Berlin and that the discount rate had increased in Berlin, drawing gold from London. At home, commodity prices continued to fall and, the committee noted, "there was some slackening in business" (*ibid.*, 2).¹³⁶ The System had continued to purchase in July; the System account increased to \$265 million, but gold and foreign exchange changes, and reduced borrowing, canceled much of the effect on bank reserves and the monetary base.¹³⁷

Discount rate reductions (to 3.5 percent) began in Kansas City, acting on Strong's request. Four other banks followed within the next two weeks. By mid-August only four banks—Philadelphia, Chicago, Minneapolis, and San Francisco—kept their rates at 4 percent.

THE CHICAGO RATE CONTROVERSY The *Wall Street Journal* reported on August 4 that the Federal Reserve Board had asked Chicago to reduce its discount rate, following reductions by Boston and Cleveland. Chicago replied that "there was no basis or necessity." Governor Crissinger and two other Board members responded by notifying Chicago that the Board, acting under the authority of the attorney general's opinion in 1919, would lower the rate without waiting for the Chicago directors to act (Letter Platt to Hamlin, Board of Governors File, box 1434, August 4, 1927).¹³⁸

136. The Board staff's background memo notes that industrial production in July was the lowest for the year and back to the 1925 level. Preliminary figures for August were weak also (Board of Governors File, box 2461, August 19, 1927).

137. The London market strengthened in August. Strong sold sterling bills in London and, to offset the effect on the base, purchased governments in New York. By mid-August the System account was at \$347 million, more than \$20 million above the ceiling approved at the July 27 meeting. Strong kept Crissinger and the Board informed, and there was no criticism of his decisions at the time. Nor is there any record that the Board approved the additional purchases.

138. Hamlin was on vacation in Massachusetts and so ineligible to vote. Platt's letter identifies Crissinger, James, and Comptroller Joseph W. McIntosh as favoring action, but James

With New York's rate below the rates in other financial centers, regional banks borrowed in New York and lent at home. These actions, and the normal seasonal pattern, drained New York's gold reserve by \$120 million through mid-August. On August 19, Strong wrote to Crissinger about the higher discount rates in Philadelphia and Chicago but added "that is a matter for them to decide" (Strong to Crissinger, Open Market Policy, Board of Governors File, box 1434, August 19, 1927, 24).

The August 19 letter is the only mention of Chicago's rate in Strong's many letters to the Board during August. He wrote directly to Norris and McDougal, making the case for rate reductions in terms of the benefits achieved abroad by lower rates in New York.¹³⁹ If the gold drain from New York to the districts with higher rates continued, New York would have to raise rates to stop it. Strong concluded with an argument that appealed to Norris's and McDougal's views about commerce and industry: "That orgy [stock market speculation] will always be with us and if the Federal Reserve System is to be run solely with a view to regulating stock speculation instead of being devoted to the interests of the industry and commerce of the country, then its policy will degenerate simply to regulating the affairs of gamblers. I have no hesitation in expressing my impatience with such a view of our role" (quoted in Chandler 1958, 444).

McDougal replied on August 24, saying that Chicago would decide by itself when it was appropriate to change rates. Strong responded, now citing issues that were important to the Chicago district—the benefits to crop movements and the need for System policy—but McDougal and the Chicago directors were not persuaded. On August 29, for the third time in a month, they voted to retain the 4 percent rate (*ibid.*, 445–46).

Chicago's inaction angered Crissinger. He demanded that Chicago reduce its rate by September 2 or the Board would act without a recommendation. Chicago's chairman, William A. Heath, asked for a delay until September 9, when the Chicago directors would meet again. Heath explained that only the directors could act, not the executive committee, and they would not meet until September 9.

Although Crissinger waited for Philadelphia and San Francisco, he would not wait any longer for Chicago. At a September 6 Board meeting, Vice Governor Platt argued that the Board could not disapprove an existing rate. Crissinger overruled him. A motion was made to reduce Chicago's rate to 3.5 percent effective the following day, September 7. Hamlin moved

subsequently reversed his position, making action unlikely. Cunningham and Miller were on vacation also.

139. The benefits included postponement of rate increases abroad and a strengthening of sterling that permitted New York to sell some of the sterling bills held in London.

to substitute continuation of the 4 percent rate until September 9 to give Chicago time to reconsider. The substitute failed on a three to three vote with Miller abstaining and Mellon absent. The Board voted four to three to reduce the rate, with Platt, Hamlin, and Miller voting no and Cunningham, James, and McIntosh supporting Crissinger.¹⁴⁰ By the same one-vote margin, the Board then voted to notify San Francisco to reduce its rate. By the middle of September, all rates were 3.5 percent.

The Board had seized power from a reserve bank despite the bank directors' opposition. Strong wrote to Senator Carter Glass expressing concern about the strengthening of a central bank in Washington, subject to political control (Chandler 1958, 449). Glass disliked the Board's action. He dismissed its argument that it acted on the principle he had established in 1919, claiming that his earlier decision, and the supporting opinion of the acting attorney general, was not the correct interpretation of the Federal Reserve Act.¹⁴¹ But Glass was more concerned about New York's role than about the board's action. In a letter to Hamlin, he expressed most concern about "the New York Bank being regarded [as] the Central bank of the Reserve System, with the other eleven banks merely branches" (Glass to Hamlin, Board of Governors File, box 1434, September 29, 1927).¹⁴² Congress took no action.

The gold flows reversed after the rate reduction. In the next year, the gold stock declined more than \$460 million to the lowest level in five years. By October, Strong suggested to the Board that an increase in the discount rate might soon be advisable. He also asked for the views of foreign central bankers. Governor Gerard Vissering of the Netherlands Bank urged caution (Board of Governors File, box 1434, October 20, 1927). The Board took no action; the 3.5 percent rate remained for the rest of the year. In November, New York proposed to set interest rates in relation to Europe that would allow newly mined gold to flow abroad "where the reserves are most

140. According to Hamlin, Crissinger did not report to the Board that Mellon had asked to delay a decision until he returned to Washington on the following day. Strong took no part in the decision. Although he wanted the rate reduced, he disliked the Board's action (Chandler 1958, 449).

141. Glass wrote in 1927: "Neither the spirit nor the text of the Act sanction[s] interferences by the central board except in unusual circumstances" (quoted in Warburg 1930, 2:493).

142. Warburg (1930, 2:493-95) shows that the only support for reserve bank autonomy with respect to discount rates in 1914 was in an amendment offered by Senator Owen that was not included in the final bill. He criticized Owen, Glass, and Parker Willis for taking opposing positions on what the act intended. The final wording was "subject to review and determination" by the Federal Reserve Board. In the early days, reserve banks resubmitted rates weekly, so the Board could influence changes by rejecting a submission (*ibid.*, 491). This practice resumed in the 1930s.

in need of reinforcement” (OMIC Minutes, Board of Governors File, box 1436, preliminary memo for November 2, 1927, 11).

CONFLICT ABOUT STOCK PRICES Crissinger resigned as governor on September 15, 1927, to accept private employment. Roy A. Young succeeded him as governor. Young had been governor of the Minneapolis bank for eight years.¹⁴³ Strong quickly wrote to foreign central bankers to assure them that Crissinger’s resignation was unrelated to the Chicago controversy (Chandler 1958, 450).

Chandler reports that Strong was enthusiastic about the appointment (*ibid.*, 450). If so, it was a mistake. Young shared Strong’s enthusiasm for the gold standard but little else. He had sided with McDougal in the rate controversy, and he would later side with Miller in relying on direct action. Nothing in his record as governor of the Board suggests that he shared Strong’s enthusiasm for a systematic policy to moderate deflation. He was, first and last, a real bills advocate with a good understanding of banking and little appreciation of the role that the Federal Reserve could have taken to alleviate the depression by preventing deflation.

By mid-1927, stock exchange speculation began to take a more prominent place in policy discussions. Common stocks returned 37.5 percent in 1927, one of the largest returns on record. Returns in 1928 were larger still, 43.6 percent, so the compound total return for these two years was 98 percent. Between July and November 1927, loans to brokers and dealers in New York increased more than \$300 million. The Board and the reserve banks faced a question that has often plagued central bankers: Should they respond to large increases in asset prices or confine their attention to prices, output, money, or foreign exchange rates?

At Strong’s request, Burgess prepared a background memo on the stock market for a meeting of the Governors Conference and the OMIC early in November.¹⁴⁴ The memo showed that security loans had increased mod-

143. Young served until April 1930, when he became governor of the Boston bank. Young started in banking as a bank messenger but rose quickly. In 1927 he supported McDougal in the rate controversy and was the last to lower his discount rate. He had extensive experience with agricultural credit and had handled many defaults, so he was welcomed by the farm bloc as an antidote to eastern (New York) influence.

144. The meeting had been discussed for more than a month. In late September Strong asked the members of the OMIC if they wanted to meet. Opinions differed. All favored a meeting and approved sterilizing gold outflows. Norris and McDougal expressed concern about stock market speculation. Harding and Fancher favored seasonal purchases to be reversed in January. Strong favored seasonal purchases also. At the time, the System held about \$375 million. Strong expected purchases of an additional \$25 million, made to offset sales of sterling bills, to bring the account to \$400 million, far above the authorized \$325 million. However \$95 million of the total had been purchased to offset gold outflows.

estly as a percentage of total loans, rising from 25 percent in 1922 to 1924 to 28 or 29 percent in 1926–27. The stock market increase occurred worldwide, but United States stock prices rose somewhat more than prices abroad (OMIC Minutes, Board of Governors File, box 1436, November 2, 1927).

Earlier, Strong had written to Governor Young sending a draft of Burgess's memo and commenting on the longer-term growth of bank credit. In the past three years, Strong wrote, bank credit had increased by about \$5 billion, with about \$3 billion at member banks, while the gold stock had increased only \$18 million. The System had supplied about \$200 million of additional reserves, a credit multiplier of fifteen. The large multiplier had been achieved by a reduction in the average reserve requirement ratio resulting from more rapid growth of time and savings deposits relative to demand deposits.

Some favored security sales and higher interest rates to reduce stock exchange lending. Strong opposed using an argument that the Board used later against New York: "I have not felt that such a policy was justified by the facts, that any effort through higher rates directed especially at stock speculation would have an unfavorable effect upon business generally, and that this would be particularly unfortunate at a time when we are producing a surplus of exportable farm products which cannot be marketed abroad unless the country remains a free loaning market for the rest of the world" (Strong to Young, Board of Governors File, box 1436, October 19, 1927).

The Governors Conference coincided with the end of the mild recession. Newspapers at the time commented on the "low rate policy" and urged the Federal Reserve to tighten. Others expressed concern about the loss of gold to Argentina, Brazil, and Canada (Reed 1930, 124–26).

Although all banks had reduced their rates to 3.5 percent and the Board had urged or forced some of the reductions, the governors grumbled but agreed to keep open market rates unchanged until March and to offset gold movements by open market purchases and sales. George Seay (Richmond) said: "I think it is too low a rate, and I thought so from the beginning." Maximilian B. Wellborn (Atlanta) said he was compelled to lower rates because Kansas City, St. Louis, and Dallas had lowered theirs. Even Willis J. Bailey (Kansas City), who had been the first to reduce the rate (at Strong's urging), wanted to return to the 4 percent rate. McDougal, of course, favored an increase (Governors Conference, November 2–3, 1927, 31–46).

The committee endorsed three policy guidelines: member bank borrowing, the general level of interest rates, and the movement of foreign exchange rates, the last as a guide to future gold movements. Adolph Miller

proposed making all purchases or sales of foreign exchange subject to prior approval by the Board. The Board rejected his motion and accepted the OMIC proposal. Strong now had authorization to offset gold flows without limit, and he moved quickly. In the following two weeks, the System partially sterilized large gold movements to France and Argentina and from Brazil and Poland. The net effect was an increase in the System account but little change in the money market. When New York stopped sterilizing gold losses, discounts rose to more than \$600 million for the month. Despite the increased discounting, the monetary base continued to fall. By year end, call money rates began to increase.

The November meeting shows both Strong's ability to get approval for his policies and the growing restlessness of several governors and Board members. Miller was, as usual, opposed to giving Strong discretionary authority. McDougal and Norris wanted higher rates and a tighter policy. They were now joined openly by governors of smaller banks, who wanted to increase their earnings. Strong had answered, but not satisfied, the critics of his policy, who blamed him for the increase in loans to the stock market and in speculative credit.

Thus the discount rate and open market decisions of 1927 further divided the System's policymakers. Those, like Strong, who favored a System policy that took account of domestic and international objectives were generally pleased by the outcome.¹⁴⁵ International cooperation, though restricted by domestic considerations, had prevented a threat to the gold exchange standard. Strong now recognized more clearly the weaknesses in that system: any central bank holding a large stock of dollars or pounds instead of gold could precipitate a crisis or a serious problem by calling for gold.

Miller later blamed Strong for the easy policy. In congressional testimony and elsewhere, he described the 1927 actions as the beginning of an inflationary policy that produced an "inevitable" reaction culminating in the "breakdown of the autumn of 1929" (Miller 1931, 124; 1935). He described the policy in harsh words as based on an illusion that the Federal Reserve could correct "the maldistribution of gold in the world. . . . It is one of the most misleading illusions that any body of men charged with the responsibility of administering the fundamental credit mechanism of the country could allow to enter its mind" (Miller 1931, 134): "In my judgment [the policy] resulted in one of the most costly errors committed by it or any other banking system in the last 75 years" (134).

The mistake, according to Miller, was to expand reserves when there

145. Strong's background memo for the November Governors Conference remarks that "the positions agreed upon in July have so far been successful." Miller also described the first effects as successful—"a brilliant exploit" (Miller 1935, 447). The problems came later.

was no demand for additional reserves. Banks don't hold idle reserves. The money flows into the stock market and brokers' loans in the call money market.¹⁴⁶

Miller's statement reflected the theory he and others relied on. His statement is correct when it claims that the additional reserves would not remain idle, but the implication he drew was incorrect. Monetary expansion encourages stock purchases and raises stock prices by changing expected (nominal) earnings and lowering interest rates. This was part of the transmission process, as Miller recognized. He was wrong to oppose monetary expansion for this reason and to assert the real bills position that the Federal Reserve should respond only to banks' increased demand to borrow on real bills.

Miller's statement conflicted also with Strong's Riefler-Burgess views. That analysis was flawed also, as events at the time, fall 1927, suggest. Discounts rose in December despite increased open market purchases of acceptances and securities. Contrary to Riefler-Burgess, banks did not show the reluctance to borrow that Strong's interpretation relied on. Borrowing to buy shares had become unusually profitable. By holding rates down seasonally and to help Britain, the System permitted market rates to rise above the discount rate. The central problem of the next two years had begun.

Thus the System entered 1928–29 with divided views about its responsibilities and mistaken ideas about the appropriate course of action. Strong was now terminally ill. The Board had new, but weak, leadership in Young. Miller was an active critic, eager to take control but without much ability to persuade. Most of the others lacked an understanding of central banking and financial markets. They agreed on the desirability of an international gold standard, but they were unwilling to permit domestic prices to rise when gold flowed in, and they all seemed unaware, or at least never mentioned, that falling United States prices from 1926 to 1929 signaled that the gold exchange standard had a serious inconsistency.¹⁴⁷

Hesitant and Uncertain Direction

Net gold exports continued in early 1928. The Federal Reserve sterilized part of the net outflow and allowed part to balance the seasonal reduction in bank reserves. Deputy Governors Case and Harrison kept the Board in-

146. Kettl (1986, 34) reports on a 1934 letter from Miller to Herbert Hoover claiming that Montagu Norman exerted great influence on Strong. I have found nothing in the record that contradicts Strong's statements that he cooperated only to the extent that it did not conflict with domestic objectives. United States prices had fallen at the time of the July 1927 agreement.

147. Burgess (1964, 224) mentions discussions in the twenties about the desirability of United States inflation to help Europe recover. Strong was opposed.

formed about the ebb and flow and the size of open market purchases and sales.

The OMIC met in mid-January. The preliminary memo described the 8 percent growth of bank credit in 1927 as the largest in three years and, despite the recession, 2 percent above “normal” growth. Loans on stocks and bonds showed the most rapid increase.¹⁴⁸

The recession appeared to have ended. Also, system policy was now “much more independent of the European situation.” The current problem was to control credit expansion without harming business. The OMIC proposed, and the Board approved, authorization to sell securities to offset gold movements (OMIC Minutes, Board of Governors File, box 1436, January 12, 1928). In the three weeks ending January 25, the System sold \$80 million and reduced advances to dealers by \$76 million. Those actions offset the seasonal decline in currency. Market rates declined, so the OMIC voted to tighten by selling an additional \$50 million.¹⁴⁹

Chicago led the increase in discount rates back to 4 percent. Between January 25 and March 1, the other banks followed. The reason for the higher rates puzzled some officials. R. L. Austin, chairman at Philadelphia, requested an explanation of Chicago’s action and the Board’s approval. Young replied that the Board’s action was almost unanimous. The members had acted because open market sales in January had not raised rates very much. Young later repeated that credit extension had increased more than normal (Letters Young to Austin, Board of Governors File, box 1240, January 28 and 31, 1928). At this point, both the Board and the reserve banks agreed that the Federal Reserve could control credit expansion by open market operations and discount rate changes.

Agreement did not last. Early in February, Harrison told Young that discounts by New York banks had reached \$156 million, indicating a modest increase in market tightness. New York wanted to suspend sales for a few days. The Board accepted the proposal with some members urging an indefinite suspension (Riefler 1956, 182).¹⁵⁰

148. President Coolidge found nothing alarming about the stock market. His statement to this effect shocked Hoover, who was about to campaign for the presidency (Kettl 1986, 34).

149. Strong was not present at the time, but he favored sales. Burgess (1964, 219) reports a visit early in 1928 to Strong, who was recuperating in Atlantic City. Strong was concerned that the New York banks had reduced borrowings from the Fed. He favored greater restraint (increased borrowing) to prevent inflation. The wholesale price level, recorded at the time, was 97 (base 100 in 1926). See also Chandler 1958, 454–55.

150. At about this time, Hamlin asked the research division what open market operations accomplished. The reply was that open market operations support discount rate changes, but their effects “are not as great as is generally believed” (memo, Goldenweiser to Hamlin, Board of Governors File, box 1435, February 17, 1928).

The OMIC met again in late March and noted that recovery was under way. Net sales of \$150 million since January had reduced the System account to \$273 million, but the New York money market did not show evidence that the discount rate was effective. The Board accepted a proposal for additional sales but exacted a promise that sales would be used to make discount rates effective without raising rates (Open Market, Board of Governors File, box 1436, March 26, 1928). Miller voted against the resolution, citing no evidence of increased borrowing for commercial purposes and uncertainty about business conditions (*ibid.*).

In April, credit expansion continued to exceed growth of output. The recovery from recession was complete, and there was no sign of price inflation.¹⁵¹ The main concern was that after a lull during the winter, security loans had increased. The OMIC continued to sell securities. Late in the month, Boston and Chicago raised their discount rates to 4.5 percent. Richmond, St. Louis, and Minneapolis promptly followed. New York waited a month.

Case was optimistic when the Governors Conference met at the end of April (1928). With call money rates at 5 percent and discount rates at 4.5 percent at several banks, the credit situation seemed well in hand. The French elections had been won by Raymond Poincaré, so French stabilization and continued United States gold outflow seemed likely. The governors discussed the possibility that some countries (France) would want to return to selling foreign exchange holdings to restore a full gold standard. Harrison dismissed this possibility as unlikely. He was soon proved wrong.

The committee once again discussed the continuing shift from demand to time deposits that lowered the average reserve requirement ratio and expanded bank credit. Bank credit was 9 percent above the previous year, production 2.5 percent. This was far from the norm proposed in the tenth annual report, but the governors could not agree on what should be done about time deposits (Governors Conference, April 30–May 2, 1928).

Between the April Governors Conference and the May 25 OMIC meeting, France withdrew \$97 million in gold. Bank borrowing in New York increased to between \$200 million and \$300 million. New York now raised its discount rate with the intention of reducing borrowing. By May 25 the System account had fallen to \$100 million, so it was no longer of much use (Riefler 1956, 202).¹⁵² System sales and gold outflows continued to reduce

151. The year-to-year change in stock prices (S&P) was 33 percent, in consumer prices – 1 percent.

152. The reserve banks continued to hold about \$150 million on their own account for income, so total holdings of governments were about \$250 million.

the monetary base, and member bank borrowing continued to rise; New York banks had borrowed \$272 million, the System \$880 million, far above the \$100 million and \$500 million that Strong regarded as “tight.” Market interest rates reached the highest level since 1923, with call money at 6 percent.

The preliminary memo recognized that discount rate changes in New York relative to the rest of the country changed the place where banks borrowed without much effect on the total amount borrowed. With call money 1.5 percent to 2 percent above discount rates, banks found borrowing profitable. The committee voted to continue open market sales.

June brought renewed, large gold outflows, almost \$150 million to France alone, that reduced the reported gold stock to the lowest level since 1923. Chicago voted to increase its discount rate to 5 percent in early July. The Board was divided and delayed action. New York opposed an increase. With the call money rate at 10 percent, Case wrote to Young that the rise in call money rates was a more effective response than a new round of discount rate increases (Case to Young, Board of Governors File, box 1240 July 3, 1928). The following week the Board approved the Chicago increase, with James and McIntosh opposed. Despite the presidential election, Mellon favored the increase: “The sooner the rate increases come, the better” (Letter Platt to Young [on vacation], Board of Governors File, Box 1240, July 10, 1928). New York followed. By the end of July seven banks were at 5 percent, but the rate did not become uniform until the following May.

By the time the Board approved the higher rates, stock exchange trading had slowed to the level of previous years. Call money rates fell from 10 percent to 5 percent, and the Standard and Poor’s index was below the May level. These changes were seen as hopeful signs that the speculative boom was over. The OMIC met on July 18 but took no further action. Table 4.4 shows, however, that stock exchange volume soon increased.¹⁵³

The mood was not entirely cheerful. The memo prepared for the July 18 OMIC meeting compared business activity with interest rates since 1900 and concluded with a prophetic warning: “High [interest] rates have almost invariably been followed by business declines after a lag of six months to a year” (Memo to OMIC, Board of Governors File, box 1436, July 17, 1928). The memo suggested that the restriction worked by slowing construction and new financing. It noted, however, that there was no current evidence of slower domestic activity or of adverse effects abroad. These circumstances did not last.

153. Market acceptance rates had fallen below the Federal Reserve’s minimum buying rate, so the acceptance portfolio declined. One reason was a change in tax laws exempting foreign central banks from tax on interest received on acceptances.

Table 4.4 Shares Traded on the New York Stock Exchange (millions of dollars)

YEAR	1926	1927	1928	1929
January	39.0	34.3	56.9	110.8
February	35.7	44.2	47.0	78.0
March	52.3	49.2	85.0	105.7
April	30.3	49.8	80.5	82.6
May	23.3	46.6	82.4	91.3
June	38.2	47.8	63.9	69.5
July	36.7	38.6	39.2	93.4
August	44.5	51.2	67.2	95.7
September	37.0	51.6	90.6	100.0
October	40.4	50.3	98.8	141.7
November	31.3	51.0	115.4	72.4
December	42.0	62.1	92.8	83.9
Year	450.8	576.6	919.7	1,125.0

Source: Reed 1930, 163.

By mid-August, some exchange rates abroad had moved toward the gold export point. The OMIC did not want to absorb more gold but also did not want foreign banks to sell their short-term bill or security holdings at a time when the Federal Reserve provided additional credit to assist the seasonal crop movement. The reserve banks bought bills from foreign central banks to prevent a rise in market interest rates.

Miller proposed that the Board send a letter to all the reserve banks setting a preferential rate for seasonal crop marketing paper at 0.5 percent to 1 percent below market rates. James suggested, instead, a preferential rate on all acceptances to help move the crops (OMIC Minutes, Board of Governors File, box 1436, August 13, 1928). Only Governor Harding (Boston) favored the proposals, and they were not adopted.¹⁵⁴ The principal objections were that without a general reduction in rates, member banks would not reduce their lending rates to farmers. The governors did not believe that preferential rates would affect the distribution of credit (*ibid.*).

The OMIC voted to ease money and credit through open market purchases, if necessary, to prevent “an emergency situation.” Young proposed that the Board purchase only to relieve a strain “which may react unfavorably upon commerce and industry,” but he also proposed allowing the OMIC to buy securities from foreign governments to prevent higher rates. He again suggested a preferential rate on crop-moving paper (draft letter, Young to Harrison, Board of Governors File, box 1436, August 15, 1928). The Board considered but rejected Miller’s proposal for a preferential rate for agriculture and also rejected a grant of discretionary authority to New York.

154. Harding (Boston) was the principal advocate of preferential rates in 1920–21.

Typical seasonal credit expansion added \$100 million to \$200 million during the fall. With prices falling, Young thought many producers would hold inventories, so credit demand could be as much as “\$300 million or more” (Letter Young to Cunningham, Board of Governors File, Box 1436, August 17, 1928). Member banks were heavily in debt; the concern was that they would not borrow enough to prevent a sharp increase in interest rates. Recalling the 1920–21 experience and the political influence of agriculture, some Board and OMIC members agreed to open market purchases as a last resort to prevent a substantial increase in market rates.¹⁵⁵ By a three to two vote, the Board approved a limit of \$100 million in purchases, only as a last resort. It urged the reserve banks to ease through purchases of acceptances only if ease was “unavoidable” (Open Market, Board of Governors File, box 1436, August 16, 1928).¹⁵⁶

Although the August decision was cautious about purchases, it was not cautious enough to satisfy some of the reserve banks. C. R. McKay, deputy governor at Chicago, reported that the Chicago directors opposed any open market purchases and expressed “very little concern” about moving the harvest to market. The banks could rediscount if a problem arose. Governor Seay (Richmond) opposed open market purchases also: “Our directors are on record that this bank should not only not purchase government securities but that it should sell those which it has. . . . [T]his bank will not participate in any purchase of government securities.” Seay recommended a reallocation of credit from “those who have absorbed credit for other than business purposes.” His letter explicitly reflects a recurring issue—loans by large corporations to the securities market. R. L. Austin, chairman at Philadelphia, approved of the decision to supply seasonal credit but urged the Board to state its policy publicly (McKay to Young, Seay to Harrison, Austin to Young, Board of Governors File, box 1436, August 17, 20, 23, 1928).¹⁵⁷

155. The OMIC also discussed reductions in discount rates to encourage borrowing. Opinion was unanimous that reductions should be avoided but that the lower (4.5 percent) rates should be maintained in dominantly agricultural districts (Letter Young to Cunningham, Board of Governors File, box 1436, August 17, 1928).

156. Hamlin and Cunningham were on vacation (Young to Cunningham, Board of Governors File, box 1436, August 17, 1928). Miller and James voted no. Miller (1935, 451–52) claimed the easy policy in the second half of 1928 was “lacking in strong conviction” (452), but he did not say what he wanted to do at the time. Seasonal factors favored an increase in credit. The gold stock and the gold reserve percentage fell. Discounts remained near \$1 billion, evidence of tight, not easy policy on the Riefler-Burgess interpretation. The main evidence of ease was the rise in acceptances. Acceptance rates remained below discount rates.

157. Strong returned from Europe in early August but was too ill to resume his duties. Soon after, he offered to resign, but the directors refused. He no longer had an active role. He received a memo from Walter Stewart, at the time an adviser to the Bank of England. Stewart

The Board was in no position to issue a policy statement, since it had no policy and focused only on the short term. One financial journalist described the problem as a choice between three risky options. First, the System could ease to finance seasonal agricultural inventories. The risk was that the additional credit would lead to “another boiling stock market with ultimate danger to business.” Second, the System could tighten enough to reduce stock prices. This path led to deflation, recession, and accusations that policy was influenced by “the money power.” Third, the System could continue the status quo (Temple 1928).¹⁵⁸

The presidential election made an additional complication. Early in January, the Treasury announced its intention to refund the Second Liberty Loan in September at 3.5 percent interest (Reed 1930, 136). This put the Federal Reserve on notice nine months in advance. No less important was the expected effect of higher interest rates in the midst of congressional and presidential campaigns. Temple (1928) quotes as the opinions of “Chicago bankers” that “the fall will see the greatest political market in history” and of an eastern investment banker that “there will be the greatest bull market in history from the middle of September until November.”

In the event, when commercial paper rates rose to 5.625 percent in September, the System bought acceptances to lower rates. In effect, it pegged the acceptance rate at 4.5 percent by buying \$300 million of acceptances between August and November.¹⁵⁹ The increase in acceptances and a small renewed inflow of gold offset a decline in discounts. The monetary base fell at an 8 to 10 percent rate in July and August, then increased in the fall. Nevertheless, the annual rate of change remained between 0 and –2 per-

warned that money was tight in New York. Concerning the large volume of borrowing, Stewart wrote: “Surely it was never intended that member banks should bear the full burden of gold exports for currency stabilization in France” (quoted in Chandler 1958, 459–60). Strong was less concerned about the short term than the long. He replied that the Federal Reserve could reduce short-term pressure by open market purchases and discount rate reductions. Then he added: “If the System is unwilling to do it, then I presume the New York Bank must do it alone” (*ibid.*, 460). With respect to the stock market, he wrote: “I fear voluntary assumption of responsibility for this matter just as much as I fear voluntary assumption of responsibility for the prices of commodities” (*ibid.*, 460–61). At the time, he believed New York’s discount rate was too high. He preferred a 4.5 percent rate in New York, with 5 percent elsewhere, to push discounting toward New York. However, he avoided mentioning the System’s major problem—reaching several inconsistent goals simultaneously.

158. Alan Temple was managing editor of a business weekly. His memo brings out the political, and policy, conflict between support of the crop movement and concerns about Wall Street and the stock market.

159. This policy was not accidental. In a letter to the Board dated September 26, Harrison proposed the policy that they followed (Riefler 1956, 338). In December, Miller proposed an increase in the acceptance rate, but the motion failed. Hamlin and Platt joined Miller in voting to approve. This was a bold interference, since the reserve banks set acceptance rates.

cent from March 1928 to August 1929. Long-term rates remained unchanged in the fall of 1928, but rates for new stock exchange loans increased almost three percentage points (to 8.9 percent) between August and December, the highest rate since 1920. The preliminary report for the November 13–16 OMIC meeting referred to “the presence of few other buyers of bills [acceptances]” and the reduction in discounts as banks borrowed at the lower acceptance rate to repay discounts.

The memo mentioned three guides to current policy: ending expansion of credit for speculation; limiting effects of interest rates on the volume of business; and limiting effects on world rates and world trade. The report noted that new stock and bond offerings through October were about the same in 1928 as in 1927. An increase in new stock issues almost offset an \$800 million decline in bond issues. On September 28, the Federal Advisory Council agreed that the 5 percent discount rates had delayed some permanent financing but had not harmed business. All in all, the current situation seemed favorable for continued expansion and credit availability. The Board staff’s memo on the business situation is about expansion in production and sales without inflation (Board of Governors File, box 2461, November 8, 1928).

The situation abroad was more disturbing. The Bank of England began to lose gold in September 1928. Losses continued, with only brief interruption, throughout the fall and in 1929. The report for the OMIC meeting noted that earlier gold outflows from the United States improved countries’ ability to defend exchange rates, but continued high rates at home would force higher rates abroad. They soon did.

The OMIC congratulated itself for providing seasonal credit expansion at relatively low interest rates. The committee proposed that New York consider a 0.125 percent increase in the buying rate for acceptances. The Board accepted the recommendation, but the New York directors rejected the proposal. The acceptance rate remained at 4.5 percent until January. Adolph Miller later criticized New York for failing to tighten in the fall of 1928.

Balke and Gordon’s (1986) quarterly data show a small decline in the GNP deflator in third quarter 1928, the first such decline after three quarters in which the price level rose at an annual rate of 3.8 percent. It was not the last decline; the deflator fell persistently for the next eighteen quarters with only one exception.¹⁶⁰ Thus *ex post* real interest rates remained above market rates during the 1929 expansion. And despite a sharp reversal of

160. The twelve-month percentage change in the consumer price index is negative from July 1926 to May 1929. Between June 1929 and January 1930, the annual change is between 0 and 1 percent. It then turns negative for more than three years.

the gold outflow, beginning in fourth quarter 1928 (and continuing for the next three years) the monetary base declined at an average annual rate of 1.3 percent in the year ending June 1929.

These indicators suggest that monetary policy was deflationary. The Federal Reserve considered policy expansive, based on the 43 percent increase in stock prices in 1928, the use of credit to support leveraged positions, faster growth of credit than of output, and the large volume of member bank borrowing. Misled by its indicators, it believed the challenge as 1929 started was to restrain "speculation." Disagreement, though sharp, was limited to how this could be best accomplished—how monetary policy should be tightened. All parties ignored the deflation.

Discount Rates and Direct Action

The new year's first conflict between the Board and the New York bank came on January 3. With seasonal credit demands completed, New York raised its acceptance buying rate to 4.75 percent, effective at 10:00 A.M. the next day. This was the first change since July.

Following the procedure used since 1918, Harrison publicly announced the change and notified the Board. Young responded that the Board was not a "rubber stamp." Early on January 4, Young reminded Harrison that the Board had changed procedural rules in 1926 to require Board approval of all acceptance rate changes. He allowed the higher rate to remain, since it had been announced, but he told Harrison that new regulations would be drafted (Conversations 1926–31, Harrison Papers, January 3 and 4, 1929).¹⁶¹

Three days later, the OMIC met in Washington. The preliminary memo commented on the growth of credit relative to output and the rise in open market rates. Harrison reported on the international effect of United States interest rates. Foreign central banks had reduced dollar balances to support exchange rates, and some—notably England—had sold gold heavily (Board of Governors File, box 1436, January 12, 1929).

With Young present, the committee discussed the Board's responsibilities. The Board had not approved the November decision to purchase up to \$25 million in an emergency because in its view the request was open ended and gave the OMIC too much discretion. Henceforth the Board

161. Procedure did not change. Harrison pointed out that the 1926 rules had never taken effect. New York had changed the rate on ninety-day acceptances fourteen times in the interim. On January 21, New York raised the rate to 5 percent. Miller (1935) ignored this incident when he blamed New York for the "easy policy" and insisted that New York failed to act in 1929 until after the Board announced its "direct action" policy. Miller described New York's policy in late 1928 as "complete abandonment of restraining action" (453). He concluded that the Board should have taken control sooner.

would approve specific decisions to purchase or sell a specified amount. It would no longer approve requests to be executed when, or if, the chairman or the committee chose.

This exchange, coming shortly after Strong's death the previous October, showed that the Board had renewed its effort to increase control over open market operations. The committee resisted. Harrison defended the procedures that had been in effect since 1923 and argued that the Board's proposal would eliminate the usefulness of the OMIC. The Board's reply is not reported in the minutes, but it is likely to have followed the lines of a letter that Young drafted after the meeting but did not send. The letter said that the Board would approve definite decisions. However, the future is indefinite, so the Board would henceforth make its decision whenever the OMIC proposed to purchase or sell (Young to Harrison, Board of Governors File, box 1436, January 12, 1929).¹⁶² The OMIC also considered selling up to \$50 million in January or February if discounts and market rates declined. Since there was no definite recommendation, the OMIC did not test the Board's new procedures.

By the end of January, System holdings of governments were down to \$200 million, including both the open market account and approximately \$150 million held by individual reserve banks for revenue.¹⁶³ Discounts were nearly \$900 million, below their peak but almost twice the level of the previous year. There was little prospect that open market sales could reduce borrowing substantially. For the first time in many years, the discount rate became the principal policy instrument available.

The Board was reluctant to use a general instrument to deal with what it regarded as special circumstances. Credit had increased 8 percent in 1928, and output only 3 percent.¹⁶⁴ The Board believed much of the credit

162. The Board also had under consideration a proposal to replace the OMIC with a committee of twelve reserve bank governors chaired by the governor of the Board. See below.

163. The open market account changed during this period when the System purchased from foreign central banks and attempted to dispose of the purchases in the market without affecting rates. Also, securities matured.

164. There is considerable difference in measures of output growth for the period. The 3 percent estimate in the minutes and correspondence lies between the 2.2 percent later estimated as the annual average by the Department of Commerce and the 4.1 percent from the (base 1982) index of industrial production based on yearly averages. Growth rates for the four quarters or twelve months ending in December suggest substantial acceleration during the year, more in keeping with credit growth. Balke and Gordon's (1986) average GNP growth for the four quarters of 1928 is 9 percent; Kendrick reports a 10 percent increase in manufacturing output; Miron and Romer (1989) report a 26 percent increase in industrial production for December 1927 to December 1928; and the Federal Reserve's (1982) index shows a 15 percent rate of increase. Balke and Gordon's data show no growth in the first quarter and 16 percent (a.r.) in the fourth quarter. Miron and Romer are at the extreme with 14.4 percent (a.r.) for the first half and 36.5 percent for the second half. The high growth rates of output are more

had financed stock purchases on margin. It aimed to reduce this use of credit without raising interest rates to the level reached in 1920–21 and to shift credit from financing speculative ventures to financing productive assets.¹⁶⁵

Pressed by Adolph Miller to stop the speculative use of credit, on December 31, 1928, the Board adopted a resolution that blamed the spread between discount rates and rates for stock exchange loans for the temptation to borrow from the Federal Reserve and lend to help buy or carry securities. The Board decided to learn what the reserve banks were doing to prevent “improper use of Federal Reserve credit facilities by their member banks” (Riefler 1956, 263).

On February 2 the Board revised and approved a letter originally drafted by Miller. The letter noted that interest rates had increased, counter to the typical seasonal pattern. Since the available data underestimated the strength of the expansion, the Board blamed the rise in market rates on the absorption of funds in speculative loans. Continued growth of these loans would further increase interest rates, “to the prejudice of the country’s commercial interests.” The aim of the Board’s policy was to prevent credit expansion for uses not contemplated by the Federal Reserve Act. “The Board has no disposition to assume authority to interfere with the loan practices of member banks so long as they do not involve the Federal Reserve banks. It has, however, a grave responsibility whenever there is evidence that member banks are maintaining speculative security loans with the aid of Federal Reserve credit” (Board Minutes, February 2, 1929). On February 7 the Board issued a press release to the general public, quoting its letter.

The policy conflict between the Board and the banks intensified. After abandoning the penalty discount rate early in the decade, the System had kept the discount rate above the acceptance rate. The two were now equal, so banks and market participants believed an increase in the discount rate was imminent.¹⁶⁶ Responding to the Board’s action, Boston notified the

consistent with Harold Barger’s (1942) reported 23 percent increase in corporate net profits and the 37 percent return to equities.

165. Harrison also used the 3 percent and 8 percent numbers in his preliminary memo for the January 7 OMC meeting. He estimated the change in deposits times their velocity (MV) as 25 percent in 1928 versus 15 percent in 1927. The probable underestimate of output growth and overestimate of money growth (or growth of aggregate demand) contributed to the belief that policy was inflationary.

166. In its 1928 annual report and elsewhere, the Board criticized the reserve banks for their policy. The banks’ “liberal purchase of bills [acceptances] in excess of credit needs was a factor in the revival of speculation and in the growth of broker loans” (Discount Rate Controversy, II, Board of Governors File, box 1246, undated). The Board charged that the acceptance purchases nullified the discount rate increases (12).

Board on February 4 that it voted to increase its discount rate. The Board asked that the Board's program be implemented instead. The following day Harrison told the Board that its program "does not have any substantial effect upon the total volume of credit outstanding but that is a matter which . . . can be controlled properly only through the rate" (Conversations 1926-31, Harrison Papers, February 5, 1929, 8). Nevertheless, Harrison agreed to try the Board's program.¹⁶⁷

Within a week, the New York directors voted unanimously to increase the discount rate by a full percentage point to 6 percent. The Board voted seven to one to reject the request on the grounds that New York made the request by telephone and had not given any reason for the increase. Young explained that the increase would force other banks to follow. A general increase might seriously affect agriculture and commerce.

Market rates continued to increase in March. Commercial paper reached 6 percent; banks offered 8 percent for time deposits. New York again raised the buying rate for acceptances, in two steps, to 5.5 percent. The rise had the expected effect. The System's acceptance portfolio declined while its discounts rose, contrary to the "reluctance" theory of borrowing.

Propelled by higher interest rates, rising stock prices, and deflation, capital flowed to the United States. New York sterilized gold inflows by selling securities from the System account, reducing the account to \$40 million in early March. To stem the gold flow to the United States and France, the Bank of England raised its discount rate a full percentage point to 5.5 percent. Holland, Italy, and others soon followed.¹⁶⁸

New York's directors voted to increase the discount rate on March 4 and March 21. The Board did not approve, citing in the latter case the decline in Federal Reserve credit. Unable to convince the Board, Harrison appealed to Secretary Mellon on March 21. Mellon agreed, but the Board insisted that direct action was the correct policy and rejected the request. Boston, Philadelphia, and Chicago discussed or voted for 6 percent rates; the requests were rejected, tabled, or withdrawn to avoid rejection (Riefler 1956, 282-84).

Standard and Poor's index of common stocks rose more than 10 percent in the first three months of 1929. The Board's policy succeeded in reducing bank lending to brokers, but total loans to brokers secured by stocks

167. On February 7, the Board tabled a request by the Dallas bank to raise its discount rate to 5 percent. Dallas was one of four banks with a 4.5 percent rate. The Board permitted the increase early in March.

168. The Bank of France kept its discount rate at 3.5 percent and sterilized its gold inflow by selling foreign exchange.

and bonds rose.¹⁶⁹ Most of the lending came from corporations and other nonbanks, attracted by call rates of 9 or 10 percent. Nothing in the program prevented individuals or corporations from borrowing from banks while lending to brokers and dealers. This pattern continued through the first three quarters of the year.

The April meeting of the Governors Conference had a thorough discussion of market rates. Boston, New York, Chicago, Philadelphia, and Richmond said they had exhausted the possibility of credit control through the Board's program of direct action against speculative uses of credit. Some of the regional banks said that local businesses had difficulty borrowing because credit was going into brokers' loans. Several of the governors warned of an impending crisis if the current policy continued (Governors Conference, Board of Governors File, box 1436, April 4, 1929).

Policy was beginning to affect economic activity without reducing stock prices. Harrison's preliminary memorandum reports call loan rates of 8 to 20 percent at the end of March and commercial paper at 6 percent. The memo reported building activity in decline, state and local government projects postponed, and foreign borrowing curtailed. Gold continued to flow to the United States. Conditions abroad would soon reduce exports. Business conditions were sustained by automobile production "considerably in excess of retail purchases." "Present money conditions, if long continued, will have a *seriously detrimental effect* upon business conditions, and the longer they are continued, the more serious will be the effect" (OMIC, Board of Governors File, box 1436, preliminary memo for April 1, 1929; emphasis added).

A rate increase now was seen as a step toward lower rates later. Boston and New York argued for a 6 percent rate immediately and perhaps 7 percent later. Philadelphia talked about a possible 8 percent rate. By raising discount rates, the reserve banks expected to reduce discounts, paving the way for a lower discount rate. The Board rejected this reasoning when it turned down New York's sixth request in mid-April. The Board noted that New York had used the same evidence—declining exports, difficulty in placing foreign loans—when it asked to lower the discount rate in 1917.

The warnings about declining activity and a possible crisis ahead (if

169. In the first quarter brokers' loans by New York banks fell 33 percent and those by other banks 18 percent. Nonbanks increased lending by 27 percent. Total brokers' loans rose 6 percent (Board of Governors of the Federal Reserve System 1943, 494). Miller (1935, 456) recognized the substitution of loans by nonbanks but claimed success for direct action because, he said, total brokers' loans decreased and loan rates increased sharply. A chart in his paper showed a small decline in total brokers' loans in the spring followed by a much larger increase after the Board "relaxed" direct action in June (448).

countries were forced off the gold standard) had no effect on Young or Miller. Young recognized that policy “has had a detrimental effect on business,” but he told the governors there was no occasion to raise rates: “There is one factor you have been unable to control, which is speculative credit. As the Board sees it, the discount rate will have no effect” (Governors Conference, Board of Governors file, box 1436, April 4, 1929). Miller said he would favor lower rates if the “abuse of Federal Reserve credit” ended (*ibid.*).¹⁷⁰

The governors did not speak with one voice. Governor Fancher cited the large gold reserve as a reason for not raising rates. Cleveland would raise its rate, defensively, only if New York and Chicago increased theirs. Seay (Richmond), Eugene R. Black (Atlanta), and other governors of small banks either opposed raising discount rates or were ambivalent.

The governors agreed, informally, on a policy statement. To lower interest rates, they first had to raise discount rates. The minimum discount rate at any reserve bank should be 5 percent, with a 6 percent rate in the principal financial centers. Since the Board had to approve these rates and was certain not to do so, the governors who disagreed could accept the policy statement.

Gold continued to flow to the United States, much of it from Germany.¹⁷¹ Between March 6 and April 30, the Reichsbank lost \$215 million in gold reserves, one-third of the stock held at the end of 1928. The Federal Reserve sold most of the gold to the Bank of France, which paid partly by selling foreign exchange, mostly dollars, and by sterilizing most of the remainder by reducing its holdings of governments. The Federal Reserve reinforced the gold outflows by reducing government securities. By the end of April the Federal Reserve’s government security holdings had fallen to \$150 million, of which only \$17.5 million was held in the System account. Thus, as France acquired gold, both the buying and selling countries took deflationary action. Moreover, acceptances continued to run off, further reducing the monetary base.

New York again voted to increase its discount rate, and again the Board refused. At times Boston, Philadelphia, and Chicago joined New York. On April 25, Harrison appealed to Secretary Mellon to intervene. Mellon pleaded for an increase that day, but only Platt supported him. Instead, the

170. Harrison asked, “Are we getting what we want?” The minutes report that Miller answered: “What it is that the System wants. Considerable discussion ensued, but no definite statement was made” (Governors Conference, box 1436, April 4, 1929).

171. Part of the German gold outflow resulted from the failure to reach agreement about reparations payments.

following week the Board sent letters to the reserve banks listing member banks that borrowed continuously while lending to security brokers and dealers. The Board threatened to stop all discounting by these banks.

May saw a slight change in the stalemate.¹⁷² The Board approved increases in discount rates to 5 percent at Kansas City, Minneapolis, and San Francisco. The 5 percent rate was now uniform throughout the System. The Board continued to disapprove or table requests for a 6 percent rate, but on May 15 Governor Young changed sides to vote for approval of New York's request. With the fall approaching, he now shared Harrison's view that to reduce rates, they must first be raised. The vote was four to four, rejecting the request (Office Correspondence and Memos, Harrison Papers, May 14 and 15, 1929).¹⁷³

End of the Stalemate

The next move came from New York. Instead of again voting to increase the discount rate, the New York directors sent a letter to the Board on May 31. The letter called attention to the uncertainty created by the continuing policy conflict and rumors that all discounting would be denied. It urged agreement on a mutually satisfactory program. The letter made clear that the directors had not changed their opinion about the rate increase but decided to "refrain from rate action in the hope that a general policy . . . may be quickly determined" (Riefler 1956, 315).

The New York directors proposed three changes to avoid further tightening when seasonal demands appeared: relax qualitative controls to permit banks to borrow freely; end the Board's policy of opposition to collateral loans (secured by marketable securities); and allow reserve banks to expand credit if needed.

The Board met with several New York directors on June 5. Each side appeared willing to compromise but unwilling to fully abandon its previous position. New York stressed that it wanted to increase the discount rate. The Board stressed that any relaxation of its direct action policy would be "merely a suspension" (Riefler 1956, 316). A week later the Board proposed temporarily suspending the direct action program during the months in which banks would be discounting heavily to market the harvest, and it

172. In all, New York voted nine times to raise the discount rate. Leslie Rounds, the first vice president at New York, explained the persistence as an effort by Chairman McGarrah to "show the bank had been on the job and had done what it could, but perhaps he did not sense how great a calamity was building up" (CHFRS, Rounds, May 2, 1955, 13).

173. A week later, the Federal Advisory Council changed sides also, recommending a 6 percent rate.

recognized that purchases of acceptances and possibly governments might be needed if discounts increased substantially.¹⁷⁴

By July 10 the System's acceptance portfolio had declined to \$66 million, more than \$100 million below the previous year and the lowest level since the 1924 recession. Call loan rates reached 11 percent in the first week of July. Responding to the pressure, New York lowered its acceptance buying rate by 0.25 percent to 5.25 percent. Acceptance rates in the market quickly fell to 5.125 percent, where they remained until mid-October. New York followed, reducing by 0.125 percent on August 9. Acceptance purchases now began to add reserves.

Harrison met with the Board on August 2 to discuss a discount rate increase. Business now "appears to be on a sound basis." "The time has passed for the adoption of a policy of higher rates." Nevertheless, he proposed combining an increase in the discount rate to 6 percent with a small reduction in the acceptance rate to help finance domestic business and exports (Harrison Papers, Board Meetings, August 2, 1929). George R. James, a member of the Board, suggested a preferential rate for commodities. The only agreement was to call a meeting of all governors for August 7 and 8.

The governors accepted Harrison's proposal by a vote of eleven to one. Their resolution looked forward to supplying the seasonal increase by buying acceptances and explicitly ruled out a general increase in discount rates at reserve banks outside New York. The Board approved the resolution and a 6 percent discount rate at New York. No other bank followed.

The reasoning behind the policy action was confused, its effect modest. In the Board's view, which New York accepted to reach the seasonal compromise, credit allocation mattered. Acceptances were real bills, whereas discounts could support speculative credit. Hence encouraging acceptance purchases while reducing discounts helped commerce and agriculture and discouraged speculation. In contrast, under Riefler-Burgess, a reduction in discounts was a move toward easier policy, since banks borrowed reluctantly, not for profit.

174. After the Board relaxed its policy of direct action in June, Seay (Richmond) wrote to Harrison: "It is a rather strange or mixed course or procedure which the Board expects Federal Reserve banks to follow. Having told member banks that they were not within their reasonable rights for rediscounts while they are lending under certain conditions, we are now not to abandon that position but to temper it . . . then if they overdo the matter, we are to tell them that they have overdone it and resume pressure. It is difficult to pilot the ship with such a variable compass" (Seay to Harrison, June 27, 1929; quoted in Chandler 1958, 469).

The Board communicated the agreement in a letter to each of the reserve banks. The letter described its earlier decision to take direct action as deliberate, its current position as holding fast to its belief that it was necessary. The present suspension was temporary to assist banks "that have not found it practicable to readjust their position in accordance with the Board's principle."

Banks responded to the rate switch by lowering their costs. In the ten weeks from August 16 to the stock market break on October 23, discounts declined and acceptances increased. The net effect was \$29 million in additional Federal Reserve credit, far below the \$200 million estimated as the required seasonal increase through October (OMIC Minutes, Board of Governors File, box 1436, September 24, 1929).¹⁷⁵

The discount rate increase had little effect on market rates. Bond yields increased at first but then reversed. After six weeks, Harrison reported very small effects on rates except abroad. Britain continued to lose gold to France and Germany. New York bought sterling bills to stabilize the pound.

The National Bureau of Economic Research puts the peak of the expansion in August. At the September 24 OMIC meeting, Harrison reported that though business was at a "high level . . . [t]here has been a declining tendency in a number of basic industries." The committee proposed open market purchases of acceptances and, if necessary, up to \$25 million of short-term government securities each week. The aim was to prevent an increase in borrowing if acceptance purchases proved insufficient for seasonal expansion. A week later the Board approved the resolution, noting in its letter that the approval should not be seen as a change in Board policy. No purchases were made in the month before the stock market break.

The OMIC did not meet again until November, after the market break. For the week ending October 12, call loan rates were below 6 percent, for the first time in more than a year, and half the level reached in early May. October 24 was "black Thursday," a day of climactic decline in share prices. The Board approved a reduction in the acceptance rate to follow the market but rejected New York's request to lower its discount rate to 5.5 percent.

Acceptance rates continued to fall as banks scrambled for short-term liquid assets. On October 28 New York told Young that "there has been a large reduction in brokers loans and that corporations and bankers in the interior are calling such loans and investing in bills, Governments and commercial paper" (Riefler 1956, 355). To meet the demand, New York banks borrowed heavily from the reserve bank. With the market rate down to 4.625 percent, New York asked for a further reduction in its acceptance buying rate. The Board refused: "No further reductions in the bill rate should be made at this time as the easing program of the System seems to be progressing satisfactorily." Riefler added: "At this time, conditions in the money market were threatened by reason of drastic liquidation in the securities markets" (Riefler 1956, 356).

175. The full seasonal swing from early August through the end of December was estimated at \$500 million (OMIC Minutes, Board of Governors File, box 1436, September 24, 1929). The actual was half the estimate.

The Federal Reserve was established, in part, to prevent a panic in the money market. The Board's response to New York ignored the scramble to reduce loans to the call market then in progress. Table 4.5 shows the large changes in lending as the stock market fell.

In the week ending October 30, the New York reserve bank opened its discount window. System discounts rose \$200 million for the week. By October 28 the New York directors, tired of haggling with the Board, gave Harrison discretion to purchase governments without any limit.

Harrison informed the Board but began purchases of \$50 million before the stock market opened on October 29. The Board accepted the result reluctantly, since the purchases had been made before its meeting, but it noted that New York had not consulted the OMIC or the Board.¹⁷⁶ In all, New York purchased \$133 million, \$25 million for the System account and \$108 million on its own.

Later in the day Harrison telephoned to hear the Board's response to a proposed reduction in the discount rate to 5 percent. The Board agreed to the reduction if New York would suspend open market purchases. On November 1, New York's rate went to the 5 percent rate maintained at other reserve banks.

The decline that became the Great Depression was under way. Balke and Gordon (1986) show real GNP rising only 0.5 percent in the third quarter before falling at an annual rate in excess of 11 percent in the fourth quarter. After rising at an 11 percent rate in the first nine months, industrial production (as reported at the time) declined in the fourth quarter (Reed 1930, 171).¹⁷⁷ Although the initial decline in output was steep, it was less steep than at the start of the 1920–21 recession. Federal Reserve documents in October noted the beginning of the decline within two months of the NBER peak. The rapid fall in stock prices in late October suggests a rather sudden shift in anticipations about future profits and economic growth.

Knowledge of events was not a problem at the time or later. Misinter-

176. The Board regarded New York's action as a violation of the 1923 agreement establishing the OMIC. The following week the Board approved a resolution denying Federal Reserve banks the right to buy or sell government securities without Board approval. Counsel advised them that there was considerable doubt about its legality, so it did not become effective (Riefler 1956, 359).

177. For the period 1922 to 1929 as a whole, the Board's contemporary measure of industrial production rose at a compound average annual rate of 7.5 percent (Miller 1935, 443, chart 1). The Miron-Romer data show a growth rate above 8 percent from January 1922 to February 1929, the peak in their data. Extended to August, their average is close to the Federal Reserve data. Recent Federal Reserve data (base 100 in 1982) show a peak in July 1929 and a 3.3 percent decline in the next three months (a 13.5 percent annual rate). These data show industrial production doubling between the 1921 trough and the 1929 peak, a 9 percent compound annual rate of increase.

Table 4.5 Loans to Brokers and Dealers, 1929 (millions of dollars)

DATE	TOTAL	NEW YORK BANKS	OTHER BANKS	OTHER
October 16	6,801	1,095	1,831	3,875
October 23	6,634	1,077	1,733	3,823
October 30	5,538	2,069	1,005	2,464

Source: Board of Governors of the Federal Reserve System 1943, 498.

pretation, incorrect analysis, lack of agreement, and concern about letting the discount rate rise without limit—not ignorance of events—prevented action. The Board was unwilling to accept the political cost of raising rates to levels that would renew the concerns and criticisms in 1920–21. Young asked repeatedly how much Harrison and the other governors proposed to increase discount rates. The answers did not reassure him or other Board members.¹⁷⁸

CONFLICTING INTERPRETATIONS

Ambiguity in the Federal Reserve Act was one reason for the policy conflict. Lines of authority and responsibility between the individual reserve banks and the Board were unclear, hence a source of the periodic frictions and disputes. At a deeper level was the conflict over how policy operated and what it should and could accomplish.

This conflict showed through in the Board's tenth annual report. As noted earlier, although the report was the work of Walter Stewart, Adolph Miller had considerable influence on the drafting. Yet New York praised the report at the time. The reason for this anomaly was that the report, like the Federal Reserve Act, had two policy conceptions that had not been reconciled. One was the real bills doctrine, calling for the control of speculation and restrictions on the use of credit to encourage commerce, agriculture, and industry. The other was first the gold standard and later the Riefler-Burgess doctrine. Under Riefler-Burgess, the volume of discounts replaced the gold reserve ratio as the principal signal for expansive or contractive action.

Both policy rules or procedures had the same objective—to prevent inflation by changing the amount of bank credit (and money) as output

178. The Board prepared a summary (unsigned) that appears to have been written by Young based on his personal records. The summary contrasts the Board's direct action with New York's policy, which it characterized as a request for repeated increases in rates. The summary quotes an April 9, 1929, letter from Harrison: "The discount rate would be employed incisively and repeatedly, if necessary" (Discount Rate Controversy, 21, Board of Governors File, box 1246, undated). Several other quotations from Harrison and McGarrath's comments refer to higher rates, even 8 percent or more (22).

changed. Proponents of real bills saw the financial system as largely self-regulating. If banks created credit only on real bills, they believed it would grow or decline with production and trade. Adherents of Riefler-Burgess agreed that money (bank credit) should grow at the same rate as output in the long run, but they regarded the short-run relation of money to output as highly variable. They wanted to manage the relation by using open market operations to control the volume of member bank borrowing.

Miller was the System's most outspoken proponent of real bills, but he was not alone. Several of the bank governors—Norris, McDougal, Seay, and Calkins—held similar views, and they were joined by some, perhaps most, of the Board.¹⁷⁹ They had strong support in Congress, from Carter Glass and others, and in much of the financial press. No less important, they had the text of the Federal Reserve Act with its injunctions against the use of credit for speculation and its emphasis on discounting real bills.¹⁸⁰

Although the real bills advocates agreed on the importance of preventing speculation, they did not agree on the means. For example, Norris wrote: "This whole process of 'direct action' is wearing, friction producing, and futile. We are following it honestly and energetically, but it is manifest beyond the peradventure of doubt, that it will never get us anywhere. . . . Our 5 percent [discount rate] is equivalent to hanging a sign over our door 'Come In' and then we have to stand in the doorway and shout 'Keep Out.' It puts us in an absurd and impossible position" (Norris to Hamlin, April 2, 1929; quoted in Chandler 1958, 467–68).

Strong, and others at New York, did not disagree that preventing speculation was part of their mandate. Like Norris, they believed that persuasion or direct action was unavailing without an increase in interest rates. Strong went further. He had learned from the experience of 1919–20 that qualitative control could not work because there is no way to identify how additions to reserves and loans would be used at the margin. Repeatedly New York explained that the collateral used for loans from a bank or from a reserve bank bore no relation to the purchase or loan financed by the addition to reserves and that the bank had no way to discover how credit was used in practice. The only effective way to prevent credit expansion, New York said, was to reduce the total by open market sales or discount rate increases. But it never stated, and perhaps did not recognize, that the rise in

179. Leslie Rounds remarked that "without Miller there never would have been any great difference of opinion. I don't think anybody else down there would have . . . trusted their own judgment enough to take such a stand" (CHFRS, Rounds, May 2, 1955, 6).

180. In the 1960s, Clay Anderson (1965, 57) gave these same reasons for reliance on "direct action" in 1929 and added concern that an increase in rates would harm commerce and agriculture. Anderson was an officer of the Philadelphia reserve bank.

stock prices was at least partly a response to the policy of inaction¹⁸¹ and the robust economic expansion.¹⁸²

Another part of the controversy was as old as the Federal Reserve. The Board's first annual report (Board of Governors of the Federal Reserve System, *Annual Report*, 1914, 53) discussed limiting discounts by the purpose of the loan and concluded that it was not possible to know what each bank did with its loans. The issue arose again after World War I when the Treasury, opposed to higher market rates, had the Board ask the reserve banks to ascertain which banks were borrowing on government securities for speculative purposes. In 1925, as again in 1929, the Board was reluctant to increase rates when faced with increased borrowing. The 1925 annual report, however, recognized the futility of qualitative control: "It was seldom possible to trace the connection between borrowings of a member bank at the Reserve bank and the specific transactions that gave rise to the necessity for borrowing" (*Annual Report*, 1925, 16). It is only in the 1929 report that we find: A bank is not "within its reasonable claims for rediscount facilities" when borrowing to make or maintain speculative loans (*Annual Report*, 1929, 3). This statement is unobjectionable as a comment on the intent of the law; however, it does not make a case for the effectiveness of direct action.

The legal basis for the Board's "direct action" was unclear. In 1925 Miller justified his proposed policy on the grounds that "the use of credit for speculative or investment purposes is precluded by specific provisions of the Federal Reserve Act" (quoted in Harris 1933, 1:225). He later modified the position, finding support for direct action in the references to real bills as the proper collateral for discounts. The Board's legal counsel found support for the February 1929 letter to member banks in section 13, which made rediscounts subject to the restrictions and regulations of the Board.¹⁸³

181. One month after announcement of the policy of direct action, National City Bank offered to lend \$25 million to the call market while borrowing from the Federal Reserve. The president of the bank was a Federal Reserve director. He justified the policy as necessary to prevent panic in the money market. His defiance made the System appear weak even to those who understood that direct action could not prevent credit expansion. Neutral observers saw loans at rates of 20 percent or more financed by borrowing at 5 percent.

182. Strong agreed that the problem was "speculation" in Florida land in 1925 and in stocks in 1927–28. Like the others, he saw these more as manias than as endogenous responses to strong economic growth and low inflation. See, for example, Chandler 1958, 460–61.

183. Burgess (1964, 224) suggested a different reason for the program—reluctance to raise interest rates after the 1920–21 experience: "The disagreement was not as to the dangers of the situation but as to the methods of dealing with it. . . . Back of this was, I believe, reluctance to take the responsibility for decisive action, having in mind the criticism incurred by the Board for increasing the discount rate in 1920."

The principal antagonists learned nothing from the experience. Carter Glass and Miller blamed Strong's 1927 policy for the speculative boom and the 1929 collapse. Using a phrase that was repeated many times in the next few years, they described the collapse as an *inevitable* consequence of the preceding expansion. For them, the problem was the violation of real bills by financing speculation. They believed the speculative boom had started when excessive open market purchases were used to help Britain in 1927. They usually neglected the Board's supporting role, including its insistence on forcing Chicago and others to reduce their discount rates.

Miller (1935) set out to show why it was wrong to conclude that in 1927–29 the reserve banks had been right and the Board wrong.¹⁸⁴ He made three claims: that the New York Federal Reserve bank initiated the 1927 reduction in discount rates; that between August 1928 and February 1929 the reserve banks took no action to check speculation; and that the first attempt to increase the New York discount rate in 1929 came after the Board announced its policy of direct action. The timing of New York's action was important to Miller. The Board's February 2 statement said: "There are elements in the situation which are not readily amenable to recognized methods of banking control." This meant, he said, that the time for a rate change had passed (Senate Committee on Banking and Currency 1931, 142).

At first New York's 1927 policy seemed to work. The pound strengthened, and the economy recovered from recession. Many people praised this result as the beginning of a "new era" in which "well timed monetary policy" would substantially reduce "the terrors of the business cycle" while ensuring price stability Miller (1935, 447).

Unfortunately, he continued, the policy had other effects:¹⁸⁵ "Cheap credit gave a further great and dangerous impetus to an already overexpanded credit situation, notably to the volume of credit used on the stock exchanges" (1935, 449).¹⁸⁶ The reserve banks tightened in the spring of 1928 by selling securities and raising interest rates, but this had only a

184. The specific references are to Lionel Robbins and a *New York Times* editorial. Miller recognized that the Board approved some of the policies he cites, so he assigned it secondary responsibility for the outcome.

185. The policy was originated by "the distinguished Governor, the late Benjamin Strong. Brilliant of mind, engaging of personality, fertile of resource, strong of will, ambitious of spirit, he had extraordinary skill in impressing his views and purposes on his associates in the Federal Reserve System" (Miller 1935, 447). Miller ignored not only Strong's absence during most of 1928 and the increase in the acceptance rate that came before the Board's announcement in February 1929 but also his own initial praise of the operation.

186. Miller cited a secondary factor in 1927—larger than expected redemptions of the Second Liberty Loan. Federal Reserve banks supported the issue to help the Treasury.

brief, temporary effect on the stock market. In Miller's view the policy did not work for three reasons. First, "the astonishing increase in the earnings of large corporations and the extremely low rate of interest . . . appeared to supply a basis for the high prices that were being paid for stock of companies whose earnings were rising and whose dividend disbursements . . . were far above the going price for money" (451). Second, banks believed there would be no classical money panic because the Federal Reserve would rediscount in an emergency. Third, nonbank funds supplied large amounts of credit for the stock market.

The reserve banks failed to tighten in the fall of 1928 partly because they expected normal seasonal demands to raise rates and partly because they did not want to be blamed for harming agriculture. Banks sold acceptances to the reserve banks, then used the proceeds to finance stock purchases. Miller characterized this policy as "lacking in strong conviction" (451-52).

The mistaken policy was the work of the New York Federal Reserve bank.¹⁸⁷ The Board's role was secondary; its mistake was a delay in taking leadership. The error reflected the division of responsibility in the Federal Reserve Act and the primary role given to the reserve banks to propose policy action.¹⁸⁸

By early 1929 "the rate of speculative expansion had attained such speed and the thirst for credit had attained such intensity . . . [that] control through discount rate increase . . . is at best to be regarded as a frail reliance and a dubious expedient" (Miller 1935, 455). Direct pressure, on the other hand, was a more flexible method of control of the particular banks and type of credit that had to be controlled.

Miller, writing in 1935, cited the provisions of the Banking Act of 1933 (and the Securities and Exchange Act) as evidence that Congress had accepted the Board's view. The specific features included control of margin requirements and restrictions on brokers' loans. These changes were made to prevent credit from being diverted from commercial to speculative uses. In the real bills view, financing the stock market did not lead to

187. "The incontrovertible fact is that during this period . . . the leadership of the Federal Reserve System rested with the Federal Reserve Bank of New York" (Miller 1935, 452).

188. Miller cited the public outcry against the Board for its actions in the 1927 Chicago rate controversy as a reason for the Board's failure to act in 1928. This is a weak defense. Nothing prevented the Board from suggesting discount rate changes, as it had done several times. Also, he failed to recall his statement to the Strong (Kansas) hearings on stabilization, where he gave the Board credit for initiating "most of the changes in the discount policy" and credited the Board with a longer view. See House Committee on Banking and Currency 1926, 640-41. Although Miller defended the Board and criticized the reserve banks, particularly New York, he never explained why the Board waited until it believed the time for a discount rate increase had passed. Nor did he explain his vote in March 1928 against an increase in the discount rate.

new output, hence it “diverted” credit from productive to unproductive uses.¹⁸⁹

Earlier, Miller had testified on the reasons for the Board’s refusal to raise rates in 1929: “It was our belief that an increase to 6 percent in February, 1929, would have been nothing but a futile gesture; that it would have been a practical declaration to the speculative markets of the country that the doors of the Federal Reserve System were open to all comers. . . . With call rates mounting to 8, 9, 10, 15, and 20 percent, a 6 percent discount rate would have been an admission of defeat and given great relief to the speculating public” (Senate Committee on Banking and Currency 1931, 143).¹⁹⁰

Harrison made a weak defense of New York’s policy. He didn’t question that the growth of speculative loans was a major problem, but he was more confident than Strong had been earlier that raising the discount rate would have been an effective response. His difference with Miller was mainly about whether “direct action” was, or could be, effective without an increase in rates. He was ambivalent about whether the Federal Reserve should lend only on productive credit, but he understood, as Miller and Glass did not, that limiting rediscounts to real bills did not change the marginal loan at member banks or the volume of credit outstanding.¹⁹¹

Harrison stated the quantitative guide: When credit expands faster than

189. Woodlief Thomas (1935) argued that more effective control of stock market credit was necessary for economic stability. Thomas was a leading economist on the Board’s staff and later an adviser to the Board. Credit control prevented diversion of credit, which he took to be a major reason for policy failure in 1928–29. This was a widely held view. Reed (1930) devoted many pages to analysis of whether there was diversion. The idea of “absorption and diversion of credit” lacks analytic content except, perhaps, in a real bills framework.

190. Senator Carter Glass chaired the hearing and heartily agreed with Miller’s testimony. The following exchange is representative: “Mr. Miller: An alternative use of discount policy would have been what you alluded to yesterday, Mr. Chairman . . . successive increases to 6, 7, 8 or 9 percent, in other words, a race between the call rate and the discount rate. The Chairman [Glass]: With legitimate commerce the victim” (Senate Committee on Banking and Currency 1931, 143).

This position was not uniformly held in Congress. Warburg (1930, 514) reported that the chairman of the House Banking Committee, Henry Steagall, did not share Glass’s views and wanted the Board to stop interfering with stock exchange loans. Former senator Robert Owen was counsel for plaintiffs in a suit to stop the Federal Reserve from restricting the credit supply.

191. His difference with Glass became clear in this exchange: “Governor Harrison: If we have to go beyond the paper presented and determine the loan not on the character of the paper but the business of that bank— The Chairman: You have to determine it upon the purpose for which the borrowing bank wants money from you. Governor Harrison: In the usual case, I will have to say that I could not tell. The Chairman: What are your examiners for if you cannot tell? . . . Governor Harrison: At times, the banks themselves do not know whether the borrower is speculating. The Chairman: But ought they not to know that? Governor Harrison: It is sometimes pretty difficult to find out” (Senate Committee on Banking and Currency 1931, 54).

trade or business, the Federal Reserve System should raise rates, “whether the expansion is due to speculation in real estate, securities, or commodities, or whether it is due to abnormal growth of business” (Senate Committee on Banking and Currency 1931, 55). The task of deciding who borrows was the job of the member banks, and he insisted that the New York Federal Reserve bank did not admonish its members to reduce brokers’ loans in 1929. These statements puzzled, and infuriated, Chairman Glass.

The Chairman: It [the act] says expressly that you are not to permit the facilities of the Federal Reserve banks to be used to purchase or to carry—

Governor Harrison: We do not—

The Chairman: To purchase or to carry—oh, you may not do it directly, but you practically vitiate this act in the way you do it.

Senator Walcott: The borrowing bank does it.

The Chairman: The Federal Reserve bank permits the borrowing bank to do it. It is the business of the Federal Reserve bank to know what the borrowing bank is doing and for what purpose it is doing it. If this is not the meaning of this act, why should . . . your board of directors ever feel—in any sense or degree—warranted in admonishing member banks in New York to reduce their loans to brokers?

Governor Harrison: Senator, we never did it.

The Chairman: You did not?

Governor Harrison: No, sir. (55)

Harrison then gave two reasons. First, brokers’ loans did not increase at New York banks. Second, the directors believed that the correct policy was to raise rates, not admonish individual banks. He explained again why rate increases would work where direct action would fail to control the amount of lending. None of his arguments reached Glass.¹⁹²

Harrison acknowledged two mistakes in 1928–29: “First we raised our rate the first time too late, and, second, we did not raise it enough. I mean that had we had at that time the light of the experience we have since had, it would have been better perhaps to have raised the rate 1 percent in December of 1927” (*ibid.*, 66). Harrison went on to blame the “bootleg banking system” through which corporations and individuals lent to brokers and dealers outside the regular banking system.

J. Herbert Case also testified about the New York bank’s position. He ex-

192. Glass responded: “I have never been able to see, and I did not see in 1920, either the fairness or the effectiveness of increasing the discount rate and thereby imposing a penalty upon the ordinary business of the country, commercial or industrial, in order to control the activities of the stock market” (*ibid.*, 57).

plained that the collapse was regarded as inevitable because speculation in farmlands during the war and postwar inflation were followed by speculation in Florida real estate and, finally, in the stock market, “which adversely affected the general business of the country. These movements have each in turn culminated as they inevitably must in a deflation” (*ibid.*, 111).

THE STOCK MARKET BOOM

The rise in stock prices that ended in 1929 is extraordinary by almost any standard except 1998–2000. From the end of 1924 to September 1929, Standard and Poor’s index rose at a 21 percent compound annual rate. The Dow Jones industrial average, at its peak of 381 in September 1929, had doubled in less than two years. The rise was propelled in part by rising profits and economic activity. Real GNP and corporate profits rose at annual rates of 4 percent and 12 percent, respectively, with only one mild recession during the nearly five-year period. The increase in market capitalization relative to nominal GNP brought the ratio of the two to a level that was not surpassed until 1996.

The rate of rise in corporate profits was much greater than the rate of increase in GNP but only half the rate of increase in the value of traded stocks (market capitalization). Chart 4.4 shows that between 1925 and 1929 the ratio of market capitalization to corporate profits doubled.¹⁹³ In absolute value, the ratio rose from 6.2 in 1925 to 12.7 at its peak in 1929.

For those brought up on the belief that the 1929 stock market was a wild speculative orgy, chart 4.4 is surprising. It shows that the capitalization rate rose most rapidly in 1926, with rising profit anticipations.¹⁹⁴ The rate then remained between 10 and 12 until the market break in 1929. These data suggest that the so-called speculative boom of 1927–29 was driven by rising profits and, most likely, by anticipations of further increases to come. The 17 percent decline in corporate profits in fourth quarter 1929 and the 30 percent decline in first quarter 1930, or anticipation of the decline, must have reversed some of the beliefs built up during the expansion. At the time, many could vividly recall the volatility of the late nineteenth century and the frequent banking panics that Congress intended the Federal Reserve to prevent. Call money rates briefly reached 20 percent (a year) in 1929. Rates of 100 percent or more had not occurred in the fifteen years of the Federal Reserve’s existence. There had been recessions, but the only

193. Market capitalization includes new issues and valuations of shares not included in the S&P index.

194. In the nearly seventy following years, there were only two periods when the ratio came close to its 1929 peak. One was in the latter part of 1936, just before a steep recession. The other was 1965 to 1968, just before the Great Inflation of the 1970s.

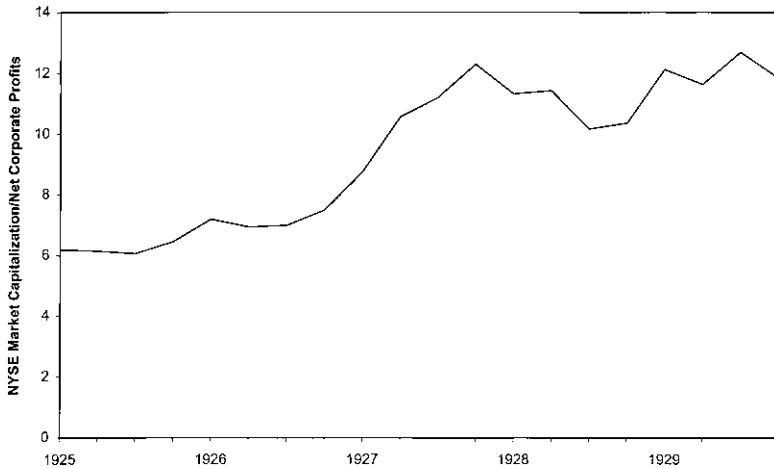


Chart 4.4 New York Stock Exchange market capitalization to net corporate profits. Source: Profits from Barger 1942 quarterly values at annual rates.

major deflation, in 1921, was universally attributed to the end of wartime excesses. The belief spread that the Federal Reserve had learned how to maintain prosperity, damp recessions, and prevent inflation. The return of many countries to the gold standard by 1927 reinforced the view that the world economy was on a stable foundation and that inflation and deflation were unlikely to occur.

In the 1920s, low inflation, sustained growth, and technological change convinced many that the United States had a “new economy.” At the time, Irving Fisher commented that the stock market “went up principally because of sound, justified expectations of earnings, and only partly because of unreasoning and unintelligent mania for buying” Fisher (1930b, 53). He credited increased profits to the application of science, technology, and new management methods.

Annual rates of inflation (consumer price index) remained negative from July 1926 to May 1929. Restoration of the international gold standard—raising the demand for gold—and Federal Reserve actions were the main reasons for the sustained, mild deflation. The twelve-month moving average of monetary base growth fell below 1 percent in November 1926, turned negative in May 1928, and remained negative through June 1929. In this period of rapid economic growth, monetary policy was deflationary.

Federal Reserve records show that the 1929 increase in output and fall in prices was known at the time. The United States economy had a spectacular performance in the first half of the year. Corporate earnings increased about 30 percent in the first nine months: “Large corporate earn-

ings, together with the ability of corporations to float stocks at high [stock] prices . . . put them in possession of funds with which to complete contemplated expansion programs” (“Review of Business in 1929,” preliminary, Board of Governors File, box 2461, January 15, 1930, 4).¹⁹⁵ The only negative influence reported at the time was a decline in residential structures. Industrial and commercial building was at a record level. Exports of manufactured goods increased 50 percent for the year, despite the recession in the last four to six months (*ibid.*, 2).

These data suggest that the optimistic projections underlying the rise in stock prices had a factual base. Even after the severe decline at the end of 1929, the Board’s staff described the first six months of 1929 as “the continuation of the steady expansion throughout the year 1928” (*ibid.*, 5). It reported industrial production as 26 percent above the trough in the 1927 recession.

Some questioned or dissented from these optimistic beliefs. Allyn Young warned about deflation early in 1929.¹⁹⁶ Unlike many of his contemporaries who blamed deflation on either a decline in the gold stock or a maldistribution of gold holdings, Young blamed central bank gold hoarding. He saw that central bank policies forced deflation.

Paul Warburg was critical of Federal Reserve policies from a technical perspective. A thoughtful representative of the real bills view, Warburg believed that the Federal Reserve System had serious flaws. He saw the principal flaw as short-term investment in call loans instead of real bills. The problem was that call loans made the banking and financial system depend on the stock exchange. Since call loans could be called daily, a sudden decline in stock prices would weaken the banking system. Warburg favored a secondary reserve against call loans as a temporary expedient and the development of the acceptance market to replace the call market (Warburg 1930, 1:457–58, 501–18).¹⁹⁷

195. The report showed the peak in the index of industrial production in June 1929, up at a 19 percent annual rate for the first six months. Automobile production peaked in April, 67 percent above its 1928 average. Agricultural prices continued to fall in 1929, at a 4.5 percent annual rate from December 1928 to September 1929 (Board of Governors File, box 2461, January 15, 1930, 10–11).

196. Allyn Young was a leading economist of his time. He finished college at seventeen. He was the first American to be president of the Royal Economic Society. He was also president of the American Economic Association and the American Statistical Association. He served as an adviser to President Wilson at the Versailles conference.

197. Warburg (1930, 1:506–7) blamed the Board for “the most anomalous rate structure ever devised by any powerful central bank.” This refers to the refusal to raise the discount rate in 1929. In the annual report of his bank, published in March 1929, Warburg accused the Federal Reserve of “tossing about today without its helm being under the control of its pilots” (*ibid.*, 826). Kindleberger (1986, 96) recognizes that prices were not at extraordinary levels

By the spring of 1929, recession had started abroad. It was probably too late to stop a worldwide recession, but there was ample time to stop the severe deflation that followed. The National Bureau of Economic Research marked a cycle peak in April for Germany and in July for Britain. March was the peak month for production in Belgium; Canada's peak came in the spring. By fall, financial and business failures had increased in Britain, Germany, and elsewhere (Kindleberger 1986, 102–4). The Federal Reserve's production index, available at the time, peaked in June. By October it was 8 percent below the peak. Monthly peaks in the stock markets in the United States, Canada, and France came in September 1929, but markets in Germany, Sweden, and Switzerland reached peaks in 1928, and in Britain the peak came in January 1929¹⁹⁸ (Kindleberger 1986, 110–11, based on League of Nations data).¹⁹⁹

Kindleberger (1986) and Galbraith (1955) propose that causality went from the stock market crash to the economy. Kindleberger wrote: "It is hard to avoid the conclusion that there is something to the conventional wisdom that characterized the crash as the start of a process. . . . The stock market crash is less interesting for the irony it permits the historian, bemused by the fables of greedy men, than the start of a process that took on a dynamic of its own" (116).

Charles O. Hardy, a contemporary observer, was skeptical about arguments of this kind.

In my judgment, the case for the campaign against speculation was weak. It is easy now to see the evidence of over-optimism in the judgment of those who made the stock prices of 1929—though today's appraisals may look just as absurd three years hence. . . . There was no evidence in 1928 or 1929 that business and agriculture were suffering from the competition of the stock market—there was only apprehension that such suffering might ensue. . . .

relative to profits. Like Warburg, he located the problem in the financing on the call money market: "The danger posed by the market was not inherent in the level of prices and turnover so much as in the precarious credit mechanism that supported it." Warburg did not criticize Strong or the Federal Reserve for helping Britain remain on the gold standard. He criticized the failure to promptly reverse policy (raise interest rates). He did not speculate on whether a prompt reversal would have reversed the gold flow.

198. Beckhart (1972, 227) listed as proximate causes of the October decline: reports of smaller corporate earnings, the flooding of the market with new security issues, the rise of London bank rate to 6.5 percent, the Hatry failure in London, and a decline in business activity clearly evident by October.

199. These data suggest that between January 1926 and September 1929, Canada and France experienced a stock market boom greater than in the United States. United States stock prices rose 112 percent, Canadian prices 243 percent, and French prices 156 percent (Kindleberger 1986, 110–11).

There was no evidence in 1928 or 1929 that brokers' loans were too high for safety, except that they were higher than a few years before. (Hardy 1932, 177–78)

Friedman and Schwartz (1963, 306–7) described the stock market crash as partly “a symptom of the underlying forces making for a severe contraction in economic activity. But, partly also, its occurrence must have helped to deepen the contraction.” They suggested tentatively that the decline in velocity and interest rates in 1929–30 was consistent with a desired reduction in spending and the ownership of financial assets and a desired increase in the demand for money. This effect, they said, was dwarfed over the next two years by the decline in the money stock.²⁰⁰

A puzzling aspect of Kindleberger's argument is that the association between falling stock prices and recession differed across countries and time. Kindleberger showed that the stock price index he used for the United States had an initial decline of 28 percent between September 1929 and February 1930. It then recovered 10 percent, with evidence of economic recovery in early spring 1930. The French index dropped by 25 percent between September 1929 and October 1930. France did not experience the severe recession for more than five years. Nor did the United States experience a recession after a similar fall in 1987. The difference in these experiences resulted in part from the policies followed at the time.²⁰¹

Far from being the expansive agent that Miller and others alleged, the Federal Reserve followed a generally deflationary policy from mid-1927 on. Growth of the real value of the monetary base increased briefly in spring 1927, but it reversed quickly. Assistance to Britain produced a modest increase in the fall, but that too reversed quickly. Growth of the real base was negative for more than a year before the stock market crash. Chart 4.5 shows these data. The data suggest that if the Federal Reserve had used the monetary base as an indicator of policy thrust instead of the interest rates or bank credit, it would leave increased monetary growth.

Chart 4.5 shows that monetary growth remained in a narrow range during 1927 to 1929. The same is true of real interest rates; they too remained in a narrow range until summer 1929, then fell after industrial production

200. The decline in the demand for money in 1929 and 1930 is largely consistent with contemporary changes in interest rates and wealth. Annual estimates for these years do not show large residuals. Relatively large residuals are found in 1926 to 1928. See appendix to chapter 5 below and Field 1984.

201. After reading an earlier version of this chapter, Michael Bordo referred me to Sirkin 1975. Sirkin used a valuation model to show that, although individual companies may have been valued optimistically, “the marked overvaluation of stocks was not general” (231).

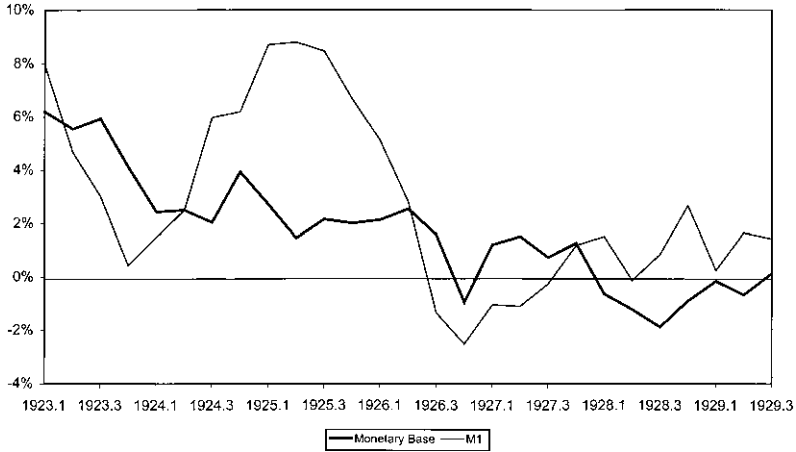


Chart 4.5 Growth of the monetary base and M_1 , 1923-29 (four-quarter moving averages).

peaked and the economy moved toward recession. These data deny that a rise in (ex post) real interest rates ended the stock market boom. Rather, the evidence suggests that deflationary monetary policies in all the gold standard countries induced reductions in output abroad that later spread to the United States and other countries. The stock market responded to the actual and anticipated decline in corporate profits. The fall in stock prices lowered the price of existing capital relative to replacement cost, reducing investment, output, and income and increasing the demand for money. (See Brunner and Meltzer 1968b, 1993.)

POLICY ACTIONS AND EFFECTS

Federal Reserve policy remained deflationary in the 1920s when judged by growth of the nominal monetary base.²⁰² Accelerations of the base were typically short-lived, followed by renewed declines. In the two years ending June 1929, the monetary base fell 2 percent.

Growth of the money supply, M_1 , currency and demand deposits, generally moved with the growth of the base during the years 1927 to 1929. Chart 4.5 above shows these series. Real GNP rose 9.2 percent during these years. Rising output with slow or falling money growth produced deflation.²⁰³ As noted earlier, Balke and Gordon's (1986) GNP deflator started

202. Appendix A shows the statistical relationships discussed in this section.

203. Narrow monetary aggregates such as the base and M_1 are more revealing of the deflationary policy than broader aggregates (M_2) in this period. M_2 rose 3.6 percent in the two years ending in second quarter 1929 (based on quarterly averages) (Friedman and Schwartz 1963, table A-1). One reason for the difference is that, as noted several times, banks encour-

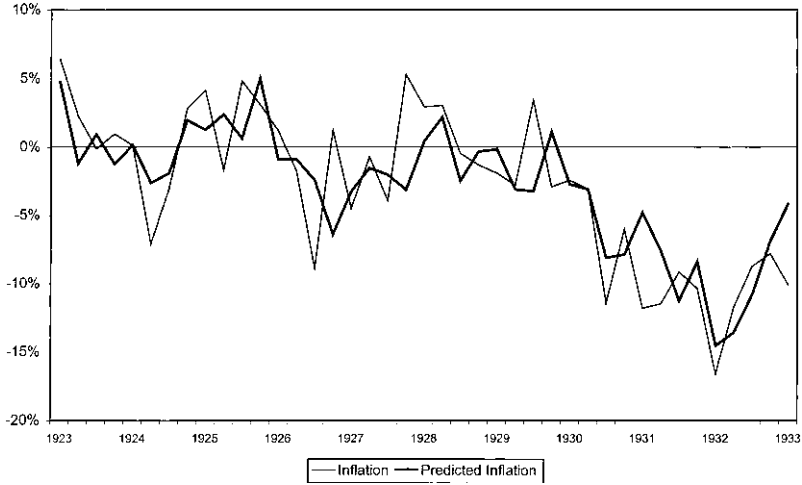


Chart 4.6 Actual inflation versus predicted inflation: Inflation regressed on inflation (-1) and M_1 (-1), 1923–33, quarterly.

to fall in third quarter 1928, five quarters after the local peak in the monetary base.²⁰⁴

Actual and Predicted Inflation

The Federal Reserve was responsible for sterilizing gold inflows and for the deflationary policy in the United States. Chart 4.6 compares predicted and actual inflation, quarterly, from 1916 to 1930. The predictions come from estimates of the response of current inflation to past inflation and past money balances.²⁰⁵

Predicted and actual values generally move together, most notably in the quarters preceding the depression. Actual or measured inflation is much less variable quarterly than in the years after World War I. The data predict deflation or price stability at the end of the decade.

aged depositors to shift from demand to time deposits, reducing the average reserve requirement ratio and permitting bank assets to rise relative to M_1 . I interpret the shift of deposits as a response to the restrictive policy. Banks could not obtain desired reserves from the Federal Reserve, so they “innovated,” sharing some of their gains with their customers by paying higher interest rates on time deposits.

204. GNP data were not available at the time. The Bureau of Labor Statistics (BLS) index of wholesale prices declined also. By 1928 the BLS index was 6.6 percent below its peak in 1925, a larger decline than Balke and Gordon’s (1986) index for the same period. The BLS index declined an additional 1.5 percent in 1929. These data were available at the time and are at times cited in the minutes. The annual rate of change of consumer prices lies between 0 and -3 percent from July 1926 to June 1929.

205. Appendix A reports the equation used for these estimates.

Fiscal Actions

Budget surpluses from 1921 to 1929 averaged 20 percent of tax revenues a year; for 1927 to 1929 the average is 23 percent. These data suggest that the government followed fiscal policies usually described as "restrictive." This characterization ignores the stimulus to enterprise from debt retirement and tax rate reduction. The Treasury retired almost 30 percent of the debt outstanding in 1921 as part of Secretary Mellon's program to reduce the wartime debt. The large surpluses permitted the Mellon Treasury to reduce income tax rates in 1922, 1923, 1924, 1925, 1928, and 1929, the last a temporary reduction. The maximum tax rate on \$1 million or more declined from 66 percent to 23 percent; the rate on incomes of \$2,000 to \$3,000 fell from 2 percent to 0.1 percent.

REORGANIZATION OF THE OPEN MARKET INVESTMENT COMMITTEE

As open market operation increased in importance and discount rate policy declined, the Board lost influence. Control of policy shifted to the five reserve banks represented on the OMIC and particularly to Strong, its chairman. Once Strong left the New York bank, the Board undertook to change the balance of influence.

Miller especially resented Strong's influence, but he was not alone. Other members of the Board, including Young, the Board's governor from 1927 to 1930, also wanted to shift power from the banks to the Board.²⁰⁶

The strength of feeling and, at times, irrational character of the arguments came out in a conversation between Young and Harrison in 1929. Harrison began the conversation by referring to the dispute between Washington and New York over open market purchases after the 1929 market crash. The Board objected to New York's decision to act on its own and, despite the crisis, required New York to stop purchases before it would agree to reduce the discount rate. He soon put the issue into a larger context, warning Young that failure to reach a compromise would have "very serious consequences" for the System. The Board had gradually but steadily restricted the role of the reserve banks by taking "not supervisory powers but the equivalent of operating functions." Harrison cited conflicts over discount policy, acceptance policy, and open market policy to illustrate his point. The Board delayed for months raising discount rates at New York and other banks in 1929, despite repeated requests from the reserve banks and agreement of all reserve bank governors. The Board had increased its

206. Young's view is more surprising because he had been governor at Minneapolis before moving to Washington.

role in setting acceptance rates so much that it was now difficult to make rates effective in the market. The New York directors did not want to be “a rubber stamp.” He recognized that the Board also should not be a rubber stamp. The path they were on would lead to “a central bank operating in Washington” (Harrison Papers, Confidential Memoranda, conversation with Roy Young, November 15, 1929).

Governor Young replied, “I think that is so.” Harrison was surprised at this frank expression. Young continued, “the Federal Reserve Board has been given most extraordinarily wide powers. . . . They would feel free to exercise them and Congress could determine whether they objected to having a central bank operating in Washington.”

The shift of control over open market operations had been under way for more than a year before the conversation between Young and Harrison took place. In August 1928 the Board voted to consider expansion of the OMIC to include all the reserve banks. Miller had long favored a further step, making the Board’s governor chairman of the reconstituted committee (OMIC Minutes, Board of Governors File, box 1437, August 16, 1928). In September the Federal Advisory Council approved a resolution to expand the OMIC to include the twelve governors but did not include any Board members. The resolution called for a five-person executive committee to carry out the policies, thereby reducing any discretionary action by the five members of the original OMIC.

A few days later the Board appointed Miller and Platt to draft a revision of the rules governing the OMIC. Their proposal followed Miller’s 1923 proposal (see above) to replace the OMIC with an Open Market Policy Conference (OMPC), chaired by the governor of the Board, to meet at the call of the Board. Purchases and sales would be made mainly in the acceptance market (*ibid.*, October 30, 1928). The Board approved a slightly weaker proposal for consideration by the Governors Conference. The governors rejected the proposal and called on the Board to keep the 1923 resolution but expand the committee by including all reserve bank governors (*ibid.*, December 3, 1928).

In January 1930 the Board approved a proposal replacing the OMIC with the OMPC, the latter consisting of twelve reserve bank governors. An executive committee could carry out only those decisions of the OMPC “as have been approved” by the Board. Atlanta, St. Louis, Minneapolis, and San Francisco approved the proposal.²⁰⁷ The members of the OMIC—

207. Richmond, Kansas City, and Dallas did not reply by the date of the meeting, so their positions are not included. There were objections also to other sections not discussed in the text. A summary of the responses by Hamlin is part of the minutes of a meeting of the governors (Open Market, Board of Governors File, box 1437, March 24, 1930).

Cleveland, Chicago, Philadelphia, Boston, and New York—either opposed the proposal or opposed the Board's veto power over committee decisions. Chairman Gates McGarran wrote for New York that “they would continue membership on the committee, provided it is not inconsistent with these [their] general views.” Most banks reserved the right to conduct open market operations outside the committee framework, as permitted by law. Only New York reserved the right of any reserve bank to “withdraw from the Committee procedure altogether, if it deems it advisable” (Organization of OMPC, Board of Governors File, box 1437, March 24, 1930). It would soon regret this insistence.

The twelve-member OMPC began operations soon after the meeting. The Board gave way on the issue of control but did not abandon its efforts until the Banking Act of 1935 centralized power and control in Washington.

CONCLUSION

The 1920s began and ended with major recessions. The 1920–21 recession was the first test of Federal Reserve policy in recession. The depth of the recession, the belief that discount policy had not worked as expected, and the political response to higher interest rates encouraged Federal Reserve officials to search for new policy procedures. Suspension of the gold standard abroad reduced the usefulness of the gold reserve ratio as a measure guiding policy action. This too suggested the need for new procedures. By 1923 the Federal Reserve had developed a more activist policy stance. The new procedures seemed successful. Confidence rose in the Federal Reserve's ability to moderate the business cycle and prevent inflation. These hopes or beliefs were reinforced by restoration of gold convertibility, within a gold exchange standard, in all major countries. The recession that began in 1929 destroyed these beliefs.

The new activist policy was supposed to achieve three ends: mitigate business fluctuations, prevent inflation, and restore the international gold standard. From 1923 to 1929 the United States economy experienced growth, with brief recessions and low inflation before 1925 and modest deflation thereafter. The apparent success of postwar policies in achieving the three main objectives and preventing financial panics increased the credibility of policies and the belief that a new more stable era had begun. The rise in United States stock prices relative to earnings in 1926 supports this interpretation.

In retrospect, we know that the years 1923 to 1929 were one of the best periods in the first eighty years of Federal Reserve experience. The good results were not permanent, however. A severe recession began in Europe in 1929. In August, the United States economy followed. The gold standard

also showed signs of strain: Canada left the standard in January 1929; although it continued to maintain a fixed exchange rate against the dollar and the pound, it did not have an official gold price (Bordo and Redish 1988).

The good years could not last. The three aims of Federal Reserve policy were incompatible. As Adolph Miller foresaw, restoration of the gold standard increased the demand for gold; with gold prices fixed in nominal value, commodity prices had to fall. Britain was unwilling to continue the restrictive policies required to lower domestic price and wage levels until they were consistent with its exchange rate and prices abroad. France wanted Britain to increase interest rates and deflate to slow or stop the loss of gold; it was motivated partly by classical gold standard reasoning, partly by its political aim of making Paris a financial center rivaling London and New York. The United States and France drained gold from many of the other gold standard countries, forcing them to contract, but both countries sterilized the gold inflow to prevent domestic inflation. The international system therefore had no way to make an orderly transition by adjusting price levels or exchange rates.

Eichengreen (1992), Clarke (1967), and others attribute the policy failures to insufficient cooperation among central banks. This charge is more true of France than of the United States, but it was not wholly true of either country. The Federal Reserve, principally the New York reserve bank as agent for the System, actively aided Britain and other countries to restore gold convertibility. It lent dollars to Britain and changed domestic policy in 1924 and again in 1927 partly for international purposes—to restore or maintain gold convertibility. These actions were always taken with an understanding, on both sides of the Atlantic, that cooperation would not be allowed to affect domestic inflation. The latter restriction meant that cooperation could not succeed. Exchange rates were misaligned: the pound was overvalued, the franc undervalued. Ruling out inflation in the creditor countries and deflation in Britain left only one course—exchange rate changes—to adjust the system.

The New York reserve bank and its governor, Benjamin Strong, received much criticism at the time and subsequently for lowering interest rates in 1924 and 1927 partly to assist Britain. Although United States prices generally declined, New York's policy was considered inflationary by the financial press, the Federal Reserve Board, and leading members of Congress. Strong was charged with allowing credit expansion based on purchases of government securities. That the price level fell after 1925 did not mute this criticism.

The conflict over policy in 1928 and 1929 was part of the continuing struggle between the Board and the reserve banks and mainly between

New York and Washington. Strong was convinced of the correctness of his policy views and his ability to manage the system. The Board, particularly Adolph Miller, wanted to use the supervisory powers granted in the Federal Reserve Act to gain control of policy decisions. Decisions to change discount rates or purchase and sell remained under the control of the reserve banks, subject to the Board's approval.

The Board wanted to expand its power to approve changes into the power to make changes. By 1929 the System's holding of securities had been reduced to a level too low to be useful. The System had to rely on other policies, but the reserve banks and the Board could not agree on what the policies should be. New York and other reserve banks wanted to raise discount rates. The Board believed that higher rates would penalize industry and trade without deterring stock exchange speculators. It insisted on selective controls implemented by direct pressure or moral suasion and would not approve a 6 percent discount rate.

Disputes were not limited to personal and power conflicts. A main substantive issue was central to the dispute. Miller, other Board members, and several reserve bank governors accepted the real bills doctrine as the only correct guide to policy action. The Federal Reserve Act was written by people who accepted "real bills" and the gold standard as proper guides, so there was a firm legal basis for the positions held by the proponents of real bills.

The central tenet of the real bills doctrine is that increases in credit achieved by discounting real bills finance production and output. Hence credit and output expand together, and there is no inflation. Credit expansion based on government securities (or real estate) is speculative credit. No new production results, so the expansion is inflationary. The proponents of this view disliked open market purchases of government securities. They wanted such purchases to be limited to bills of exchange or banker's acceptances arising from financing trade or production. They might tolerate using open market operations to affect discounts, but not to change the amount of money or credit outstanding.

Strong was the chief spokesman for the opposing view. He did not dispute the importance of discounting. Strong, Warburg, and others wanted an acceptance market, like the British bill market, to replace the call loan market as a short-term credit market. Differences with the Board on these issues were small.

The major difference and substantive source of dispute concerned the ability of a reserve bank to control the volume of credit or money, hence inflation, by limiting discounts to real bills. Strong understood that the collateral offered to the reserve banks had no fixed or logical connection to the

marginal use of bank credit. Banks borrowed in the most efficient way and lent for the most profitable uses. Miller and other Board members, Carter Glass and other members of Congress, and many bankers and economists did not accept this conclusion.

In the early years of the decade, research at the Board and the New York bank uncovered a negative relation between open market operations and member bank discounts. They gave a causal interpretation to the relationship: open market sales caused banks to borrow; open market purchases caused repayments. At times the relation was viewed as one-to-one or dollar-for-dollar. On this interpretation, open market operations could be used to control the volume of member bank borrowing. I have called this relation the Riefler-Burgess doctrine.

The Riefler-Burgess doctrine is ambivalent about the role of the discount rate. At most, it has a supporting role; at worst, it has little supplementary effect. Strong, who used the doctrine as a guide to policy, was ambivalent about the independent effect of discount rate changes.

For a time, the emphasis given to control of discounting at New York fit well with the real bills views in Washington. Conflict was muted as long as the governors used open market operations mainly to force borrowing or repayment of discounts based on real bills. Purchases for other reasons, as in 1924 and 1927, were more contentious.

Strong died in October 1928 and was ill and absent for months before his death. His commanding influence during the 1920s invites speculation about what he might have done in 1929 to reverse the Board's policy. Leslie Rounds, a vice president of the New York bank, conjectured that Strong would have succeeded in raising the discount rate early that year (CHFRS, Rounds, May 2, 1955, 13). If this inference is correct, policy would have been more deflationary at an earlier date. With the open market portfolio at a minimum, raising the discount rate was the only remaining way to reduce borrowing.

In Strong's absence, traditional ambivalence about the power of discount rate changes left New York in a weak position to urge such changes as an alternative to direct action in 1929. New York and other reserve banks nevertheless voted to raise the discount rate to control credit expansion. The Board vetoed all requests for four months in the winter and spring; it insisted on using direct action to control speculative credit by urging banks not to make loans to finance stock exchange purchases.

Political concerns reinforced the Board's desire to hold the discount rate at 5 percent. Higher discount rates in the early twenties had been extremely unpopular in Congress and in agricultural areas. Neither the Board nor the reserve banks wanted to repeat that experience. The Board felt the pressure

directly from members of Congress, many of whom, like Carter Glass, believed that credit was financing speculation, not commerce and agriculture. Higher rates, they believed, would deprive legitimate users of credit without deterring speculators. Miller and other Board members shared this view.

Both sides in this dispute were misled by the rise in interest rates, particularly call money rates, the relatively high volume of discounts, and the growth of loans to finance securities. Based on these indicators, they regarded policy as highly expansive and inflationary. Since they did not distinguish between real and nominal interest rates, they remained unaware that real rates remained above market rates after 1925.

Growth of the monetary base or the money stock tells a different story. These indicators implied that policy was deflationary. In 1920–21, deflationary policy attracted gold imports and raised real money balances, thereby contributing to expansion despite relatively high real interest rates. In 1927–29 the Federal Reserve followed a more activist policy by sterilizing the gold inflow to prevent monetary expansion. Misled by the level of discounts and the growth of borrowing, the System forced further deflation instead of moderating policy to prevent deflation. The evidence suggests that a less restrictive policy that avoided deflation would have ameliorated or possibly prevented the 1929 recession.

Experiences in the 1920s also show that the Federal Reserve was misled by the stock market. A rapid rise in stock market prices does not permit a central bank to distinguish between well-founded anticipations of increased productivity and output growth and mistaken speculation. Rising expenditure and output, with falling prices, suggests that the public reduced desired real balances to buy claims to real assets. If it had given attention to deflation instead of the booming stock market, the Federal Reserve could have recognized the symptoms of an excess demand for money and increased money growth. Or it could have achieved the same result by ending gold sterilization. The latter course would have required similar action by the Bank of France—an end to gold sterilization.

The 1923–29 experience highlights a major flaw in activist policy, a flaw that reappears in many subsequent periods. Increasingly, policy focused on short-term changes, smoothing the money market, gold inflows and outflows, or Treasury operations. These concerns were visible; longer-term considerations were more remote and conjectural. Hence longer-term aims tended to be sacrificed or postponed to satisfy immediate concerns.

The 1929 recession began with the Federal Reserve System divided on personal and substantive issues. With Strong dead, the Board was in a better position to shift power from New York and the other banks to Wash-

ington. The shift of power strengthened Miller and the real bills faction. The financial system entered the Great Depression divided, unprepared to take decisive action, and uncertain whether policy action was useful or desirable to stop economic decline and price deflation.

APPENDIX A: DETERMINANTS OF INFLATION—RELATION OF THE MONETARY BASE AND ITS COMPONENTS

Data are quarterly values at annual rates. The first equation is used in the text. The others are for comparison.

Inflation

Table 4.A1 shows some regressions used to estimate the relation between inflation and money growth for different periods. The text reports on predictions of inflation in the 1920s using quarterly data for 1923 to 1933, regression (1). Regressions (2) and (3) are for comparison. The similarity of the coefficients in equations (2) and (3) suggests that the relation of money to inflation remained the same in the two periods.

Relation of the Monetary Base and Its Components

Chart 4.A1 shows the relation between the monetary base, discounts, gold, and government securities held by the Federal Reserve. The estimates come from a four-variable vector autoregression (VAR) using the following order: discounts, gold stock, monetary base, government securities. Data are monthly from March 1922 to October 1929.

The estimates are based on two lags, eleven seasonal dummy variables, and a constant. Alternative estimates use twelve lags of each of the four variables and no seasonal correction. Main conclusions are the same for both VARs.

The Riefler-Burgess hypothesis specifies a causal relation relating open

Table 4.A1 Regressions for Inflation

	VARIABLE	COEFFICIENT	T-STATISTIC	R ²	DW	PERIOD
(1)	Constant	-0.02	-2.48	0.63	2.36	1923.1-1933.1
	Inflation (-1)	0.44	3.88			
	M ₁ (-1)	0.32	4.19			
(2)	Constant	-0.01	-0.52	0.43	2.28	1915.2-1922.4
	Inflation (-1)	0.31	2.20			
	M ₁ (-1)	0.57	2.98			
(3)	Constant	-0.00	-0.02	0.38	2.26	1923.1-1929.4
	Inflation (-1)	0.29	1.38			
	M ₁ (-1)	0.59	1.92			

Note: Data are quarterly values at annual rates. The first equation is used in the text. The others are for comparison.

market purchases and sales to discounts. Open market operations are said to force banks to borrow or permit them to repay. The VARs find no effect of government securities on discounts. To the extent that there is a relation between the two, the data suggest that Federal Reserve operations responded to higher discounts by selling.

Gold has no significant effect on discounting in the short term and a negative relation after a quarter. Over the longer term, government securities have a modest negative effect on gold. Nevertheless, the variance decomposition (not shown) suggests that past gold movements dominate all other influences on the gold stock.

The monetary base appears to be relatively independent of its asset components. The exception is a longer-term positive effect of gold flows on the base. The short-run response of gold to the base is small and insignificant, suggesting the active program of short-run gold sterilization during these years. Chart 4.2 above shows that the contemporaneous relationship is weak also.

The very weak association between the base and its principal components suggests that the deflationary policy of the period was a consequence of Federal Reserve actions. Over the longer term, the base moved with net gold inflows; for the period as a whole, the gold stock increased by \$650 million, and the monetary base rose \$970 million. These increases were produced by compound average annual growth rates of 2 percent and 1.7 percent, respectively. All of the increase occurred before summer 1927.

APPENDIX B: SOURCES AND USES OF THE MONETARY BASE AND OPEN MARKET OPERATIONS

The basic statement of the Federal Reserve's monetary position is the table Member Bank Reserve, Reserve Bank Credit, and Related Items, published in the *Federal Reserve Bulletin*. The table was developed at the Board in the 1920s by combining the balance sheets of the twelve reserve banks and the monetary accounts of the Treasury. This appendix rearranges these data as sources and uses of the monetary base.

The principal sources of the monetary base are Reserve Bank credit and gold and foreign exchange assets. Under a pure gold standard or a fixed exchange rate system without intervention, gold and foreign exchange are the principal sources of the monetary base. Under a fluctuating rate system, without intervention, gold and foreign exchange is constant. Reserve bank credit is the principal source item.

Other source items are mainly small positive and negative accounts. Historically, the principal positive item here has been treasury currency outstanding, because the Treasury formerly issued currency. During much

Response to One S.D. Innovations ± 2 S.E.

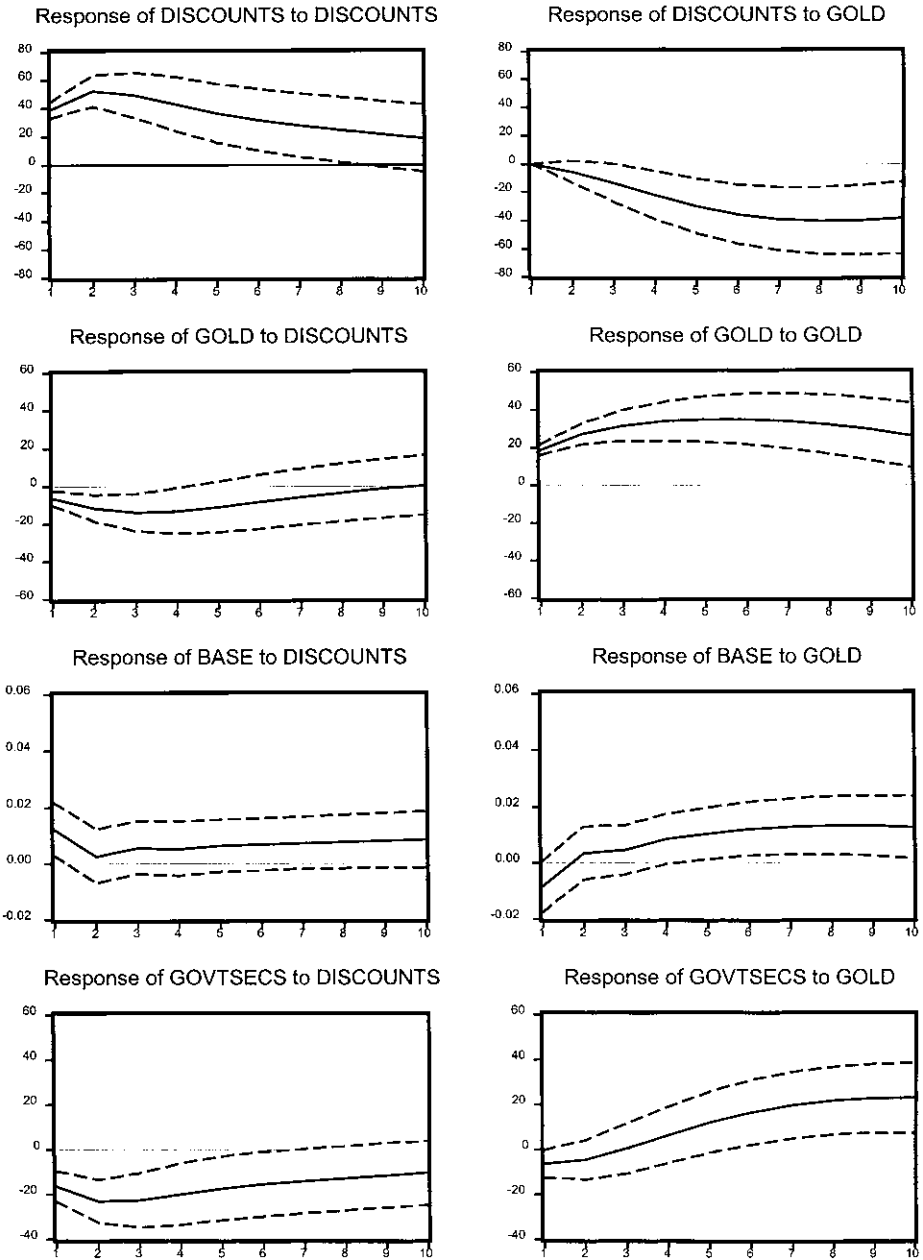
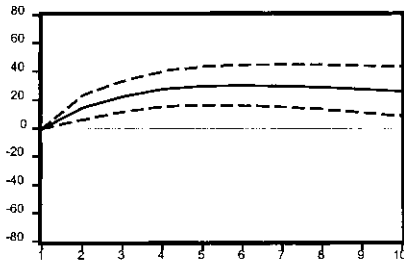


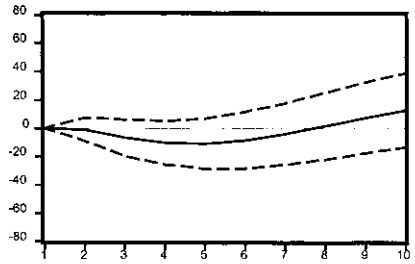
Chart 4A.1 Based on VAR with two lags and eleven seasonal dummies, monthly, March 1922 to October 1929.

Response to One S.D. Innovations ± 2 S.E.

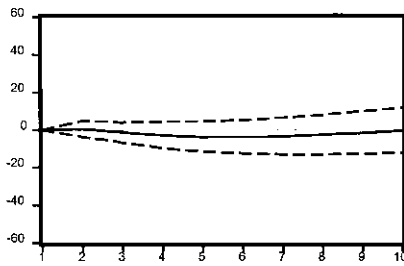
Response of DISCOUNTS to BASE



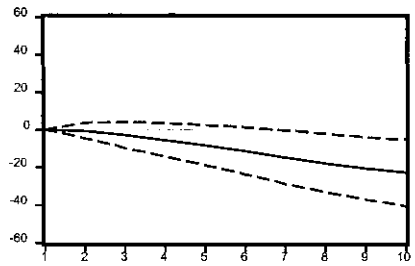
Response of DISCOUNTS to GOVTSECS



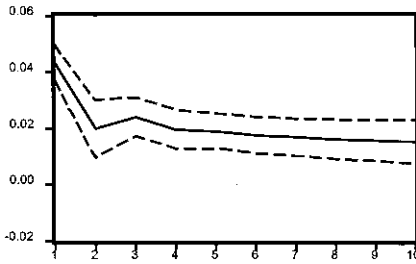
Response of GOLD to BASE



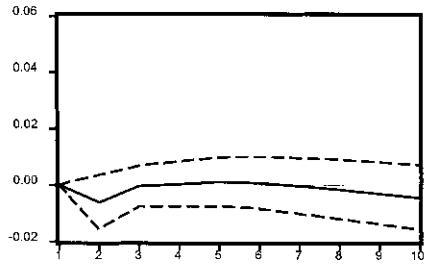
Response of GOLD to GOVTSECS



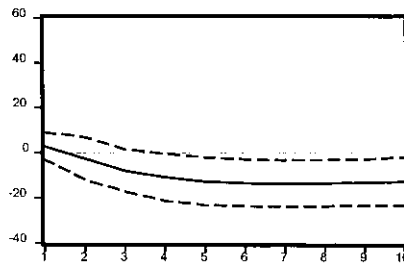
Response of BASE to BASE



Response of BASE to GOVTSECS



Response of GOVTSECS to BASE



Response of GOVTSECS to GOVTSECS

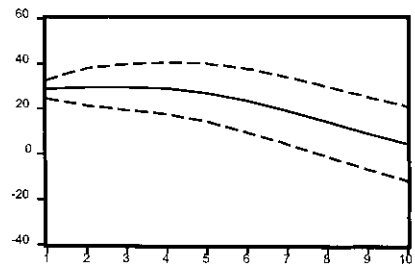


Table 4.A2 Monetary Base (millions of dollars)

SOURCES		USES	
Discounts	465	2,426	Bank Reserves
Acceptances	373	4,498	Currency ^a
Governments	512	6,924	= Monetary base
Reserve bank credit ^b	1,388		
Gold	4,090		
Other items net	1,648		
= Monetary base	6,924		

^aCalled "money in circulation."

^bIncludes additional minor items.

of Federal Reserve history, these were small-denomination notes.²⁰⁸ The principal liabilities here are Treasury deposits with Federal Reserve banks and deposits of foreign governments and central banks.

Reserve bank credit consists of three principal items: bills discounted, bills bought, and United States government securities. The first is usually referred to as discounts and advances. These are made at the option of the member bank, under rules prescribed by the Federal Reserve. The founders of the Federal Reserve believed this item would be the major source of short-term changes. The text refers to "bills bought" as acceptances. The founders intended this source to become an important item and the main source of adjustment and policy operations, as in London. From the 1920s on, its role was taken by the third source—United States government securities.

The uses of the monetary base include member bank reserves and currency held by the nonbank public. Rules permitting member banks to count vault cash as part of reserves add to the base by including currency held by banks as a use of the monetary base.

In January 1928 the statement of sources and use of the monetary base, appeared as in table 4.A2.

An open market purchase of acceptances or government securities increases one of the items on the sources side and balances the increase by adding to member bank reserves. An open market sale of government securities reduces this source and, correspondingly, reduces bank reserves.

By law the Federal Reserve cannot buy securities directly from the Treasury (with some minor exceptions). Open market operations are therefore conducted in the credit markets.

208. For more detail, see Friedman and Schwartz 1970.

Why Did Monetary Policy Fail in the Thirties?

From the peak of the cycle in the summer of 1929 to the bottom of the depression in March 1933, the stock of money—currency and demand deposits—fell by 28 percent and industrial production fell by 50 percent. The sizable declines in the two series merit attention not only because the social consequences of the decline in output were large and pervasive, but because the policies pursued during the period and the justification of them provide considerable evidence about the framework that guided Federal Reserve policy and the response of the Federal Reserve to a crisis.

This chapter gives special attention to the Federal Reserve's response to the contraction, considers some previous explanations of its actions and inaction, and uses the history of the periods and the statements of participants to discriminate among alternative explanations of Federal Reserve behavior. Inevitably, this leads to a central issue about the 1929–33 decline: why the decline was so severe. There is no doubt that early in the decline the Federal Reserve knew a major contraction was under way. Whatever its causes, monetary policy could have lessened the decline. At issue here is why it failed to do so.¹

The chapter does not attempt to resolve the more difficult problem of assessing the relative contribution of nonmonetary factors to the start of the Great Depression. It is now generally accepted that the depth of the depression, its duration, and its spread through the world economy are mainly the result of monetary actions or inactions. Warburton (1966), Friedman and Schwartz (1963), and at an earlier date Currie (1934) high-

1. There are several nonmonetary changes that supplement the monetary forces. The papers in Brunner 1981 discuss many of these explanations.

lighted the role of monetary forces in the United States. More recent work by Eichengreen (1992) and Bernanke (1994) accepts the role of money and concentrates on the international character of the decline and the influence of the international gold standard. Agreement is limited, however. There are several different, and at times conflicting, explanations of the severity of the decline.

DIFFERENT INTERPRETATIONS

Following Bernanke (1994) and Mishkin (1976), several authors have revived a version of Irving Fisher's (1933) debt-deflation explanation of the severity of the Great Depression.² These authors supplement the monetary explanation by highlighting the role of capital market imperfections resulting from differences in borrowers' net worth. Borrowers with relatively low net worth face more restricted opportunities to borrow, so they depend more on banks. As firms' net worth fell during the depression, banks refused additional loans. Also, bank failures removed the principal lenders for businesses with moderate net worth. On this explanation, bank failures contributed to the depression not only by reducing the money stock, as claimed by Currie (1934), Warburton (1966), and Friedman and Schwartz (1963), but by raising the cost and availability of loans more than would have occurred based on the monetary and credit contraction resulting from Federal Reserve policies.

Friedman and Schwartz (1963, 407–19) attributed the Federal Reserve's behavior in the early thirties to the death of Benjamin Strong in 1928 and the shift of power from the Federal Reserve Bank of New York to other parts of the System. George L. Harrison, who replaced Strong as governor of the New York bank, lacked Strong's ability to organize and lead other members of the open market committee. In this interpretation, the period is unique not only because of the severity of the contraction but because the Federal Reserve behaved as it had not behaved earlier and should not be expected to behave again.

In his history of the interwar gold standard, Barry Eichengreen (1992) revived the idea that lack of central bank cooperation, the workings of the interwar gold exchange standard, and the requirement that Federal Reserve notes be backed 40 percent by gold produced and prolonged the decline. Lack of cooperation weakened the operation of the interwar gold standard Eichengreen (1992, 213). Cooperation would have enhanced the credibility of the System by encouraging speculators to believe that gold

2. Calomiris (1993) surveys this literature, and Bernanke (1994) refers explicitly to Fisher's debt-deflation theory.

parities would be defended with the help of foreign central banks (xi, 257, 390). Monetary contraction in the United States and a decline in its international lending in 1928 put unsupportable strain on a fragile system, necessitated contraction in many countries, and “set the stage for the 1929 downturn” (392).³ Gold stocks were most heavily concentrated at the Bank of France and the Federal Reserve, but even these banks “had very limited room for maneuver” (393).

Elmus Wicker (1966, ix, 155, 195) attributed the Federal Reserve’s failure to its incomplete understanding of how monetary policy influenced economic activity and the price level. The Federal Reserve Board and the governors of the reserve banks were confused and misled by their interpretation of the events they watched. Power within the System was so diffused that leadership from New York or Washington was not possible (195). Even if there had been strong leadership, the uniqueness of the events of 1932 and 1933 immobilized the policymakers.

Wicker argues that Federal Reserve policy in 1929–33 was consistent with its actions in the 1923–24 and 1926–27 recessions. The Federal Reserve followed the practices laid down by Governor Benjamin Strong: use open market operations to reduce member bank borrowing below \$500 million and reduce borrowing by New York banks commensurately. Once this was done, policy would be “easy.” Wicker added that international cooperation motivated open market purchases in 1924 and 1927, specifically to help Britain return to and remain on the gold standard.

A problem with some of these explanations is that the Federal Reserve was not entirely passive for the three and a half years of the decline. More than once it purchased securities or lowered the rediscount rate. It actively responded to events such as the departure of Britain from the gold standard in October 1931 by raising the rediscount rate to stem a gold outflow, as gold standard rules required. Although disputes persisted about the locus of power within the System and there were clashes between personalities, these are overtones that do not adequately explain the dismal record. If the crisis was largely due to an absence of leadership, more effective action would have been taken later, after the System reorganized, given additional authority and a strong chairman. But in the middle and late thirties, just as in the early thirties, the Federal Reserve did next to nothing to foster recovery. In a period of prolonged and widespread unemployment,

3. Clarke (1967) surveys experience with central bank cooperation in the interwar period. Clarke too concludes that cooperation failed after 1928, but he describes the failure differently. “The failure stemmed not so much from the deficiencies of central bank cooperation itself as from the inability of the authorities—including particularly those in the United States—to manage their domestic economies successfully” (220).

the Federal Reserve's principal policy action was the 1937–38 series of deflationary and contractive increases in reserve requirement ratios taken to forestall a possible future inflation.

Although Friedman and Schwartz offered an interpretive history based on what might have happened if Governor Strong had lived, a main point of their explanation is of doubtful validity. It is true that W. Randolph Burgess, and others at the New York bank, proposed expansive policies, and at times Harrison suggested purchases. In fact, Harrison argued vigorously for open market purchases at times, but at other times he was a leading proponent of open market sales. The timing of Harrison's decisions to purchase or sell can be explained (approximately) by the conjunction of the Riefler-Burgess and real bills doctrines. These ideas or beliefs misled Harrison and others in the Federal Reserve at critical points in the early thirties and thereafter. As noted by Wicker (1966), Brunner and Meltzer (1968b), and Wheelock (1990, 1992), Federal Reserve officials behaved consistently in the 1923–24, 1926–27, and 1929–33 declines.⁴

The difficult issue to resolve is whether Strong's colleagues on the Open Market Policy Conference (OMPC) would have supported expansive policies had he proposed them.⁵ Many of his fellow governors had been persuaded to go along but were not convinced that his arguments were correct in 1924 and 1927. Moreover, member bank borrowing remained high in 1924 and 1927, so domestic concerns (and the desire for earnings) reinforced international reasons for purchasing government securities. During most of 1929–33, member bank borrowing remained low; on Riefler-Burgess views, domestic policy was easy. Further, Adolph Miller and others at the Board blamed Strong's policies for the depression. They interpreted the depression as the inevitable consequence of the preceding growth of bank credit and asset prices that followed the 1927 policy actions Strong had urged. Because credit expansion had increased without equivalent purchases of real bills, this policy was inflationary. Deflationary policy should have followed in 1928. That mistake had to be corrected.

Several governors agreed with this interpretation. Although the price

4. Wheelock (1990) estimates an equation for borrowing by member banks. He shows that increases in nonborrowed reserves, (through gold inflows or Federal Reserve purchases) reduce borrowing, but the reduction is approximately 0.5, not 1 as in Riefler-Burgess. See also the appendix A to chapter 4.

5. Strong was more persuasive than Harrison and more convinced by the logic of his arguments. Harrison seems more of a diplomat, without strongly held views. Moreover, the OMPC included all twelve governors instead of the five members that Strong dealt with. A serious problem, discussed below, was that Harrison could not persuade the Boston and Chicago reserve banks to participate in open market purchases.

level had fallen, Strong's policy had violated the rules of the real bills doctrine. The violation had to be purged.⁶

Eichengreen's claim that the gold standard prevented action is difficult to reconcile with the System's responses in the 1923–24 and 1926–27 recessions. These actions had received praise at the time and encouraged the belief that the System had taken countercyclical action to lessen the downturn. If the Federal Reserve had risked the temporary loss of gold on these occasions, why would it fail to run the same risk in the much steeper decline after August 1929?

The Federal Reserve was in no danger of abrogating its gold reserve requirements in 1929, 1930, or early 1931. In fact, the System experienced a gold inflow in 1930 and early 1931. By June 1931, the monetary gold stock was almost 15 percent above the August 1929 level, whereas gold collateral required for notes had increased no more than 2 percent and collateral for bank reserves had increased only \$40 million—less than 2 percent.

Eichengreen (1992, 297–98) accepts the argument in the Federal Reserve's 1932 annual report that its response in 1931 was limited by the decline in the gold stock and the requirement to use gold as backing for Federal Reserve notes, the so-called free gold problem.⁷ Although there is some dispute about the relevance of the problem, any relevance is limited to the period following Britain's departure from gold on September 20, 1931, and the passage of the Glass-Steagall Act on February 27, 1932. During the rest of the decline, gold cover for the notes was not an issue.⁸ The

6. The same reasoning applied to wartime inflation. Wartime inflation had to be followed by deflation, and it was until World War II.

7. Federal Reserve notes were backed by a minimum of 40 percent in gold. Eligible paper made up the remainder. The decline in eligible paper at the Federal Reserve required the reserve banks to substitute gold for eligible paper. Government securities could not be used as collateral until the passage of the Glass-Steagall Act in February 1932. All notes issued, including notes held at other Federal Reserve banks, required gold and eligible paper as backing. The collateral requirements applied to each reserve bank separately, so the distribution of notes and gold affected free gold—the gold that was not used as collateral for notes and deposits at reserve banks. Friedman and Schwartz (1963, 400–404) argue that free gold was never a problem and suggest several ways any problem could have been relieved. For example, the reserve banks could have lowered the acceptance rate to acquire eligible paper and free gold for expansion of the note issue.

8. The *Federal Reserve Bulletin* for 1932 shows notes outstanding and collateral for each reserve bank on February 28, 1932. Gold was used as collateral for 71 percent of the total note issue. Chicago was at the extreme position with 88 percent gold and 14 percent commercial paper. The largest issuer, New York, had 75 percent gold and 25 percent commercial paper. The third largest bank, Cleveland, had 63 percent gold and 40 percent commercial paper. Open market purchases could have been made by the banks with sufficient gold to issue notes. Since there was no requirement at the time for all reserve banks to participate in an open market purchase, some abstained at times.

Federal Reserve did not use government securities as collateral for notes until May 1932, after increasing its holdings of governments more than \$650 million between February and May.

Stripped of its technical details, the free gold explanation asserts that System open market purchases would have reduced the ratio of gold to notes and deposits below the required ratios of 40 percent and 35 percent. Technical restrictions seem a weak explanation for the lack of response. Bagehot's well-known writings had instructed the Bank of England that it could not protect its gold reserve by failing to expand. On several occasions in the nineteenth century, the Bank of England had suspended the gold reserve requirement and relaxed restrictions on eligible paper for discounts when required to stop a panic. When necessary, the government had indemnified the bank against claims arising as a result of the suspension. This history was known within the Federal Reserve and referred to on more than one occasion.

Charles S. Hamlin, a member of the Federal Reserve Board from 1914 to 1936, discussed the loss of gold at a meeting in Boston on November 20, 1931, two months after Britain had suspended convertibility (Federal Reserve Bank of Boston 1931, 13–16). Hamlin began by summarizing the main movements of gold into and out of the United States since 1914. He described the \$750 million outflow from September 17 to October 30, 1931, as “the largest ever sustained by any country in such a short space of time” (15). Nevertheless, the Federal Reserve, he said, held more than \$1 billion of gold reserves above the amounts required for Federal Reserve notes and member bank balances. Then he added: “In addition, there is about \$1,000,000,000 in gold certificates in circulation in this country, a considerable part of which could if desired be replaced with other forms of currency. We not only have ample gold to cover the legal requirements but our monetary gold stocks, even after the heavy withdrawals, are only slightly below the prosperous years of 1928 and 1929” (16).

Hamlin next commented on the reason for protecting the gold reserve: “The experience of recent weeks brings home to Federal Reserve officials their heavy responsibility, the necessity for *keeping their powder dry*, so that in these troublous times they may remain the rock that can withstand all storms and upon which world confidence may once more be reconstructed” (ibid.; emphasis added).⁹

Eichengreen correctly points out that before and during the world economic decline, France contributed to the onset and the severity of the

9. Eichengreen's figure 4.4 (1992, 119) shows that free gold in late 1931 remained well above the levels of 1920–21. Bordo (1994) notes that Eichengreen misstates the amount of open market operations necessary to restore the money stock.

world depression by sterilizing much of its gold inflow. From June 1928 to September 1929, the French bought \$2.6 billion in gold and, in the same period, reduced their foreign exchange reserves by an equal amount.¹⁰ From September 1929 to March 1933, the Bank of France acquired an additional \$1.6 billion in gold while reducing foreign exchange reserves by \$800 million. For the period September 1928 to March 1933 as a whole, French gold reserves increased by 2.8 times while French holdings of gold and foreign exchange increased only 30 percent.

The French money stock rose 18 percent in the two years 1930 and 1931. Greater expansion and less sterilization by the Bank of France would have lessened the severity and scope of the world decline. At issue is whether the failure to expand more resulted from a lack of coordination. The Bank of France was not obliged to sterilize much of the gold inflow. The United States was not obliged to contract as France sterilized.

The critical flaw was not the absence of international coordination but domestic decisions at critical times to not interfere with the contraction of money and credit and the resulting deflation. Protecting the United States gold reserve was at most a secondary effect of the principal decision. Leading central bankers and their advisers believed that credit expansion to finance stock market speculation in 1928–29 was a misuse of credit that had to be eliminated. Bankers, economists, and others stated this view repeatedly during the contraction.

Writing at the time, Oliver M. W. Sprague explicitly rejected both the idea that monetary expansion was desirable and the idea that absence of international cooperation contributed to or exacerbated the depression. Sprague was an expert on banking crises and a close adviser to the Federal Reserve. He also served as economic adviser to the Bank of England from 1930 to 1933.¹¹ In a May 1931 speech in London, Sprague discussed the causes of the depression and the role of international coordination (Board of Governors of the Federal Reserve System, *Weekly Review of Periodicals*, June 2, 1931, 1–2).¹² He began by noting that the depression had become more acute. There was no agreement on its causes or on appropriate reme-

10. Data on French gold stocks and reserves are from *Banking and Monetary Statistics* (Board of Governors of the Federal Reserve System 1943, 641–42). Data are converted from francs to dollars using 3.92 francs per dollar. Sterilization of the gold inflow was similar to the policy followed by the Federal Reserve in 1921–22. See Strong 1927.

11. Sprague was a professor at Harvard from 1913 to 1941. He had written an influential study for the National Monetary Commission and was active in policy discussions throughout his career.

12. The Federal Reserve staff prepared a summary of press discussion. It included the *Economist*, other financial journals, market letters, and foreign and domestic newspapers. The 1931 *Weekly Reviews* are available in the Widener Library at Harvard.

dies. He summarized two divergent views. The “monetary school” wanted the leading central banks to “flood the market with a great amount of additional credit and currency.” The “industrial or economic equilibrium school included all the responsible [*sic*] people connected with the great central banks of the world.” This school held that falling prices were a symptom, not a cause: “When prices did advance, more currency and credit would be employed, but they did not believe that simply by injecting more currency and credit into the situation they could certainly bring about the desirable rise in prices and business activity.”

The problem was not lack of agreement between the principal central bankers: “It was not because of any difficulty of securing agreement among the three banks, (France, U.K., U.S.) but because none of them harbored the belief that it was the appropriate remedy” (*ibid.*, 1–2).

Sprague, like the central bankers in France, England, and the United States that he described, accepted the “industrial equilibrium” explanation. The world’s economies would reach a new equilibrium at lower prices and wages. It would take time, they recognized, but they believed deflation was the correct solution to the mistakes of 1928–29.

In a speech to the Royal Statistical Society a few weeks later, Sprague explained why the deflationary solution was proper. There had been overproduction particularly in the American automobile industry. Further, there had been a speculative boom. He blamed Federal Reserve policy in 1928, when it would have been “possible to check the speculative wave on the New York Stock Exchange” (*Weekly Review*, June 24, 1931, 1).

Paul Warburg wrote in the *American Banker* for January 20, 1931, “The way to avoid a depression (or lessen its severity and duration) is to ‘sit on the bulge’ during an excessive upward swing. Once acute over-expansion has taken place, acute overcontraction must follow with inexorable certainty. Unfortunately, it would seem politically impossible for any government to use its influence toward checking a wave of prosperity, even though it was clearly a fake prosperity destined to end in a crash” (*Weekly Review*, January 27, 1931, 5).

These were not the only views, but they were common views of central bankers. M. H. deKock of the South African Reserve Bank thought that the “maintenance of pronounced monetary ease for any length of time almost inevitably leads to inflation and speculation in one form or another” (*Weekly Review*, February 3, 1931). In the same report, the noted British economist Lionel Robbins argued against the view that there was a worldwide shortage of gold. Like most others, he failed to distinguish between real and nominal interest rates: “If insufficiency of gold is the main cause of depression, why is there a depression in America. And with a 2 percent

discount rate in New York, it is hard to contend that credit conditions are stringent” (2–3).

Robbins also mentioned the maldistribution of the gold stock, a common complaint at the time. However, he assigned more importance to the unhealthy character of the boom in 1928. Money rates had been held too low for too long.¹³

Charles S. Hamlin shared the view that speculative excesses had to be purged from the financial system and the economy. On November 8, 1929, shortly after the 1929 stock market break, he told a group of New England bankers:

The present crisis through which we are passing is typical of the kind of crisis that the framers of the Federal Reserve Act had in mind. The Act was designed to prevent the close dependence or interdependence of American industry upon speculative activity throughout the community. . . . The Federal Reserve System was designed to break up the vicious circle under which a speculative orgy accompanied every forward step of industry. . . .

The success of the Federal Reserve System is apparent today. . . . These events [losses] are deplorable, but they were of course inevitable and could not have been avoided. (Federal Reserve Bank of Boston 1929, 28)

The opinions of bankers and central bankers at the time are similar to the statement of Federal Reserve policy in the tenth annual report (Board of Governors of the Federal Reserve System, *Annual Report*, 1923). As Friedman and Schwartz note, the statement was compatible with two interpretations. One, the “real bills” or “productive credit” view of policy, required the Federal Reserve to provide “credit” for the “needs of trade” but not for “speculative” uses. The second interpretation is that the Federal Reserve would attempt to counteract inflation and deflation by counter-cyclical open market operations.

Only the first interpretation, the real bills view, appears in the minutes of the Open Market Policy Conference for the early thirties and in the statements of bankers and central bankers above. It is possible that the references to statements in the tenth annual report were made to justify views that were held for other reasons. Even if this was true, however, it is striking that none of the governors objected to the interpretation or presented an alternative. Even more striking is the absence, at most of the meetings of the OMPC, of any statement favoring an expansive policy. Even those

13. J. M. Keynes is quoted in the February 3, 1931, *Weekly Review* as opposing reductions in money wages. Keynes blamed low investment, which he attributed to uncertainty, high interest rates, high-risk premiums, and borrowers’ fears. Keynes also noted that falling prices increased the burden of outstanding debts.

governors who occasionally pressed for open market purchases and reductions in the discount rate expressed doubt that monetary (or credit) policy *alone* would have much effect on output. They too appear to have been greatly influenced by the notion that the prevalence of low nominal interest rates and low borrowing showed that policy was “easy.”

Benjamin Strong shared many of these interpretations. He often relied on the volume of member bank borrowing as a measure of ease or restraint.¹⁴ Nothing in either the Riefler-Burgess doctrine or the real bills doctrine distinguished between real and nominal rates of interest or recognized that the level of borrowing depends on anticipated income and inflation.

The minutes of the Open Market Investment Committee, the Federal Reserve Board, and the Conference of Governors of the Reserve Banks, considered below, show that most of the policy decisions remained consistent with the Riefler-Burgess and real bills frameworks. This should not suggest that everyone slavishly followed a formula. Many other inherited notions, mentioned in the minutes, contributed to the Federal Reserve’s failure to act or justified inaction. Concerns about “redundant reserves” or “excessive liquidity in the banking system” are variations on the real bills theme but may have other origins. Whatever the source of these ideas, many of the policymakers opposed expansive policy action because they believed that expansive action was inappropriate. Concern about future inflation caused several governors to hesitate to act, to regard deflation as the inevitable consequence of previous speculative excesses, for much the same reasons that Strong and others had viewed the severe deflation of 1920–21 as a consequence of inflationary wartime policies and a necessary prelude to the price stability of the middle twenties. Speculative credit and nonreal bills had to be purged. This was the message of Hamlin, Warburg, Robbins, Sprague, and many other bankers and central bankers.

Once borrowing and short-term market rates had fallen below the range familiar to governors and commercial bankers, policy was “easy.”¹⁵ They saw no reason for further additions to reserves and further reductions in market rates. Expansive policy would finance speculative credit and become the source of a future inflation that, once under way, would be diffi-

14. “As a guide to the timing and extent of any purchase which might appear desirable, one of our best guides would be the amount of borrowing by member banks” quoted in Chandler 1958, 239–40.

15. The range usually mentioned for the United States was aggregate member bank borrowing of \$500 million to \$600 million in recession. During the deflation after 1870, the Bank of England never adjusted the discount rate to prevent continued deflation once the discount rate reached 2 percent.

cult to stop. The System's holdings of government securities were much smaller than the level of member bank borrowing during much of the twenties and were not substantially larger than the level of borrowings in the early thirties. Not having enough securities on hand to prevent a future inflation had been a recurring concern since the start of the Federal Reserve System. The concern seems a ludicrous reason for not expanding, but it appeared very real to several of the governors at the time. Since nominal interest rates had been reduced to levels that were comparatively low by the historical standards or experience the governors and members relied on, they saw little reason to increase speculative credit and accept the risk of inflation.

Some officials either did not fully share the dominant view or differed about particular events. At times some showed clear understanding of the role the System might play, although they did little to promote their views against the dominant view in the System. Included in this group are two members of the Federal Reserve Board—Eugene Meyer and Adolph Miller—who at times questioned Harrison and the other members of the open market committee about their reasons for not pursuing a more expansive policy. W. Randolph Burgess at the Federal Reserve Bank of New York urged more expansive policies at critical times, with support from the directors of the New York bank.

The policy problems of the early thirties were not unique. Books discussing the appropriate means of handling these problems were known to some of the members of the open market committee or their staffs. The effect of changes in the quantity of money had been discussed for more than a century, and many outstanding economists had contributed to the analysis. Some, like Henry Thornton (1965) and Walter Bagehot (1962), whose works are discussed in chapter 2, had described the appropriate response of a central bank to a crisis. Both Thornton and Bagehot suggested some of the principal reasons for large-scale currency withdrawals, and both had indicated that during a currency drain the central bank should expand.

Three of Thornton's recommendations to the Bank of England are particularly relevant to—and contrast sharply with—the behavior of the Federal Reserve during the thirties. First, he argued repeatedly that there was rarely any reason for reducing the quantity of money (Thornton 1965, 259). Second, he urged the governors of the bank to meet an increase in the demand for currency by temporarily increasing the bank's liabilities (259). Third, he recommended that the bank use the quantity of money—and not the volume of commercial bank borrowing from the central bank or of private borrowing from commercial banks—as a measure of its policy and the influence it would have on prices and output (271).

It is possible, but unlikely, that Thornton's work was entirely unknown.¹⁶ However, there is no doubt that officials knew Bagehot's work, since references to his book, *Lombard Street*, appear in the OMPC minutes. Bagehot had demanded repeatedly that the Bank of England acknowledge publicly that it served as lender of last resort, and subsequently the bank had done so. And Bagehot had discussed fully why it was a mistake for a central bank to seek to protect its gold reserve by failing to lend during a run on commercial banks.

Numerous other writers had analyzed the effects of changes in the quantity of money and the responsibilities of central banks in a crisis. Two of the most able monetary economists of all time, Irving Fisher (1920, esp. chap. 4) and John Maynard Keynes (1930, 1931), had argued in scholarly books, in pamphlets, and in newspaper articles of the period that a decline in the quantity of money would first affect the level of output and employment and only later affect the price level.¹⁷ Neither the absence of relatively simple, comprehensible alternative theories, nor the absence of facts about developments in the economy, nor the absence of strong leadership can explain the dismal record. The main reason for the failure of monetary policy in the depression was the reliance on an inappropriate set of beliefs about speculative excesses and real bills. This set of beliefs, embodied in the Riefler-Burgess framework, directed attention to short-term market interest rates and member bank borrowing and encouraged their use as indicators of the magnitude and direction of monetary stimulus.

THE FIRST YEAR OF DECLINE: POLICY FROM AUGUST 1929 TO SEPTEMBER 1930

To show how policy responded to the economic decline, the discussion comments on each meeting of the Open Market Investment Committee and its successor the Open Market Policy Conference, or their executive committees, between the peak of the expansion in August 1929 and the trough of the recession in March 1933. A series of twenty tables shows some of the information available at each meeting. Three types of data suggest the direction of monetary policy and the levels or changes in other variables that the committee discussed from time to time at its meetings or that influenced its decisions. One type of data shows cumulative change from the peak of the expansion to the nearest month. A second type, called

16. Jacob Viner, a distinguished economist of the period, had paid considerable attention to Thornton's work. See Viner 1924.

17. In the *Treatise*, Keynes argued for sizable open market operations in the United States. See Keynes 1931, 2:371–74 and 304–37. Charles Rist (1940, 404–6) points out that by 1840 the Bank of France had recognized the responsibility of a central bank to act as lender of last resort.

“recent changes,” shows the change in various measures between meetings. The third group shows the levels of variables that are of interest, again dated to the nearest month.¹⁸ Data for the money supply were not available at the time, but currency and demand deposits were available separately.

Responses to the Financial Panic

At the peak of the cycle in August 1929, the level of member bank borrowing exceeded \$1 billion, the highest level reached since 1921. The interest rate on new stock exchange call loans was 8.15 percent, more than 1.5 percent below the high for the year in March. Other short-term market rates had passed their peak, while long-term rates were generally at the highest levels of the expansion. The seasonally adjusted monetary base was 1 percent below the peak reached more than a year earlier.

In the first six weeks the policy, agreed on in August, worked as planned; the System provided seasonal credit expansion by lowering the acceptance rate while raising the discount rate. Harrison told the Board that the total seasonal increase was about average. The acceptance portfolio increased \$162 million, more than offsetting the \$130 million decline in discounts. In addition the System purchased \$20 million in the open market. Harrison asked for an OMIC meeting in September to consider open market purchases to supplement acceptance purchases (Board of Governors File, box 1435, November 12, 1929; these are minutes of the September meeting).

Brokers' loans continued to increase. Banks used all the reserves obtained from sales of acceptances to the reserve banks to repay discounts, so total bank credit remained unchanged. Interest rates changed little.¹⁹

18. Most of the data are taken from *Banking and Monetary Statistics* (Board of Governors of the Federal Reserve System 1943). An index of industrial production is available in the *Federal Reserve Bulletins* at the time, but I have used the revised index of industrial production from *Industrial Production 1957-59 Base* (Board of Governors of the Federal Reserve System [1962?], 5-149). These data are seasonally adjusted. Data on money supply are from Friedman and Schwartz 1963. The money supply is the sum of currency and demand deposits of the public. The monetary base is from Anderson and Rasche 1999. The base is the sum of total currency and reserves outstanding adjusted for changes in reserve requirement ratios. In addition to the changes in the monetary base, I present data on changes in some of the principal sources of the base: changes in government securities held in the Federal Reserve portfolio, changes in bills bought (acceptances), and changes in the gold stock. These data are from *Banking and Monetary Statistics*. Data on wholesale prices are from various issues of the *Federal Reserve Bulletin* for the period. Other data that were available regularly include department store sales and inventories, money rates abroad, and a breakdown of member bank loans and investments. See data sources, pp. 761-64.

19. The report notes that England continued to lose gold reserves to France and Germany. Pressure from high rates “is becoming constantly more intense and is tending to retard industrial and business developments” (Open Market, Board of Governors File, box 1435, November 12, 1929, 7). The report (written for the September 24 meeting) also notes a more than seasonal drop in exports and declines in several basic industries.

At the September 24 meeting, the governors expressed concern about the levels of discounts and rates of interest. To reduce both while acting against an impending recession, the committee voted to purchase up to \$25 million of government securities weekly, if acceptances could not be obtained at the posted buying rates of 5.125 percent. When presenting the proposal to the Board, Harrison, the chairman of the OMIC, noted that "some reduction in this [member bank] indebtedness would be a necessary prerequisite to any further easing of interest rates," as implied by Riefler-Burgess. The Board delayed accepting the proposal until its members returned from vacation. On September 30 Harrison wrote to Governor Roy A. Young at the Board to report the favorable response of the New York directors to the purchase program and again stressed the importance of reducing interest rates.

The Board approved the committee's recommendations on October 1. In his reply to Harrison, however, Young noted that the Board's approval was mainly for seasonal reasons, not a reversal of prevailing policy. There was no suggestion in the monetary indicators the Board and the committee watched, and no recognition in their discussions or letters, that the financial system was about to experience the first of a series of shocks in the following weeks. The committee made no open market purchases until the week of October 30.

The indexes of prices on the New York Stock Exchange reached peaks in September and plummeted in the last week of October. The Federal Reserve lowered the buying rate on banker's acceptances by 0.125 percent (to 5 percent) on October 25. By October 28, with the decline on the stock exchange continuing, the members of the Board were of the opinion that "no further easing of the bill rate should be made at this time as the easing program of the system seems to be progressing satisfactorily." The next day the market plunged downward on volume in excess of 16 million shares, nearly five times the average daily volume.

The following day Governor Young reported on his conversation with Harrison. Harrison informed him that the directors of the New York bank had given him authority to purchase government securities for the bank's account without any stated limit, and he had used this authority to purchase \$50 million. Inasmuch as the purchases had been completed, Young concluded: "There was nothing before the Board at that time requiring immediate action."

The Board was piqued at Harrison and the New York bank for undertaking purchases without prior approval (as was customary), but decided to defer discussion of Harrison's assumption of responsibility until later. Instead, the discussion turned to action that "might appropriately [*sic*] be

taken." Cunningham suggested, and the majority agreed, that it would be best to reduce the discount rate at the New York Bank from 6 to 5 percent, "with the understanding that the System will suspend, for the time being, any purchases of government securities, pending further developments in the credit situation as a result of the rate reduction, and further consideration and approval by the Federal Reserve Board."

Harrison then called to inform the Board that he had purchased an additional \$65 million, a total of \$115 million for the day. There was no further discussion of policy at the Board meeting.

On the following day, October 30, Young reported to the Board on his conversations with Harrison and James B. McDougal (Chicago). Young's position was classical; the System should encourage discounting by member banks, and he had told McDougal that "while he could not commit his board, he thought loans should be made freely and liberally." The conversation with Harrison had apparently been lengthy, owing to a difference of opinion between New York and Washington on the policy that was appropriate for the day. Harrison informed Young that he was planning further purchases of securities. Young reported to the Board that he had advised Harrison that further purchases would "probably lead to the eventual promulgation of a regulation on the subject" by the Board.

The difference of opinion between New York and Washington was another round in the dispute about who had responsibility for decisions. Young reported that he had "advised Governor Harrison that he would not hesitate about lending to a member bank." He told the Board that "he would go farther and purchase government securities liberally using any resource that the System has in an attempt to minimize the effects of conditions that may develop." Other members of the Board—Edmund Platt, Hamlin, and Miller—agreed with Young's position and urged him to communicate these views to the reserve banks.

Young informed Harrison on October 31 that the Board was in favor of reducing the discount rate at New York from 6 to 5 percent and that the "majority appeared to have changed their views with respect to coupling the reduction in the discount rate with an agreement to suspend purchases of government securities for the time being, feeling that the Federal Reserve banks should be prepared to pursue a liberal policy."

The positions now reversed. Banks had reduced their discounts by more than \$150 billion since the cyclic peak. The gold stock had increased, and banks continued to lend on commercial paper, real bills, with only modest changes in interest rates. Harrison told the Board that he had made no purchases on October 30, that he did not plan to make any purchases that day, and that he could see no reason for additional purchases, "although it

might become necessary to take on additional amounts later." His directors had adopted a resolution, unanimously, "that, in the interest of maintaining business and employment, the policy . . . for the coming weeks should be to keep a plentiful supply of money in the market . . . in order that discounts of the Federal Reserve System may be reduced and at the proper time a further reduction of the discount rate effected with the objective of securing lower interest rates for business throughout the country."

The prompt and rapid response by the New York bank undoubtedly prevented the rapid decline in stock prices from affecting interest rates in the money market. The monthly data show a slight rise in the interest rates on short-term Treasury notes and longer-term corporate bonds and a substantial decline in the rate charged for new stock exchange call loans. Weekly data on open market rates for the last week of October 1929 show a slight rise in the rate on new stock exchange call loans and a decline in other quoted market rates. Commercial banks in New York made the largest volume of new loans to brokers and dealers shown in any week up to that time and offset to a large extent the reduction in call loans by banks outside New York. Although the average of daily figures in table 5.2 shows the Federal Reserve as a net seller of government securities for the month as a whole, the System purchased \$157 million of government securities during the last week of the month, more than doubling the size of its portfolio of governments. In addition, the discounts of member banks with the System increased by \$200 million for the week.

Although the Board was in favor of continuing the policy Harrison had started, the committee made no purchases in the following week. On November 1, New York reduced its discount rate to 5 percent and also reduced the buying rate on banker's acceptances. The monetary base declined by \$50 million, almost one-sixth of the increase in the previous week. Open market rates changed very little, and both the market and the System appear to have decided that the crisis had passed. The Board did not press New York to make further purchases. During the rest of 1929, the Board met almost every day, generally discussed routine matters, and rarely mentioned open market policy.

The Board's minutes for the week of the crisis make it clear that the members were slower than the New York bank to recognize the desirability of large-scale open market purchases. But the lag, or delay, was at most two days. By October 31, Governor Young and most of the Board members wanted further purchases to offset rising discounts, while Harrison and the directors of the New York bank, knowing that the panic had not affected the money market, favored a less aggressive approach.

Part of the dispute about whether the System should act through open

Table 5.1 OMIC Meeting, September 24, 1929

LOANS OF COMMERCIAL PAPER AND ACCEPTANCES		LOANS OF TO WEEKLY REPORTING BANKS		GOLD STOCK		DISCOUNT RATE (N.Y. AND RANGE)		AAA RATES		AAA ACCEPTANCES		BAA-AAA		BILLS BOUGHT		GOVERNMENT SECURITIES		CURRENCY		MONETARY BASE		MONEY (M.)		
+ \$69	+ \$228	+ \$12	- \$74	- \$74	- \$74	0.3%																		
<p style="text-align: center;"><i>Current Changes to September 30, 1929</i></p> <p style="text-align: center;">+ \$105 + \$10</p> <p style="text-align: center;"><i>Cumulative Changes from August 1929</i></p> <p style="text-align: center;">+ \$105 + \$10</p>																								
4.7%	1.3%	0.3%	- \$74	- \$74	- \$74	0.3%																		
<p style="text-align: center;"><i>Levels as of September 1929</i></p> <p style="text-align: center;">- 0.33% 1.32%</p>																								
BORROWING	EXCESS RESERVES	DISCOUNT RATE (N.Y. AND RANGE)	AAA RATES	AAA ACCEPTANCES	BAA-AAA	WPI ALL ITEMS (1926 = 100)	WPI FARM PRODUCTION (AUGUST 1929 = 100)	WPI ALL ITEMS (1926 = 100)	WPI FARM PRODUCTION (AUGUST 1929 = 100)	CURRENCY	MONETARY BASE	MONEY (M.)												
\$969	\$34	6 (5-6)	4.80%	- 0.33%	1.32%	98	107	98	107	98.9														

Note: Dollar amounts are millions.
WPI = wholesale price index.

Table 5.2 Meetings of the Federal Reserve Board, October 28-31, 1929

LOANS OF COMMERCIAL PAPER AND ACCEPTANCES		LOANS OF TO WEEKLY REPORTING BANKS		GOLD STOCK		DISCOUNT RATE (N.Y. AND RANGE)		AAA RATES		AAA- ACCEPTANCES		BAA-AAA		BILLS BOUGHT		GOVERNMENT SECURITIES		CURRENCY		MONETARY BASE		MONEY (M.)		
+ \$289	+ \$509	+ \$14	- \$84	- \$158	- \$1	0.6%																		
<p style="text-align: center;"><i>Current Changes to October 31, 1929</i></p> <p style="text-align: center;">+ \$108 - \$11</p> <p style="text-align: center;"><i>Cumulative Changes from August 1929</i></p> <p style="text-align: center;">+ \$213 - \$1</p>																								
24.4%	4.3%	0.6%	- \$84	- \$158	- \$1	0.6%																		
<p style="text-align: center;"><i>Levels as of October 31, 1929</i></p> <p style="text-align: center;">- 0.36% 1.34%</p>																								
BORROWING	EXCESS RESERVES	DISCOUNT RATE (N.Y. AND RANGE)	AAA RATES	AAA- ACCEPTANCES	BAA-AAA	WPI ALL ITEMS (1926 = 100)	WPI FARM PRODUCTION (AUGUST 1929 = 100)	WPI ALL ITEMS (1926 = 100)	WPI FARM PRODUCTION (AUGUST 1929 = 100)	CURRENCY	MONETARY BASE	MONEY (M.)												
\$885	\$42	6 (5-6)	4.77%	- 0.36%	1.34%	96	104	96	104	97.4														

Note: Dollar amounts are millions.

market operations or by discounting reflects the entrenched “real bills” doctrine. Those who favored discounting as a means of supplying reserves generally wanted to leave the initiative with the member banks and favored using the “needs of trade” as a guide to appropriate policy. Even in periods of crisis, their discussion contains repeated references to the “demand for Reserve bank credit,” in contexts suggesting that the Federal Reserve should supply the quantity of reserves demanded to meet the “needs of trade” but should avoid using open market operations to supply “redundant reserves” that would generate “speculative excesses.”

The reactions in New York and Washington are consistent with the Riefler-Burgess view. The pressure on the commercial banks in New York became intense at the time of the stock market decline, in large part because banks outside New York reduced their loans to the call money market. The security purchases by the New York bank undoubtedly prevented both a sharp rise in interest rates during the week and additional borrowing from the Federal Reserve by banks in New York and other large cities. Since the Open Market Investment Committee had decided at the September 24 meeting to reduce borrowing, by open market purchases if necessary, the response by the New York bank is not a deviation from the prevailing policy or from the concentration on interest rates and money market conditions. The reluctance to continue purchasing once borrowing and upward pressure on interest rates declined is further evidence that its behavior at the time was consistent with the Riefler-Burgess framework.²⁰

Friedman and Schwartz (1963, 367) offer a different interpretation of these events. Their discussion, based on Harrison’s papers, makes no mention of the change in responses by Washington and New York after October 29. In their view, New York stopped purchasing securities because of the strong reaction at the Board. More important, they suggest that this episode had a permanent effect on Harrison and that thereafter he was reluctant to engage in open market operations without the consent of the Board or the Open Market Investment Committee. The Board’s records suggest, on the other hand, that the Board members conceded Harrison

20. Harrison made a very similar point on November 13 in a letter to Governor Black of the Atlanta Federal Reserve bank. “We had only commenced operations at the rate of \$25 million a week in accordance with the recommendation of the Open Market Investment Committee, when the severe collapse in stock prices at the end of October and the consequent immense shifting in loans to the New York City banks made it imperative that we purchase very substantial sums of Governments to minimize the risk of an up-swing in rates.” He now (mid-November) favored a policy of continuing the “purchases of Governments as rapidly as opportunity offers in order that we may avoid any further large increase in the total volume of discounts in the System and, if possible, to facilitate the reduction of those discounts” (Harrison Papers, Letters and Reports, vol. 1, November 13, 1929).

had been correct in making large-scale purchases of government securities and in encouraging the additional discounts that the Board had urged from the start as a means of meeting the crisis. They disliked New York's decision to act alone.

The dispute was mainly about procedure, not about substance. Nor was the procedural issue a new one. The Board and the New York bank had differed about the division of responsibility and particularly about the Board's role in open market policy from the very first years of the System and particularly after 1923, when the importance of open market operations increased. The Board had discussed reorganization of the committee responsible for policy recommendations at meetings in 1928 and 1929.

Harrison wrote to Young on November 7. The New York directors had voted that day to purchase government securities if they did not acquire sufficient acceptances. Their aim was to provide a seasonal increase in reserves while reducing the volume of discounts and open market rates. His letter mentions the directors' concern "that there may be a greater danger of recession in business with consequent depression and unemployment, which we should do all in our power to prevent" (Open Market, Board of Governors File, box 1435, November 7, 1929).

No purchases were made. Between September 24 and November 8, the System account increased \$80 million, by purchases of \$30 million and acquisition of \$50 million purchased by New York during late October. New York increased its holdings (net) by \$108.8 million. Only seven reserve banks participated in the purchases.²¹

John U. Calkins, president of the San Francisco reserve bank, explained his reasons for not participating in open market purchases.²² He was not "in entire sympathy with the course of open market policy." He was opposed to the view that "artificial conditions should be created for the purpose of promoting a bond market. . . . We can not see that this policy can be continuously followed without unfavorable results" (Letter Calkins to Harrison, Board of Governors File, box 1435, January 7, 1930).

Calkins then commented on Strong's 1927 purchases: "We are unable to see that the 1927 experiment, now quite generally . . . admitted to have

21. Cleveland, Richmond, Minneapolis, Kansas City, and San Francisco did not participate. These banks had lower gold reserve ratios than several of the participating banks, but the ratios ranged from 52 percent to 66 percent (Board of Governors File, box 1436, November 12, 1929).

22. Calkins served as governor of the San Francisco bank from May 1919 to February 1936, when he was required to retire after passage of the Banking Act of 1935. Governor Seay (Richmond) expressed similar views. At the December meetings of the Governors Conference, the governors voted on whether they agreed with the OMIC's policies. Governor Talley (Dallas) voted no, and Norris and Calkins abstained.

been *disastrous*, contributed very materially to the welfare of this country by providing or supporting a market for our exports. . . . [T]he purpose of the Federal Reserve System is to provide and assure adequate finance for trade . . . at a cost conducive to stability” (ibid., 2; emphasis added).

This letter, written within a few months of a major financial panic and at a time of deepening recession, represented a substantial body of opinion within and outside the Federal Reserve System. To these real bills advocates, Strong’s 1927 policy had failed on the narrow grounds of expanding exports, on which it had been offered, but it also had been a main cause of the increase in stock prices and brokers’ loans. They wanted no more. They believed that crises and recession were inevitable after speculative lending; they had to be endured to reestablish a sound basis for expansion.²³

The data in table 5.3 are for the end of November, hence they overstate somewhat the changes that had taken place at the time the committee met. The sizable reduction in the money supply is a reversal of the very large rise in deposits in the last week of October. At the time of the meeting, industrial production was 5 percent below its level at the peak, and by month’s end it was more than 7 percent below the August peak. Short-term interest rates and wholesale prices had continued to decline, but member bank borrowing was higher on average than in the preceding month.

The committee noted that a turning point had occurred and that there had been a “severe liquidation of credit against securities under circumstances which constitute a serious threat to business stability at a time when there were already indications of a business recession.” The time had come for the Federal Reserve System to “do all within its power toward assuring the ready availability of money for business, at reasonable rates.” In the Riefler-Burgess framework, the committee’s statement meant that the discounts of member banks should be reduced. The governors voted to do just that by purchasing bills (acceptances) and, if necessary, by purchasing government securities. At Harrison’s suggestion, the committee changed the limit on purchases from \$25 million per week to a total of \$200 million between the November and January meetings.

This meeting, within three months of the turning point, showed little disagreement about the interpretation to be placed on the events that had occurred or on the proper means of meeting the expected recession. The committee clearly regarded the fall in security prices and the decline in the public’s wealth as factors intensifying a recession that was already under way. The record in 1929, as at the start of most subsequent recessions, is

23. Calkins’s letter suggested a \$150 million (16 percent) reduction in the open market portfolio.

inconsistent with the often-repeated view that the Federal Reserve is slow to take countercyclical action because it is slow to recognize the onset of a recession. The reluctance to take expansive action that many of the governors showed at subsequent meetings of the committee cannot be explained as a misinterpretation of the then current economic conditions or a failure to recognize that the economy had turned from expansion to recession.

At first the Board refused to approve the committee's decision. Young wrote to Harrison on November 13 that the Board was willing to authorize purchases for emergencies but would not grant authority to purchase up to the \$200 million approved by the committee. Harrison's memo, recording his subsequent conversation with Young, makes it clear that he viewed the Board's objection as an opposition to the grant of discretion, not to the purchase policy. He accused Young of wanting to have a central bank operating in Washington and was surprised when Young agreed (Harrison Papers, Conversations, vol. 1, November 15, 1929).

To obtain approval of the purchase program, Harrison offered a temporary solution to the procedural issue. New York agreed to stop purchasing for its own account if the Board approved the committee's decision without qualification. The Board accepted on November 25. In the first three weeks of December, the System purchased \$207 million of securities and \$52 million in acceptances. In the remaining weeks of December, market rates fell, acceptances came to the bank at a faster rate, and the System sold nearly \$50 million of government securities. The initial crisis was over.

Response to Recession

Changes in many of the monetary variables at the time of the January meeting are not markedly different from the changes that characterize other recessions.²⁴ Gold and bank loans had fallen, the latter partly a reflection of the reduction in stock exchange credit. The monetary base had fallen also, but more of the base was held as bank reserves, so the money supply had increased. Short-term interest rates were below the levels reached at the peak and had declined since the previous meeting; the term structure sloped up. (The term premium between Aaa rates and ninety-day acceptances had increased from 0.57 to 0.72.) Member bank borrowing was 50 percent below its peak, the lowest level since early 1928.

The January meeting was the first meeting after issuance of the Board's

24. See Cagan 1965. An exception is the decline in currency, which began earlier than the average for the cycles up to 1960 that Cagan studied.

Table 5.3 OMIC Meeting, November 12, 1929

COMMERCIAL PAPER AND ACCEPTANCES		LOANS OF IOI WEEKLY REPORTING BANKS		GOLD STOCK		BORROWING		BILLS BOUGHT		GOVERNMENT SECURITIES		CURRENCY		MONETARY BASE		MONEY (M ₁)	
+\$147	+ \$335	-\$19	+\$68	-\$41	-\$41	-\$41	+\$161	-\$41	+\$161	+\$20	-\$193	-\$2,761	+\$20	-\$193	-\$2,761		
34.4%	6.3%	0.2%	-\$90	+\$172	+\$160	+\$160		+\$172	+\$160	-1.7%	0%	-3.6%	-1.7%	0%	-3.6%		
<p style="text-align: center;"><i>Current Changes to November 30, 1929</i></p> <p style="text-align: center;"><i>Cumulative Changes from August 1929</i></p>																	
BORROWING		EXCESS RESERVES		DISCOUNT RATE (N.Y. AND RANGE)		AAA RATES		AAA-ACCEPTANCES		AAA-ACCEPTANCES		WPI ALL ITEMS (1926 = 100)		WPI FARM (1926 = 100)		INDUSTRIAL PRODUCTION (AUGUST 1929 = 100)	
\$953	\$65	4.5-5 (4.5-5)	4.76%	-0.57%	1.27%	94	IOI	92.7									
<p style="text-align: center;"><i>Levels as of November 30, 1929</i></p>																	

Note: Dollar amounts are millions.

Table 5.4 OMIC Meeting, January 28-29, 1930

COMMERCIAL PAPER AND ACCEPTANCES		LOANS OF IOI WEEKLY REPORTING BANKS		GOLD STOCK		BORROWING		BILLS BOUGHT		GOVERNMENT SECURITIES		CURRENCY		MONETARY BASE		MONEY (M ₁)	
+\$124	-\$1,220	-\$76	-\$452	+\$18	+\$170	+\$170	-\$100	-\$172	+\$174	-\$172	+\$174	-\$100	-\$172	+\$174			
42.8%	-0.1%	-1.7%	-\$542	+\$190	+\$330	+\$330	-4.3%	-2.4%	-3.0%	-2.4%	-3.0%	-4.3%	-2.4%	-3.0%			
<p style="text-align: center;"><i>Current Changes to January 31, 1930</i></p> <p style="text-align: center;"><i>Cumulative Changes from August 1929</i></p>																	
BORROWING		EXCESS RESERVES		DISCOUNT RATE (N.Y. AND RANGE)		AAA RATES		AAA-ACCEPTANCES		AAA-ACCEPTANCES		WPI ALL ITEMS (1926 = 100)		WPI FARM (1926 = 100)		INDUSTRIAL PRODUCTION (AUGUST 1929 = 100)	
\$501	\$44	4.5 (4.5-5)	4.66%	0.72%	1.26%	93	IOI	88.7									
<p style="text-align: center;"><i>Levels as of January 1930</i></p>																	

Note: Dollar amounts are millions.

order replacing the OMIC with a new Open Market Policy Conference (OMPC) on which all reserve banks would serve. Although all governors participated in the January meeting, there was substantial disagreement about the new procedure, and it was not adopted until March 31.²⁵

The new committee recognized that “a business recession has taken place, the extent or duration of which is not yet possible to determine” and that “liquidation is progressing in an orderly fashion.” However, the members were divided about the policy that should be pursued in the coming months. Governor Eugene R. Black (Atlanta) “desired a continuation of credit ease,” arguing that neither business nor the mental attitude of businessmen in his district was conducive to expansion. At the other pole, “Governor McDougal (Chicago) indicated that an easing policy would be worth considering if it would benefit business, but he felt present rates were not restrictive.” “Governor Norris (Philadelphia) believed that open market operations had been carried far enough, that the object of the November policy had been achieved, and he would rather see lower interest rates come of their own accord than as a result of Federal Reserve interference.”

Governors Lynn P. Talley (Dallas), William McChesney Martin Sr. (St. Louis), and John Calkins (San Francisco) joined Norris and McDougal. Calkins noted that there had been “more than the usual liquidation in his district,” but he could see no reason for further changes in interest rates. Others took intermediate positions, several favoring Harrison’s proposed reduction in the buying rate for acceptances.²⁶ No one argued for a pro-

25. The Board’s March order differs from the January order by recognizing that the OMPC was a voluntary association, that banks could withdraw or refuse to participate in purchases and sales, and that members of the OMPC would be appointed by each bank’s board of directors (Board of Governors File, box 1452, March 31, 1930). These were the conditions New York had demanded earlier.

26. Harrison’s position at this meeting does not fit well with the view that he recognized the need for expansion at an early date but was hampered by the Board. The minutes state: “Governor Harrison stated that the proposal for a reduction in the buying rate for bills was made by the Federal Reserve Bank of New York in order to prevent a decrease in the bill portfolio and an increase in rediscounts such as might lead to a firming of money rates or at least an interruption to the natural downward trend of interest rates. It was not suggested as a program which would *artificially force a more rapid easing of credit conditions*, although it seemed likely that the directors of the New York bank might also wish soon to reduce the discount rate” (italics added). The italicized statements might be interpreted as an attempt to win support from those governors who viewed the contraction as a “natural” reaction. But Harrison did not couple his statement with a proposal for purchases after he obtained the support of the committee for the proposed reduction in the buying rate on acceptances. In January Harrison had written to one of the governors that “in view of the progress we have already made and in view of the uncertainties . . . there is no need at this time for any further purchases” (Harrison to Governor Seay [Richmond; copy sent to all Governors], Harrison Papers, Letters and Reports, vol. 1, January 10, 1930).

gram of substantial or even moderate open market purchases. It was “the judgment of the Committee that no open market operations in government securities are necessary at this time either to halt or expedite the present trend of credit.”

Although the committee recognized that changes in loans and investments of reporting member banks were smaller “than the usual growth of credit required by the country’s business,” it voted only to “avoid the hardening of rates which might result from a seasonal demand for additional reserve credit.” Its statement urged caution and restraint. The reasons that prompted most members to proceed cautiously are developed more fully in the committee’s policy statement:

The majority opinion was that what had already been done has set in motion a trend which should result in lower rates. Between a reduction of discounts and large purchases of securities and a reduction of rates to business there is always a lag and that lag is likely to be greater at this time because the appetite of the bankers has been whetted during recent months, and they are slower about coming down. There is every reason to anticipate that the reduction will occur, so that it is believed that the current is set in the direction of easier rates.

We feel we should not interfere in that movement either in the direction of halting it or attempting to expedite it. . . . [It] is inexpedient to exhaust at the present time any part of our ammunition in an attempt to stimulate business when it is perhaps on a downward curve . . . in a vain attempt to stem an inevitable recession. . . . The majority of the Committee is not in favor of any radical reduction in the bill rate or radical buying of bills which would create an artificial ease or necessitate a reduction in the discount rate. (Open Market, Board of Governors File, box 1436, January 30, 1930)

The empirical basis for the committee’s conclusions is more clearly set forth in a memo that Harrison had read to the Governors Conference more than a month earlier.²⁷ The memo contained two charts. One showed the relation between member bank borrowing and market interest rates. The other compared the rate of increase in bank credit with the volume of member bank borrowing. Harrison interpreted the charts as showing that “generally speaking the trade and business of the country require an increase in bank credit somewhere in the neighborhood of 4 to 5% a year, and the chart indicates that the rate of increase in bank credit has usually ex-

27. Report of the Chairman of the Open Market Committee to the Governors Conference, December 11, 1929. The memo dated December 4 is in *Governors Conference*, vol. 1, December 11, 1929. Here as elsewhere, Harrison does not distinguish real and nominal rates.

ceeded this rate when the Federal Reserve discounts were under 400 to 500 million dollars, and usually falls under this rate when discounts are over 500 to 600 million dollars." The memo goes on to spell out these central notions of the Riefler-Burgess framework and, after mentioning some qualifications, concludes that "these charts show in general that under conditions that have prevailed in recent years an amount of member bank borrowing somewhere in the neighborhood of 500 million dollars [the level then current] may be considered a normal at which commercial paper rates have tended to average 4½% and at which the volume of bank credit has tended to increase at the rate generally proportionate to the needs of business." Since the volume of member bank borrowing had been reduced by \$450 million in less than two months and was now within the range Harrison spoke of, it is not surprising that he did not favor or propose an aggressive policy of open market purchases.

When the Board met the next day to discuss the committee's recommendations, Treasury Secretary Andrew Mellon repeated several of the arguments that had been made in the policy statement. The Board voted to carry out the policy recommendation and approved a minimum effective buying rate of 3.875 percent for any Federal Reserve bank wishing to establish that rate. By a tie vote, the Board followed the OMIC majority and refused to reduce the discount rate at the New York bank to 4 percent. The reasons for the Board's refusal are not clearly stated in the report, although there is some indication that it regarded the request as premature.

The governors' statements at this meeting provide a clear indication of their reasons for failing to take more expansive action at the time and throughout the period. Since short-term market interest rates had fallen and were expected to fall further as member bank discounts declined, most governors saw little reason for the Federal Reserve to "interfere" or to hasten the decline in rates. Words like "artificial stimulus" and "inevitable decline" reflect the dominant view that speculative excesses had to be purged. Once that happened, the economy would recover, and the System would be able to expand based on rediscounting of real bills.

Virtually all the governors used the level of market interest rates as an indicator of current policy. Differences between them at the meeting were largely matters of detail. Some opposed the 0.125 percent reduction in the buying rate for bills on the grounds that the reduction would cause the System to acquire bills in much larger quantities temporarily and thus cause market rates to fall faster than they believed desirable. Others opposed the reduction on the similar grounds that the reduction in the buying rate for bills would "force" a decline in the discount rate by contracting the amount

of member bank discounts (reducing the demand for reserve bank credit). Only Governor Black advocated a policy of open market purchases.²⁸

After the January meeting the Board approved reductions in the minimum buying rate for bills on February 11 and 24 and on March 5, 6, 11, 14, 17, 19, and 20. By the March meeting, the buying rate was 3 percent. The Board also approved further reductions in the discount rate to 3.5 percent at New York and to 4 or 4.5 percent at the other banks. These changes did not receive the unanimous support of the Board members, and those who voted for the reductions often expressed doubt about the efficacy of a “cheap money” policy.²⁹ No one mentioned that wholesale prices had fallen 7 percent in seven months or that real rates had increased more than nominal rates had fallen.

Despite the nominal rate reductions, the System’s holdings of acceptances had declined since the January meeting, and the volume of member bank discounts was at the lowest level since early in World War I. Long- and short-term interest rates continued to decline, as shown in table 5.5. Although nominal short- and long-term rates had fallen to the levels reached in the recessions of 1924 and 1927, the term spread between short- and long-rates had doubled in the two months to March.

This was the last meeting of the committee for more than two years at which the seasonally adjusted money supply showed a rise from the previous meeting. The increase in money from January to March was largely the result of a gold inflow from Brazil and Japan and the higher base money multiplier produced by the continued decline in the public’s demand for currency in both nominal and real terms.

Much of the discussion at the meeting was about New York’s decision to purchase \$50 million of government securities early in March. Although the committee had voted against further purchases at the January meeting, New York explained, as it had in a letter earlier in the month, that the purchases had been made, after consultation with the Federal Reserve Board, because it had been “impossible to maintain the bill portfolio” in the face of an increasing demand for bills by banks and financial institutions. The “unfavorable business situation” was also mentioned as a factor in the decision to purchase.³⁰

28. The new OMPC overrepresented the smaller banks in the System, but it is not clear that it was more or less inclined toward expansion. Black (Atlanta) was the most expansionist of the new members, but the new committee also included Calkins and Talley, who usually opposed purchases as “artificial” stimulus. At the time, the seven new members held only 25 percent of the System’s portfolio.

29. For example, one Board member, Cunningham, stated that he voted aye but had hesitated to do so because at 4 percent “money is cheap.”

30. In fact, the Board proposed the purchases on the grounds that “no harm and some good might be accomplished” (Case to Young, Board of Governors File, box 1435, March 7,

The discussion makes it clear that the main reason for the purchases was to correct a problem that the members regarded as technical. An inflow of gold—from Japan and South America according to the minutes—had increased the reserves of the New York banks. The banks used the new reserves to purchase acceptances, forcing the Board to lower the buying rate for acceptances or allow the acceptance portfolio to decline. At first the Board reduced the acceptance rate, but the acceptance portfolio continued to fall in early March because the gold imports continued and the Treasury's balance at the reserve banks declined. The falling acceptance rate was regarded as a technical reaction because a rise in the rate on other short-term instruments—for example, stock exchange collateral loans, particularly brokers' and dealers' loans—accompanied the decline.³¹

The preliminary memorandum prepared for the meeting noted that the recession was probably more severe than the recessions of 1924 or 1927 and that unemployment had increased. However, it also observed that “the effects of easy money and freely available credit have been, in the first place, to stimulate a vigorous recovery in the bond market. Bond prices have risen to the highest points in more than a year.” This was a particularly important piece of information within the framework that most of the members used. The rise in bond prices and the reduction in member bank borrowing seem to have provided the entire basis for the decision to make no further purchases of government securities. In the committee's words, “The steps already taken by the Federal Reserve System in easing the money market through open market operations have gone as far in providing the stimulus of easy money for business use as seems desirable at this time.”

With hindsight, it is clear that this was an important meeting. The decision to avoid further expansive action because monetary policy was judged to be “easy” came just as there were signs of a turning point or a bottom of the recession. The preliminary memorandum prepared for the meeting noted a slight improvement in “business and trade” between December and January and further slight improvement from January to February. The data now available partly confirm the observations made at the time. Industrial production, seasonally adjusted, rose in January and declined very little in February. More important, there was a slight drop in in-

1930). J. Herbert Case replaced Gates McGarragh as chairman at New York on February 28. Case had long been an officer of the New York bank.

31. Total bank credit had risen by \$300 million from the end of February to the date of the meeting. Loans to brokers and dealers had risen to the level of the previous November, but more of the loans were held by New York banks. The rise in brokers' loans was accompanied by a rise in stock prices. Standard and Poor's Index (1935–39 = 100) increased from 159.6 in November to 182.0 in March. Data on total bank credit are from the minutes; other data are from Board of Governors of the Federal Reserve System 1943, 498, 481.

dustrial production from March to April and larger declines in May and June. The index of common stock prices had restored approximately 25 percent of the October decline in the value of common stocks by the end of March, but the rise in stock prices ended in April.

If the governors of the Federal Reserve had used the stock of money instead of interest rates as an indicator of monetary policy, they would not have concluded that monetary policy was “easy.” Additional open market purchases at this time would have contributed to the expansion. Instead, the further contraction of money contributed to the decline in output and to the bank failures that came with increased frequency after this meeting.

The striking fact about the meeting is that although there was little dissent about the size of the recession, there was little support for a policy of monetary expansion. The committee’s main recommendations were designed to prevent a further reduction in bills: it voted to reduce the buying rate for bills to 2.5 percent, but not to purchase below 3 percent except in an emergency, and to engage in no open market purchases. A memo prepared for the meeting and made part of the record showed that the System’s earning assets were lower than in the previous year, largely as a result of the fall in member bank discounts.

The discussion at the meeting showed no evidence of disagreement between New York and Washington. On March 14 New York reduced its discount rate to 3.5 percent, with Board approval. Other banks remained at 4 to 4.5 percent. In a letter to Governor Young, J. Herbert Case described the 3.5 percent rate as a possible danger, but he urged the Board to approve the step “in the hope that business may be benefited” (Board of Governors File, box 1435, March 17, 1930). He hoped that the System would act promptly to prevent excessive credit expansion.

Outside New York, reserve banks remained skeptical about additional ease. Although he saw “plenty of evidence . . . that what had appeared to be an upturn in January has not held,” Governor Talley (Dallas) wrote opposing any additional expansive actions.³² “Everyone seems to want to keep business jazzed up all the time and have it run along at boom figures. . . . [T]he sounder course to pursue . . . is to catch up and let the public pay some of its debts or at least acquire larger equities in its automobiles, radios, and real estate (Talley to Case, Board of Governors File, box 1435, March 13, 1930, 3).³³

32. “Frankly, we were very much disappointed over your reduction [of discount rate] to 3.5 percent last Thursday. We feel a little bit better about it today, because the stock market has regarded the action as an unfavorable symptom and seems to recognize it as a panacea for business depression (Talley to Case, board of Governors File, box 1435, March 13, 1930, 2).

33. Talley also refers to governors who vote for open market purchases, then refuse to participate in the purchase. (Only eight of the twelve banks participated in the purchase of

Between the March and May meetings of the Open Market Policy Conference, the Board considered a request from New York to lower the discount rate from 3.5 percent to 3 percent. At first the Board unanimously disapproved. The Board's minutes for April 24 record a "considerable variance of opinion between the New York Bank and the Federal Reserve Board with regard to Federal Reserve policy." The Board favored "the maintenance of stability rather than further easing through Federal Reserve action." Within a week, however, Governor Young changed his mind and announced that he favored reducing the discount rate and the buying rate for bills. On May 2 the Board approved New York's request, and in the following weeks the effective buying rate for bills declined to 2.5 percent, below the rate that the March conference had suggested as a minimum.

New York's request was a response to the deteriorating economy. At a meeting on April 24, Harrison reported to his directors that production and trade had declined in March and that preliminary figures for April, covering building contract awards and railroad car loadings, showed a further decline. Harrison also reported that commodity prices had fallen, that foreign trade had declined during the first quarter, and that gold continued to flow in. He recommended a reduction in the discount rate as a means of improving the bond and mortgage markets, which "historically and logically appear to be a precedent or a necessary accompaniment of recovery in business and prices after a period of depression." The following week Harrison again discussed a discount rate reduction with the directors. This time the Board approved.³⁴

The data for this meeting, in table 5.6, show the renewed decline in industrial production and the fall in wholesale and farm prices. Although bank lending (at weekly reporting banks) had increased since March, commercial paper and banker's acceptances had fallen. The data also show that standard policy actions were not having their expected effect. Lowering short rates had not reduced long rates. Rates on Aaa bonds were only twenty-four basis points below the August 1929 peak, while prime banker's acceptances had been reduced by 2.625 percent. The term premium had increased by a factor of three, from 0.7 to 2.1 percent since the end of January.

Some of the New York directors continued to press for expansive action.

\$50 million in March.) His bank participated fully. As a result, they had taken 7 percent of the allocation instead of their usual 3.3 percent. He withdrew from his pro rata share of the non-participating banks acquisition by limiting Dallas's purchases to its standard 3.3 percent (Talley to Case, Board of Governors File, box 1435, March 13, 1930, 3).

34. At a May 1 meeting with his directors, Harrison discussed an ambiguity in the (March) agreement with the Board. The agreement did not make clear whether the new procedure applied to bill purchases (acceptances). This oversight is surprising given previous disputes about whether the Board's approval must be secured before an announcement could be made.

Table 5.5 OMPC Meeting, March 24, 1930

COMMERCIAL PAPER AND ACCEPTANCES		LOANS OF 101 WEEKLY REPORTING BANKS		GOLD STOCK		BORROWING		BILLS BOUGHT		GOVERNMENT SECURITIES		CURRENCY		MONETARY BASE		MONEY (M ₁)	
-29	-75	+132	-227	+1.5%	-769							-35	-17	+659			
<i>Current Changes to March 31, 1930</i> -68 +55 <i>Cumulative Changes from August 1929</i> +122 +385																	
BORROWING		EXCESS RESERVES		DISCOUNT RATE (N.Y. AND RANGE)		AAA RATES		AAA- ACCEPTANCES		BAA-AAA		WPI ALL ITEMS (1926 = 100)		WPI FARM (1926 = 100)		INDUSTRIAL PRODUCTION (AUGUST 1929 = 100)	
274	56	3.5	4.62%	3.5	3.5	4.62%	1.51%	1.11%	91	95	86.7						
<i>Levels as of March 1930</i> 1.51% 1.11%																	

Note: Dollar amounts are millions.

Table 5.6 OMPC Meeting, May 21-22, 1930

COMMERCIAL PAPER AND ACCEPTANCES		LOANS OF 101 WEEKLY REPORTING BANKS		GOLD STOCK		BORROWING		BILLS BOUGHT		GOVERNMENT SECURITIES		CURRENCY		MONETARY BASE		MONEY (M ₁)	
-145	79	+94	-27	3.8%	-796							-23	-58	-1,011			
<i>Current Changes to May 31, 1930</i> -64 -11 <i>Cumulative Changes from August 1929</i> +58 +374																	
BORROWING		EXCESS RESERVES		DISCOUNT RATE (N.Y. AND RANGE)		AAA RATES		AAA- ACCEPTANCES		BAA-AAA		WPI ALL ITEMS (1926 = 100)		WPI FARM (1926 = 100)		INDUSTRIAL PRODUCTION (AUGUST 1929 = 100)	
247	56	3	4.57%	3	3	4.57%	2.07%	1.21%	89	93	84.9						
<i>Levels as of May 1930</i> 2.07% 1.21%																	

Note: Dollar amounts are millions.

They instructed Harrison to inform the Board that they wished to purchase government securities. Governor Young suggested a meeting of the conference so that "all Federal Reserve Banks may be informed of the program which the New York Bank seems to have in mind" (Board Minutes, May 15, 1930).

New York was not the only bank dissatisfied with the conduct and achievements of open market policy. At the May meeting, Governor Young presented five suggestions that had come before the Board. Two called for open market sales; two called for purchases; and one bank wanted to maintain the prevailing policy but provide from \$350 million to \$400 million for seasonal requirements through open market purchases and increases in bill holdings during the fall.

Several features of the Federal Reserve's approach to policymaking are mentioned to support or justify the three proposals. Some governors, following one aspect of the real bills doctrine, regarded the end use of credit as the most useful guide to appropriate policy. They believed open market sales would "check speculation" and help the banks to liquidate security loans. Their main evidence of speculation at this time was the increased volume of brokers' and dealers' loans that had accompanied the increased volume of security purchases and rising stock prices in the months before the meeting. Others, concerned about the distribution of the Federal Reserve's earning assets, wanted to sell \$200 million of securities and reduce discount rates "so that rediscounts might be approximately equal to the total of government securities and bankers acceptances held." This proposal reflected a different aspect of the real bills doctrine, the view that a main purpose of monetary policy was to respond to changes in the demand for reserve bank credit. Some governors believed that open market sales would ease credit by encouraging banks to reduce interest rates and force them to borrow on real bills. The proper policy, they claimed, was to lower discount rates and sell securities.

Poor timing was one reason the proposal for open market sales and lower discount rates did not receive more widespread support. The provision of the Federal Reserve Act calling for an "elastic currency" was interpreted as a requirement to meet the seasonal "needs of trade." One governor who favored seasonal expansion in the fall expected the seasonal demand for bank credit to be larger than the current (May) demand. He expressed the view of several governors when he suggested that open market purchases would have more effect if they were made at a time of increased demand for bank credit and for reserve bank credit.³⁵

35. By fall the contraction had become more severe. The System's purchases were smaller than the \$350 million to \$400 million estimate of seasonal demand. They were made mainly in response to the bank failures that came late in the year.

Of the two banks proposing purchases, one favored monetary expansion and the other had the traditional concern about reserve bank earnings. Since interest rates had fallen and member bank borrowing had not been fully offset by an increase in bills and securities, the reserve banks' income had fallen. Some of the banks faced losses. The conference agreed that supplementing the income of a reserve bank was not a "proper reason for the purchase of government securities," and the matter ended. This issue arose again in the middle thirties.

The committee could not find any "proper reason" for engaging in either purchases or sales at the time. It was too early to provide for a seasonal demand that would not arise until fall. The only agreement reached was the empty statement that "conditions merit continuous careful observation of the Federal Reserve System in order that the System will be prepared to act promptly in the event that conditions further develop in such a way as to make actions seem advisable."

No one attempted to set out the conditions that would make open market purchases advisable. Nevertheless, Harrison's advocacy of purchases contrasts with the views expressed by several others. He believed that the "possible necessity for the purchase of government securities might be imminent at any time." Another member called for immediate purchases "to remove every possible restraint from business as far as credit was concerned." Still another suggested that the conference agree on a formula for the total amount of reserve bank credit as a guide to the desirable volume of purchases. None of these suggestions received much attention.

The minutes described money conditions as slightly "easier" because of the inflow of gold, the further decline in the amount of currency in circulation, and the reduction in member bank borrowing. But no one mentioned or appears to have noticed that the money supply (or demand deposits) had declined by more than \$1 billion in the previous two months. Since most of the decline was in deposits, there must have been some recognition of the decline at major banks.

The governors not only were aware of the worldwide scope of the depression, they sensed that there was a connection between the depression and the New York money market. Harrison gave the standard explanation of the economic decline and the central role of real bills. There had been overproduction of "certain principal commodities," accompanied by a "shortage of working capital and thus a restriction of purchasing power." In the previous year, funds had been used for speculation, mainly in New York but in other markets as well. The recovery of world trade appeared to depend "in no small degree on a restoration of purchasing power through the medium of foreign borrowers on the New York money market, just as

the recent recovery of domestic trade appeared to be much dependent on the new financing for domestic enterprise in the United States.”

This statement places Harrison well within the mainstream of Federal Reserve thinking and accounts for his failure to mention the substantial decline in demand deposits. However, within the common framework there are two main differences between New York and other parts of the System.

One is the minor point that New York developed more information and expressed more concern about current money market conditions and was more eager to take action to correct or offset money market changes. The second and more important difference within the committee concerns the interpretation of changes in member bank borrowing and interest rates and the System's responsibility for bringing about further reductions in both. Some governors argued that the Federal Reserve should attempt to lower interest rates further by reducing discount rates and, if that failed, to lower interest rates and encourage member bank borrowing by engaging in open market purchases. Others—McDougal of Chicago and Norris of Philadelphia were leaders of this group—wanted to wait for the member banks to demand more reserve bank credit. In their view, the decline in borrowing meant that the System should sell securities to force an increase in member bank borrowing. With the possible exception of Governor Black, none of the governors argued for an aggressive purchase policy, and none professed a belief that such a policy would succeed.

Although the Board's minutes indicate that the meeting was called to discuss New York's program, Harrison did not present a program and, at the meeting, seemed most concerned about matters of timing and procedure, particularly the Board's failure to agree quickly to requests for reductions in the buying rate on acceptances and discount rate changes. Young told the committee that “he had hesitated to vote favorably on the New York application for a three percent discount rate because of the position of the governors at the OMPC meeting on March 25.” This reopened a continuing disagreement. Harrison replied that decisions about discount rates were primarily the responsibility of the individual reserve banks and that “he did not believe the action of the Open Market Policy Conference should be regarded as in any way restricting freedom of action on discount rates.” Several governors agreed with Harrison, and the conference voted that discount rates “were not within its proper province and that the directors of any Federal Reserve Bank must feel free at any time to change the discount rate of their bank subject only to the review and determination of the Federal Reserve Board.”

This was a partial victory for New York. It removed any control that McDougal, Norris, or other governors might have had over the decisions

about the discount rate at New York. Since New York's 3 percent rate was one percentage point lower than the rates at ten of the eleven other banks, the banks with higher rates could not press New York to raise its rate by a formal vote of the conference. But it left New York, as before, dependent on the decisions of the Board.

To further strengthen New York's position, Harrison argued for greater control of the acceptance rate by the reserve banks. The Board's delays in approving applications for lower bill buying rates had left New York without "downward flexibility." The committee voted to support Harrison, and after the meeting the Board sent a letter to all the reserve banks accepting the conference's decision.

Although most of the decisions at the May meetings concerned operating procedures, they show that New York was no more isolated from the rest of the System in regard to procedure than in regard to policy. The conference was willing to support New York on day-to-day policy and to provide discretionary "flexibility" in managing the account. The Board and the conference were unwilling to allow New York to purchase and sell government securities on its own initiative and for its own account, but it is not clear that most would have opposed a program of open market purchases for the System if Harrison had supported the program vigorously. In fact, the members responded to Harrison's statement that "the possible necessity for the purchase of government securities might be imminent at any time" by voting to reconvene or to act promptly on the recommendations of its five-man executive committee, which Harrison headed. When Harrison proposed open market purchases only ten days later, a majority of the conference voted in favor.

New York Seeks Expansion

Harrison's approach to policy comes out clearly in the decision to purchase \$50 million of securities early in June 1930. The discussions leading to the decision show the importance he attached to short-term factors affecting interest rates and money market conditions and his failure to develop a long-term program.³⁶ They also show Harrison as a broker trying to reconcile differences between opposing groups. Three points stand out. First, Harrison twice changed his mind about the desirability of purchases. Both changes coincide with changes in the technical position of the money market. Second, Harrison did not suggest a program of steady expansion. In fact, he did not propose as expansive a policy as some of the New York

36. My interpretation of this episode is based on the minutes of the New York directors for May 8, 19, and 26 and June 5, the Board's minutes for June 3, 1930, and a telegram on June 5 from Harrison to the Board that is part of the Board's minutes.

directors urged on him. Third, Harrison never answered, and at times appears to have accepted, the main criticisms of the policy of expansion made by Norris and other opponents.

The first suggestion that purchases should be made came at the May 8 meeting of the directors of the New York Federal Reserve bank. Several of the directors spoke in favor, but others opposed on grounds that recovery in bond prices had been delayed by the floating of a large foreign loan—the \$300 million German annuities loan. The directors who opposed purchases expected interest rates to resume their decline once the offering was sold. The directive recommended that Harrison discuss the possibility that open market purchases “may become desirable” with other governors and the Board. On May 19, two days before the Governors Conference, the executive committee of the New York directors remained divided. Most agreed that purchases of open market securities would be “inflationary” (which to them often meant that bond prices would rise), but some believed this danger should be faced “to check a decline in commodity prices.”

The following week, Harrison reported on the results of the Governors Conference to the executive committee of the New York directors. One of the directors remarked that there had been a net withdrawal of Federal Reserve funds from the money market during the preceding six months.³⁷ He urged that these funds should “now be restored to the market by the purchase of government securities,” and he suggested that if this were done bankers would be encouraged to make loans to business borrowers. Then, in a statement that is considerably at variance with the real bills and Riefler-Burgess doctrines, a director pointed out that “if government securities should now be purchased in sufficient amount so that member banks would no longer be able to use the funds thus made available to pay off advances and rediscounts, expansion of bank investments would be forced and business would perhaps be stimulated.”

Support for purchases was rising in New York. Harrison reminded the directors that the governors had considered purchases but had voted not to take any action. Some of the directors disagreed with this policy. In their opinion, “it would be unfortunate if the banking system would not be used to facilitate recovery.” Three days later, on May 29, the full meeting of New York’s directors unanimously approved the report of the Open Market Policy Conference, then seized on the section that permitted the committee’s decision about open market policy to be reopened. Although only a

37. Member bank borrowing had fallen \$800 million since August. See table 5.6. These and similar remarks suggest that some directors did not equate low borrowing with monetary ease.

week had passed, they voted that “it now seems desirable to undertake the purchase of government securities in moderate amounts.”

During the next few days, Harrison and Burgess telephoned the other governors to discuss their directors’ recommendation. Frederic H. Curtiss (Boston) believed that the situation had “retrogressed,” so he favored purchases of \$20 million to \$25 million for the next few weeks to test out the situation, “feeling that no harm would result and some good might be accomplished.” E. R. Fancher (Cleveland) also favored purchases, “believing that it might possibly help and that in any event it would be preferable to err on the side of ease rather than on the other side.” McDougal (Chicago) believed purchases would “do little or no good,” so he preferred not to purchase. Black (Atlanta) was very much in favor; Norris and Calkins were opposed.

Early in June, Harrison telegraphed the results of the canvass to the Board. Seven of the governors favored purchases if limited in magnitude and duration, four were opposed, and one “interposed no objection.” On a divided vote, the Board approved purchases of not more than \$25 million per week for two weeks, the first open market purchases since the middle of March.³⁸ New York began purchasing almost at once.

Four main reasons tipped the balance in favor of limited purchases. First, some long-term bond yields, particularly on lower-rated bonds, had risen at the time the German annuity was announced and had not returned to the April level. Second, discounts show a sharp increase during the week ending May 28. On the Riefler-Burgess interpretation, the rise in discounts meant that demand for reserve bank credit had increased, so open market purchases were justified as a means of providing “productive credit” and preventing an increase in short-term rates. Third, as Harrison explained to the Board on June 16, the directors at New York believed recovery would not occur for several months and perhaps not for a year, but they “are particularly concerned about the export trade which has such a direct effect upon commodity prices and feel that a revival of our foreign trade depends largely upon the bond market and that hopes of getting a strong bond market rest upon the continued ease in the short time money market more than anything else.” Fourth, and possibly most important,

38. The original vote, three to three with Vice Governor Platt abstaining, would have defeated the motion. After further discussion, Platt voted in favor. The executive committee of governors was more evenly divided than the full committee, since two of the opponents, McDougal of Chicago and Norris of Philadelphia, were members of the five-man executive committee. Another opponent of the purchase program, Governor Calkins of San Francisco, refused to participate, so the San Francisco bank did not accept a pro rata share of securities. The positions taken by the individual governors and their reasons are taken from a memo Harrison wrote to his files on June 30 (Harrison Papers, Office Memoranda, vol. 2).

none of the opponents of expansion believed that the purchases, if limited, would be “inflationary” in the circumstances then prevailing in the money market, that is, the increased volume of member bank borrowing.

Harrison’s reasons for supporting a limited program of purchases and his opposition to a more expansive program came out clearly at a June 5 meeting with the New York directors. To a director who urged a reduction in the discount rate to 2.5 percent as a means of encouraging banks to reduce the rates charged on bank loans, Harrison replied that banks already had “sufficient reasons for lowering rates.” To another who pointed out that the decline in the New York bank’s bill portfolio in the most recent week more than nullified the \$50 million purchase of securities, Harrison gave the standard Riefler-Burgess argument that the banks had been “placed in the position to pay off a substantial part of their borrowings, . . . the money market is definitely easier than it was before our purchases.” He reminded the directors that the quarterly Treasury financing and the German loan made the timing unfavorable.

At least one of the directors was dissatisfied with the policy of delay and hesitation. He urged purchases of at least \$100 million, and in a prophetic statement he made it clear that Harrison’s was not the only view.³⁹ “Unless the banks take initiative in affording the relief of very cheap money, however, he foresaw a relatively long period of business depression and severe unemployment. The first step in the program, as he viewed it, might be to get the call money rate down to a dramatically low level.”

The decline in short-term market rates and the return of borrowing to the level of mid-May helped to convince the Boston and Cleveland banks that no further purchases should be made. They now sided with Philadelphia and Chicago, so the vote in the executive committee on June 23 was four to one against the purchase program. Harrison was the lone dissenter, arguing as before that there was a maldistribution of credit between short- and long-term markets and that further purchases of securities would lower long-term rates, increase loans to foreigners, and thus stimulate exports. Harrison’s argument—which he attributed to the directors of the New York bank—repeated the directors’ earlier statements about “lack of purchasing power in various parts of the world.” Prices had fallen because countries “are not in a position to purchase commodities.” Reversing the position he had taken at the directors’ meeting, he now argued that the effect of recent purchases of securities had been offset by a decline in the System’s bill holdings (see table 5.7).

39. Adolph Miller was present at the June 5 meeting in New York. He favored a reduction in the discount rate in lieu of additional purchases. He viewed the current recession as part of a long-term postwar readjustment to lower prices following wartime inflation.

Table 5.7 OMPC Executive Committee Meeting, June 23, 1930

COMMERCIAL PAPER AND ACCEPTANCES	LOANS OF 101 WEEKLY REPORTING BANKS	GOLD STOCK	BORROWING	BILLS BOUGHT	GOVERNMENT SECURITIES	CURRENCY	MONETARY BASE	MONEY (M ₁)	
-\$91	+\$223	+\$18	+\$4	-\$41	+\$42	-\$13	+\$3	-\$32	
24.8%	0.4%	4.3%	-\$792	+\$17	+\$416	-6.1%	-3.4%	-0.4%	
			<i>Current Changes to June 30, 1930</i>						
			<i>Cumulative Changes from August 1929</i>						
BORROWING	EXCESS RESERVES	DISCOUNT RATE (N. Y. AND RANGE)	AAA RATES	AAA- ACCEPTANCES	BAA-AAA	WPI ALL ITEMS (1926 = 100)	WPI FARM (1926 = 100)	INDUSTRIAL PRODUCTION (AUGUST 1929 = 100)	
\$251	\$54	2.5 (2.5-4)	4.52%	2.39%	1.25%	87	89	82.4	
			<i>Levels as of June 1930</i>						

Note: Dollar amounts are millions.

Unfortunately, Harrison failed to respond to the main points raised by some of the other members on the committee. They argued that “easy money” and the low interest rates on the short-term markets had not had any effect on longer-term markets. The term spread had continued to widen. Some now interpreted the purchases in early June as an experiment that had failed to lower long-term rates. Harrison agreed that the short-term money market was “easy.” He told the group “that he did not want to leave the thought that there is any feeling in New York different from that expressed by the other members of the Committee that there is an adequate supply of short-term credit available for business. This is not the difficulty today, . . . and it has not been for months” (Board Minutes, June 23, 1930).

Governor Fancher (Cleveland) pointed out that since short-term rates had fallen, there was very little more that the System could do. Money would flow from the short-term market to the bond market as soon as banks attempted to increase their earnings. This would revive the bond market and lower long-term rates. Early in June he had favored a purchase program (to reduce short-term rates), but he now believed that additional purchases would accomplish little.

McDougal and Norris led the opposition to purchases in the executive committee with support from a letter that Governor Calkins wrote to Governor Young explaining why San Francisco did not share in the June purchases. The basis of their position was that “credit is cheap” and that nothing could be gained by making it cheaper. Further increases would not stimulate production, but a large security portfolio would make the committee hesitant to purchase when an opportune time came.

Harrison’s opponents agreed on one point—no further purchases should be made. McDougal wanted to sell securities and allow the acceptance portfolio to run off. Norris told the executive committee that he opposed the purchase program because the recession was due to excess capacity and overproduction that had caused a fall in the price of commodities. His examination showed that “the commodities on which the reduction of prices had been most marked disclosed in almost every case a specific reason which has nothing to do with credit.” Easier money, by which he meant lower interest rates, “might lead to further increases in productive capacity and further overproduction.” On the same day, he told the Board that he opposed a reduction in the discount rate at the Philadelphia bank because the only effect of a reduction would be “to increase the margin of profit for those banks which are chronic borrowers . . . and make it more difficult for the well managed bank to show any earnings at all.” As for open market purchases, Norris said that he and other members

of the executive committee “cannot bring themselves to believe that a further purchase of government securities would help, but feel that such purchases would be an interference with the natural effect at this time and would not be productive of any good, and might be embarrassing at the time when business starts to pick up, at which time this System would find itself with a large amount of government securities and low discount rates.” The majority of the executive committee could not see any benefit to be derived from “affirmative action” (Harrison Papers, Office Memoranda, vol. 2, June 1930).

Harrison consistently evaded the question of how or why the policy of relatively small weekly purchases would work. He agreed that short-term funds must be regarded as “abundant,” since short-term rates were in the lowest ranges reached in previous recessions.⁴⁰ Several of the other members—despite their differences—believed that recovery would not come until there was an increase in member bank borrowing and an increased demand for bank loans to finance trade and other productive activities. Harrison appears to have shared large parts of this real bills view. He made no effort to present an alternative.

Three days later, on June 26, Harrison discussed the response to the OMPC’s decision with the New York directors. They could wait for a change in sentiment at the other banks; withdraw from the OMPC and purchase for their own bank; or attempt to persuade the boards at other reserve banks by circulating a statement of their position. The bank’s officers favored the third proposal. The directors were reluctant to agree because they believed delay was “tantamount to retarding business recovery. . . . [T]hey indicated their belief in the power of credit to bring about a revival in the bond market and, through it, to bring about an improvement in business” (Minutes, New York Directors, June 26, 1930).

Harrison put the issue sharply. Was the bank “so firmly convinced of the soundness of its position as to be willing to withdraw from the System Open Market Policy Conference?” He preferred delay. He was not convinced of “the power of cheap and abundant credit, alone, to bring about improvement in business” (*ibid.*, 2). New York either had to act alone or had to persuade other banks to change their position. He was unwilling to do the first, unable to do the other.

Those who argue that Harrison saw the need for more expansive policy but was prevented from carrying it out by the other members of the conference and by the Board point to the events of this period to support their

40. By June the wholesale price index used by the Board had fallen 11 percent since August 1929, a 13 percent annual rate of decline. Ex post, short-term real rates were approximately 15 percent.

position. The claim is more true of the New York directors than of Harrison. Harrison seems pushed and pulled by the opposing views of his directors and his colleagues on the OMPC. He showed no intention of seeking a sustained rate of increase in money or bank credit. He had the much more limited aim of offsetting an increase in short-term rates and planned to stop purchases once he achieved this objective.

After the June 26 meeting, he wrote to the other governors suggesting that the Federal Reserve resume purchases of \$25 million a week. The letter described the situation in the economy and in the money and bond markets in enough detail to convince even the most skeptical that the failure to act cannot be explained by lack of information. Commodity prices had suffered the most severe and rapid decline since 1921. These prices, he said, were now 12 percent below the previous year, and the decline had accelerated (see table 5.7). Profit margins and purchasing power had fallen, and many people were facing unemployment and distress. Although money market rates had come down, the long-term bond market had not eased sufficiently: "Purchases of securities which had been made thus far have aided in relieving the member banks from a pressure of indebtedness at the Reserve banks and in a measure had provided the market with surplus funds available for use on the bond and mortgage market. But to a large extent these purchases . . . had been offset by declines in rediscounts and in the bill portfolios of the Federal Reserve Banks so that the total Federal Reserve credit has shown a net decline, even making allowance for gold imports." Emphasizing that the opinions he expressed were those of his directors, Harrison recommended that the System resume purchases and concluded, "While there may be no definite assurance that the market operations and government securities will of themselves promote any immediate recovery, we cannot foresee any appreciable harm that can result from such a policy" (Harrison Papers, Correspondence, July 3, 1930).

This weak proposal brought some strong responses. Calkins (San Francisco) wrote that his bank's executive committee believed that "the volume of credit forcibly fed to the market up to this time has had no considerable good effect. . . . [E]very time we inject further credit without appreciable effect, we diminish the probable advantage of feeding more to the market at an opportune moment which may come" (Harrison Papers, Correspondence, July 10, 1930, 2).

At the July 10 New York directors' meeting, Harrison discussed the Board's response to New York's proposal. At first Vice Governor Platt indicated that the Board would approve a recommendation by the New York directors to purchase \$50 million for the bank's own account. Later Platt suggested that New York should wait until it received replies from the

other governors. Harrison said he agreed with Platt's suggestion to await replies from the other banks because they had been able to accomplish at least part of what they hoped to achieve by their operations in the acceptance market.⁴¹

A week later Harrison told the directors that an unanticipated increase in the offering of acceptances had enabled the bank to increase reserves by approximately \$70 million: "This increase in the System's holding of bills had, in considerable measure, accomplished what we had hoped to accomplish by further purchase of government securities." He did not believe New York would be justified in "forcing further funds upon the market." Then Harrison made a clear statement of the Riefler-Burgess doctrine to explain his reason for first favoring and now opposing purchases: "If the program of purchases of government securities advocated by this bank at the beginning of July had been approved by the Federal Reserve System, that approval *would not have resulted* in further purchases of government securities in view of the money market conditions which later developed" (emphasis added).

The next day, Harrison sent a letter to all the other governors repeating this position.

Since the end of June, even since my letter of July 3, conditions in the money market have changed with rapidity. . . . The principal New York City banks have paid off all their discounts here and at present have a surplus of reserves. Thus, the condition which we have desired, and for the attainment of which we believed purchases of government securities might be necessary, has been achieved during the past ten days in the natural course of developments in the bill market which could hardly have been anticipated. . . . As we pointed out in our letter of July 3, we believe that the important thing to be achieved in present circumstances is that the money center banks should be substantially out of debt and that there should now be some surplus funds available. As just stated, this condition now exists largely as a result of the increase in the System bill portfolio. (Minutes, New York Directors, July 17, 1930)

41. The bill purchases reflected mainly changes in market rates relative to the posted acceptance rate. Harrison summarized the governors' replies in a memo included as part of the minutes of the directors' meeting of July 17. An example of the importance given to real bills and the need to avoid "speculative" credit is the letter Harrison received from Governor Talley of Dallas (Harrison Papers, Letters and Reports, vol. 1). Talley wrote that "if rediscount rates are reduced beyond their natural point and open market transactions are used to force the rediscount rate below that point to which it would naturally fall, then reserve credit would be forced into illegitimate channels and the total amount of credit, based upon the excess reserve credit released, would find its way into a long-term investment where it does not belong, and the tendency would be for another period of inflation to ensue without stopping at the natural point of readjustment from which recovery would proceed in the natural way."

The committee did not meet again during the summer of 1930. On August 7 the executive committee and the conference agreed by telephone, without much dissent, to purchase \$25 million so as to offset part of the gold export. At the end of August it approved \$50 million of additional purchases by telephone to reverse the money market effect of a seasonal increase in member bank borrowing or a further decline in the gold stock if these should occur.

The Board granted the authority but, still concerned about prerogatives, noted that the Open Market Policy Conference had not held a meeting as required by the resolutions it operated under. Harrison replied that the purchase program had been entirely for seasonal purposes. He had consulted members of the executive committee of the conference, and "we are all in agreement that at the moment there does not appear any need to purchase government securities." He explained that the demand for currency and credit for the Labor Day weekend had subsided; the New York City banks had reduced their indebtedness to \$8 million; reserves were in excess of requirements. "Money" was easy.

On August 30 Governor Young expressed the same opinion in a letter to President Hoover tendering his resignation as governor of the Federal Reserve Board to accept appointment as governor of the Boston bank: "Now, however, it is clearly evident that the credit structure of the country is in an easy and exceptionally strong position" (Young to Hoover, Board Minutes, August 30, 1930).

Young did not give the basis for this claim. The data show a further decline in June for the sum of banker's acceptances and commercial paper. In fact, both had fallen, while loans at reporting member banks had increased. Although table 5.7 shows commercial paper and banker's acceptances outstanding above the August 1929 level, the peak occurred in January 1930. By June, acceptances and commercial paper were 13 percent below the January total, while bank lending had increased 1.3 percent since January and was slightly above the level at the cyclic peak in August 1929. However, member bank borrowing and short-term market rates were in the range considered easy.

Bernanke (1983, 1994) and Calomiris (1993) claim the decline in bank lending was an independent cause of the economic decline that supplemented the decline in the money stock. They argue that small firms that depended most on banks for credit were forced to contract by the decline in bank lending. Bank failures increased the costs of intermediation, making credit more difficult to obtain for borrowers too small or too risky to use open credit markets.

A cursory examination of the data in table 5.7 seems to support this

claim. Bank loans, acceptances, and commercial paper increased in the first ten months of recession, but the cumulative increase in open market lending far exceeds the increase in bank loans. This is misleading. Most of the increase in open market lending occurred from August to November 1929. Loans at weekly reporting banks also rose in this period, but by a smaller amount. In the first half of 1930, Bernanke's hypothesis fails. From January 31 to June 30, commercial paper outstanding fell by 12.6 percent, while loans at weekly reporting banks rose by 1.3 percent. Weekly reporting member banks are above average size and lend to larger customers. For all member banks, call data on December 31, 1929, and June 30, 1930, show a decline of 3.6 percent in total loans, much less than the decline in commercial paper.

Changing Character of the Decline

By the next OMPC meeting, more than a year had passed since the cyclical peak. Industrial production had fallen 25 percent, and the stock of money and the monetary base had fallen 4 to 5 percent. Member bank borrowing had fallen \$850 million from the peak and was at a comparatively low level, and short-term interest rates were less than half the levels of the previous year. Long-term interest rates on Aaa bonds had fallen much less, as is typical in a cyclical downswing (table 5.8).

A new element appeared for the first time in the September data: the spread between Aaa and Baa rates widened. Baa rates rose while Aaa fell, so the risk premium increased from both ends, suggesting flight to quality. In June the risk spread was the same as at the August 1929 peak; in September it was wider by 0.27 percent.

A comparison of the decline in money, output, and prices during the first year with the changes in later years shows how the character of the contraction changed. At first, industrial production declined by a much larger percentage than the stock of money or the price level. After the first year of contraction, industrial production was midway between peak and ultimate trough; the stock of money and the price deflator were no more than a quarter of the way from peak to trough. A severe deflation now combined with a severe contraction. Even on the Federal Reserve's interpretation that the contraction was brought on by the speculative excesses of the late twenties, it is clear that the speculative excesses had been obliterated after one year by the precipitous decline in output. From this point on, output declined at a slower rate; money and prices declined faster. During the next thirty months, the average percentage declines in money, industrial production, and prices were more nearly the same.

Most of the policymakers regarded the substantial decline in short-term market interest rates and the attendant decline in member bank borrowing as the main—and perhaps the only important—indicators of the current position of the monetary system. On the Riefler-Burgess view, policy was “easy” and had never been easier in the experience of the policymakers or of the Federal Reserve System. However, table 5.8 makes clear that the decline in interest rates was not principally a result of Federal Reserve operations. The Federal Reserve had partially offset the decline in interest rates resulting from the reduction in the public’s currency holdings, the demand for loans and other forms of bank credit, and deflation.

There can be no doubt that the Federal Reserve was aware of the severity of the depression. The preliminary memorandum prepared for the September meeting compared the then current depression to the depression of the 1880s, described it as one of the worst in the country’s history, and named lack of purchasing power as a main cause. The memorandum also referred to the cautious approach being taken by the banks, particularly banks in New York, a reference to the fact that member banks’ borrowing had fallen.

At the September meeting, Harrison again described the monetary and economic situation, called attention to the fact that most central banks had increased their gold reserves during the year, and for the first time mentioned the reduction in the monetary base. The ratio of gold to central bank liabilities had increased because of the “very substantial” decline in note and deposit liabilities.⁴²

Traditionally, the committee devoted much of its attention in the early fall to the seasonal increase in bank credit and bank reserves. This year, however, member bank borrowing and short-term interest rates had fallen, contrary to the seasonal pattern, so the governors considered selling securities. After some discussion, the committee approved Harrison’s motion that “it

42. “For the past year, this country has been in a business recession. At first it was hoped that the recession would be relatively brief reflecting the temporary disturbance of the stock market inflation and decline. But in recent months the recession was extended until, even if the bottom has now been reached, it will rank as one of the country’s major business recessions both in extent and duration. The duration of the recession has already been as long as any recession since the 1880s. The causes of the recession are deep seated and broad in their scope and involved, in part at least, a serious shortage of working capital and curtailment of purchasing power in a number of countries and some over-production in basic world industries accompanying under-consumption. . . . The end of the recession does not yet appear by any concrete evidence to be definitely in sight though there have been of late some indications of a check in the downward movement. Generally speaking the banks have pursued an extremely cautious lending and investment policy seeking to keep themselves in the most liquid position” (Harrison Papers, Open Market, September 25, 1930).

Table 5.8 OMPC Meeting, September 25, 1930

LOANS OF		COMMERCIAL		GOLD STOCK		BORROWING		BILLS BOUGHT		GOVERNMENT		CURRENCY		MONETARY			
101 WEEKLY		PAPER AND								SECURITIES				BASE			
REPORTING		ACCEPTANCES												MONEY (M ₁)			
BANKS																	
\$48	-\$189	\$0		-\$62		-\$62		+\$56		+\$26		-\$47		-\$79	-\$251		
28.1%	-0.1%	4.3%		-\$854		-\$854		+\$73		+\$442		-7.3%		-4.6%	-5.4%		
<i>Current Changes to September 30, 1930</i>																	
<i>Cumulative Changes from August 1929</i>																	
BORROWING		EXCESS RESERVES		DISCOUNT RATE (N. Y. AND RANGE)		AAA RATES		AAA-ACCEPTANCES		BAA-AAA		WPI ALL ITEMS (1926 = 100)		WPI FARM (1926 = 100)		INDUSTRIAL PRODUCTION (AUGUST 1929 = 100)	
\$189	\$59	2.5	(2.5-3.5)	4.42%		4.42%		2.54%		1.52%		84		85		75.6	

Note: Dollar amounts are millions.

should be the policy of the System to maintain the present easy money rate position in the principal money centers . . . that . . . no further easing of such money rates would be advisable and that no firming of rates would be desirable whether because of seasonal requirements, gold exports, or other causes." The OMPC approved this motion nine to two with one abstention.⁴³

The minutes then refer to a general discussion between the members of the OMPC and the Board at which members of the Board asked why the conference had not requested authority to engage in substantial purchases so as to force more credit on the country.⁴⁴

Governor McDougal restated his position at length. He was opposed to maintaining the present low rates that prevailed in the market because they were "artificial," "too low." Banks were now unwilling to pay a 2 percent rate to buy new Treasury issues on credit because money was not worth 2 percent. In an apparent reference to the open market purchase of \$50 million the previous spring, which he had opposed, he reminded the governors that easy money had been tried, and while it could not be said that the policy had achieved nothing, "it has not done what we hoped." And he added, "We are all in agreement that nothing should be done to make things easier."

Governor Calkins explained that he had voted against the resolution for reasons he described as "trivial." He had written the background memorandum, but he opposed the section, added at the meeting, authorizing purchases or sales of \$100 million instead of \$50 million. He did not want any action to ease the money market, but he could not agree with Governor McDougal that this was an opportune time to "firm the money market." "We have every reason to anticipate the usual seasonal increase, and I think we should go through that period, the remainder of this year, before we take any action to bring about a less sloppy condition."

Governor Norris voiced an opinion similar to McDougal's: "I think the large majority felt that money conditions were unduly and unwholesomely easy and that there might be some little hardening in some rates without

43. The conference also voted to raise the limit on purchases and sales by the executive committee from \$50 million to \$100 million without further approval of the conference. Governor Calkins believed this would be interpreted as a move to greater ease, so he voted against the resolution. Governor McDougal gave the other negative vote. He explained that "he thought some firming of rates might be advisable."

44. The details of this discussion are not contained in the minutes, but they are available from the Board's correspondence. They reveal most clearly the positions, beliefs, and attitudes held by leading members of the System. The quotations and source material that follow in the text are from a letter to Eugene Meyer, dated September 30. Meyer had replaced Young as governor of the Federal Reserve Board. He served from 1930 to 1933. The memo notes that the remarks are not verbatim.

doing any harm and possibly doing some good.” He had voted for the resolution as Harrison presented it, because he did not want to take responsibility for a firmer policy at that time in view of the seasonal problem. His views were more fully expressed in a memorandum from the directors and officers in Philadelphia that he had read to the conference. The memo restated the dangers of low interest rates and argued that low interest rates could not bring about recovery. The problem, as they saw it, was one of excess capacity and not one of underconsumption.

The Philadelphia memo appealed to the real bills doctrine that most of the governors regarded as their guiding principle:

We have always believed that the proper function of the System was well expressed in the phrase used in the Tenth Annual Report of the Federal Reserve Board—“The Federal Reserve supplies needed additions to credit and takes up the slack in times of business recession.” We have, therefore, necessarily found ourselves out of harmony with the policy recently followed of supplying unneeded additions to credit in a time of business recession, which is the exact antithesis of the rules stated above.

The suggestion has been made that we should be prompt to “go into reverse” and dispose of these governments when business picks up. This is a complete and literal reversal of the policies stated in the Board’s Tenth Annual Report, already quoted. We have been putting out credit in a period of depression, when it is not wanted and cannot be used, and we will have to withdraw credit when it is wanted and can be used. (Open Market Policy Conference, Board of Governors File, September 25, 1930)

Norris and his directors believed that “correction must come about through reduced production, reduced inventories, . . . and the accumulation of savings through the exercise of thrift.” The burden was on those who wished to deviate from the established principles of policymaking to show that some benefit would result. None of the members of the Open Market Policy Conference openly disagreed with Norris’s interpretation of the policy statement in the Board’s tenth annual report. None of them offered an alternative interpretation or argued that he had misinterpreted that report, as Chandler (1958) has suggested.

Adolph Miller of the Board urged the members of the committee to consider a more expansive policy and stated the case for countercyclical policy as clearly as it was ever done in the minutes for the period. He began by asking whether the governors’ recommendations related to the economic situation and to the depressing conditions the System faced. He questioned whether they misinterpreted money market conditions because they relied on a faulty indicator:

Is this your program for handling whatever problems of a financial or credit character that originate in this present condition of depression? I ask that because in times of depression, particularly, a money rate is a very imperfect indicator of the true state of credit. . . . You have lower rates precisely because business is stagnant. . . . I expected the Committee might come along with a proposal not to maintain the existing program, but to alter the situation by a bold buying away from the public or banks 50 million or 100 million dollars of bonds and make them turn around and look for some other avenue of investment.

After an exchange with Harrison, Miller continued:

The fellow who sells me his corporate bonds which I buy with the money the Reserve bank has given me in exchange for my government bonds turns around and eventually has got to find something in the field of some new undertaking. I think the real meat of this matter is that in a condition of this kind the fellow who is tempted to sell a security, a government bond in the first instance, does it because he sees somewhere an opportunity where he can replace his investment to his own advantage. In the meantime you have started a movement which causes a revision of the relative scale of investment desirability and values which may work some benefit in a stagnant situation. (Open Market Policy Conference, Board of Governors File, September 25, 1930)

In reply, Harrison argued that Miller's policy was the policy of deliberate inflation, a policy that was "fraught with a great many dangers." There were "some in the organization of the New York bank," who wanted to pursue the policy Miller now urged upon them, but the governors had not considered this alternative. One of the great dangers in this policy was that it would fail to generate much expansion but would instead cause a gold outflow. After they used all their reserve bank credit, they "would be stumped."

Harrison's reference to "some in the organization of the New York Bank" is to two officers of the New York bank, Carl Snyder and W. Randolph Burgess, and perhaps to some of the directors. At a meeting of the officers' council on September 17, Snyder urged Harrison to support an aggressive policy of expansion.⁴⁵ Snyder pointed out that the call report data for June 30 showed that the volume of bank credit at all member banks was the same as in 1928, and that credit had actually declined compared with 1929. The city member banks had reported an increase during this period so, he rea-

45. At the New York directors' meeting on October 23, Harrison mentioned again that a majority of the officers of the New York bank favored additional purchases. Harrison opposed on grounds that the market was easy and the OMPC would not agree (Minutes, New York Directors, October 23, 1930).

soned, the approximately eight thousand nonreporting member banks must have curtailed the amount of credit outstanding. In his opinion this was deflationary. He favored an aggressive policy of purchases to stimulate business and avoid the winter of depression that now seemed likely.

Harrison replied that since the banks borrowed only minimum amounts from the Federal Reserve, additional purchases would force them to invest in securities instead of real bills. The dangers of such an inflationary policy were “great” and the advantages “doubtful.”

Burgess argued that the attempt to correct a previous deflation was not inflationary. He believed that New York should favor a policy that involved more than merely maintaining easy money rates and keeping the New York City banks out of debt. By increasing the pressure on the banks to employ their surplus funds, open market policy could give a little impetus to business recovery. Later, if inflation developed, there would be ample opportunity to slow it down.

Harrison replied that the present economic difficulties could no more be remedied by a “heavy dose of easy credit” than by the small dose that had already been administered. He repeated the stock argument: when the New York City banks are continuously out of debt to the reserve bank over any considerable period of time, it means a very easy reserve position. Harrison added that most of the other Federal Reserve Banks would not agree to additional purchases (Harrison Papers, Discussion Notes, “Credit Policy in the Business Situation”).

At the OMPC, Governor Meyer agreed with Harrison that any increase in reserve bank credit beyond what he called the “status quo” would lead to a gold outflow. Miller then urged that they at least consider an exploratory operation, but he was unable to counter the arguments of Harrison and Meyer that the proposed policy was inflationary, that the conference felt it had “gone too far.”

Norris closed the discussion with the type of argument that often appeals to “practical men.” He had talked to a partner of Morgan and Company, who assured him they had “no trouble at all in selling high grade bonds but that there was difficulty in selling second grade bonds, because buying was institutional.” Further purchases by the Federal Reserve would succeed in marking bond prices up only temporarily; as soon as the purchases stopped, prices would fall, and the customers would be disgruntled.

Summary: Policy in the First Year

The September meeting was the last scheduled meeting of the full Open Market Policy Conference in 1930 and the last opportunity the Federal Reserve had to prevent the wave of bank failures and currency drains that

started late in the year. With the exception of Miller's plea for a more expansionist policy and the Snyder-Burgess suggestions a few weeks earlier, there had been no serious consideration of an alternative to the existing policy. Of those present at the OMPC meeting, only Miller appears to have dissented from the view that "ease" was best measured by member bank borrowing and short-term market interest rates, and only Miller questioned the notion that policy could do nothing more until there was an increase in the demand for credit. No one suggested that the severe deflation had increased real rates.⁴⁶

As usual, the quixotic Miller did not convert others to his view. It seems unlikely, however, that the more persuasive Strong would have succeeded if he had lived. The dominant view among the governors was that open market purchases and easy money had failed to revive the economy. The System had purchased more than \$500 million of securities and acceptances in the previous twelve months. Short-term rates were at historical lows. The Riefler-Burgess doctrine suggested that policy was easy. The real bills doctrine implied that the correct policy was a passive one. Most governors had always held these views; Harrison shared many of them.

The economies of the United States and much of the rest of the world became victims of the Federal Reserve's adherence to an inappropriate theory and the absence of basic economic understanding such as that developed by Thornton and Fisher (chapter 2 above). The alternative interpretation, that monetary policy failed because no one suggested the appropriate action to take, is contradicted by the arguments that Miller, Burgess, and Snyder advanced at the September meetings in New York and Washington and by the arguments of several New York directors in May and June.

Although Harrison mentioned a future loss of gold as a reason for not expanding, gold movements had little impact on policy decisions and actions. In the year to September, bank reserves had increased by less than the increase in gold stocks and the monetary base had declined, so gold standard reasoning supported expansion.⁴⁷

46. Snyder and Burgess continued their efforts. At the October 23 meeting of the New York directors, Harrison reported that the officers were in favor of further purchases. One of the directors urged Harrison to make these views known to the Board. Harrison again referred to the very low level of member bank borrowing but now argued that "he was doubtful of the advisability of forcing more funds into the market where they might back up and cause an unwise inflation of credit." In a letter to Governor McDougal written at about this time, Harrison interprets the 1928-29 experience as "speculative excess" with insufficient credit restraint, the view taken by Strong's critics.

47. On both October 9 and October 30, New York voted to purchase \$25 million of sterling bills for its own account. New York acted to strengthen the pound, but discussion of the assistance to cotton exports may have influenced some directors (Minutes, New York Directors, October 9 and 30, 1930).

The discussion at the September 1930 meeting shows that the Federal Reserve's decisions followed the real bills doctrine, as expressed in the tenth annual report, and failed to distinguish between real and nominal interest rates. Consumer and wholesale prices had fallen 14 to 15 percent in the year to September, so the 3.25 percent reduction in acceptance rates, the 3.5 percent reduction in the discount rates at New York, and other rate reductions left short-term real interest rates more than ten percentage points above the level of the earlier year.

Eichengreen's (1992) claim that lack of international coordination prevented expansion finds no mention in the discussion. With few exceptions, the governors, members, and officers of the Federal Reserve believed they had acted appropriately—that any additional purchases would fuel speculative growth. They did not look to foreign central banks for guidance or leadership, and they did not consider coordination necessary for expansion.

In the year since the peak, the Federal Reserve had purchased \$442 million of government securities and acquired \$73 million of acceptances. Borrowing had declined \$854 million and was well below the minimum levels reached in the 1923–24 and 1926–27 recessions. To a modern observer, these changes suggest that the Federal Reserve had failed to offset the decline in borrowing. The Riefler-Burgess doctrine provided a different interpretation: Federal Reserve purchases had permitted the banks to repay borrowings. The financial system was in a position to expand if the private sector wanted to borrow.

Two months after the September meeting, Charles S. Hamlin of the Board talked about changes needed in the Federal Reserve Act. The proposed changes were modest and, Hamlin said, were considered nonpartisan by the Board and Congress. Hamlin talked about the Board's cordial relations with Congress. He made no mention of changes in gold reserves or requirements as a restriction the Board wanted removed.

Hamlin's speech showed no evidence of the need for stimulus. He accurately described the magnitude of the decline in industrial production and prices in the first year of recession. The decline in bank credit was the usual occurrence in a recession. He noted the reduction in bank borrowing and in the ratio of loans to deposits (Federal Reserve Bank of Boston 1928–31, 1930, 19). After discussing quantitative changes in the distribution of credit between New York and the rest of the country, Hamlin concluded by comparing 1929–30 and 1920–21. "The Federal Reserve Banks are not now, as they were then, close to the limits of their lending power. On the contrary, they have ample reserves and stand ready to finance a

growing volume of business as soon as signs of recovery express themselves in an increasing demand for credit. That day cannot arrive too soon to please any of us" (21).

WATCHING AND WAITING: POLICY IN THE SECOND YEAR

By November–December 1930, a radically new element had emerged. The eruption of serious bank failures shifted the balance of relative advantage toward increased currency holdings. The risk attached to holding demand deposits increased substantially, lowering the relative inconvenience of holding currency. With Federal Reserve policy unchanged, the public's increased demand for currency forced a further contraction in the money supply and in the banks' demand for earning assets. But until mid-December, member bank borrowing remained virtually unchanged, and short-term interest rates did not rise, so the executive committee did not meet and made no purchases of securities for seasonal or other reasons.

Bank failures began in the Southeast after the collapse in November 1930 of Caldwell and Company, a large Tennessee investment bank (Wicker 1996). Runs on 120 banks followed the collapse, but most were small. Wicker (1996, 32) concluded that the effect of the failures did not spread beyond the region, and Calomiris and Mason (2000) support this conclusion. Since money market interest rates did not rise, the Federal Reserve took no action.

On December 11 the New York State superintendent of banking closed the Bank of the United States, a New York City member bank. More than half a million depositors found their deposits unavailable.⁴⁸ The proximate reason for closing the bank was failure to merge the bank with two others—the Public National Bank and the Manufacturers' Trust Company. Neither of the latter banks closed. All three banks had Jewish owners, and each lent to small and medium-sized clothing and textile manufacturers. None was a member of the New York clearinghouse at the time.

After two weeks of late-night meetings, a group including J. Herbert Case, chairman of the New York reserve bank, Leslie Rounds, Federal Reserve officer responsible for banking, and Mortimer Buckner, head of the New York Trust Company and chairman of the relevant clearinghouse committee, agreed to merge the three banks with Case as chairman of the new board. The agreement required the clearinghouse banks to advance \$20 million: "The Public was in fine shape, the Manufacturers' was in good

48. Two smaller banks closed also—the Chelsea Bank in New York and the Binghamton State Bank.

shape, and the Bank of the United States was generally supposed to be in pretty poor shape" (CHFRS, Rounds, May 2, 1955, 15).

Rounds and Case give different explanations of the failure to merge. According to Rounds, Harrison returned from Europe just as the agreement was reached. Harrison was cool to the idea. The Manufacturers' Trust was hesitant and would agree only if the clearinghouse banks would guarantee up to \$20 million of Bank of the United States assets: "Quite a few of those representing the clearinghouse banks cooled off and George [Harrison] was not disposed to warm them up any, so it all fell through; at about 5:30 that morning it was decided to close the bank" (*ibid.*, 16).⁴⁹

Case's version has Harrison in Europe throughout.⁵⁰ Case attributed the failure of the merger to a decision by the Public National Bank to withdraw from the merger. The governor, Franklin Roosevelt, "sent Lehman down to plead that the consolidation should go through. One of the distinguished bankers [a clearinghouse member] shook his head and said 'let it fail, draw a ring around it, so that the infection will not spread.' Obviously any such idea was impossible" (CHFRS, Case, February 26, 1954, 7).⁵¹

To ease the burden of the closing of a medium-sized member bank and to slow the currency drain, the New York clearinghouse admitted the Manufacturers' Trust and the Public National Bank to membership. The own-

49. Rounds had looked over the bank's records for several days and nights. He claimed the bank was solvent at the time it closed. "We had discounted the doubtful items very heavily. They had a pretty good bond account, they had \$35 or \$40 million of capital to be exhausted before they became insolvent" (CHFRS, Rounds, May 2, 1955, 17). Friedman and Schwartz (1963, 311) report that the Bank of the United States paid out 83.5 percent of its adjusted liabilities despite declining asset prices in the following two years.

50. Case described a conversation with Harrison in Germany in which Harrison agreed that Case should be chairman of the merged bank (Case, CHFRS, February 26, 1954, 7). The conversation must have occurred earlier. Harrison was in New York on December 4 for the New York directors' meeting.

51. The issue of Harrison's presence or absence aside, Case's story emphasizes a different side of a very similar story. Both the Manufacturers' and the Public National demanded the clearinghouse guarantee. Failure to get the guarantee caused them to withdraw. One reason the clearinghouse banks were unwilling to guarantee the \$20 million was that they had lost heavily when they guaranteed the Harrison National Bank. The Harrison bank went bankrupt, and stockholders lost most of their equity. Another reason, offered by Friedman and Schwartz (1963, 309-10), is that the Jewish ownership of these banks played a role in the clearinghouse decision. Earlier, Rounds denied the story in a way that suggests it was a consideration. "I don't think anti-Jewish feeling was too important so far as the clearinghouse banks were concerned. Of course, it contributed to the feeling that they all had of doubt about how bad the situation was. . . . There was a definite feeling in the minds of the public regarding banks that was anti-Jewish. As far as the clearinghouse banks were concerned, I don't think they thought in terms of race. . . . There was a certain amount of feeling about the Jewish banks but I don't think it was based on race. I do think that in the public mind there was a strong aversion to Jewish banks and that many of the Jewish bankers felt that the public had made that decision" (CHFRS, Rounds, May 2, 1955, 19).

ers of the Manufacturers' Trust sold controlling shares to a non-Jewish banker (CHFRS, Rounds, May 2, 1955, 21).⁵²

The December 1930 OMPC meeting was one of the briefest on record. The minutes cover only two pages. Harrison reported on the closing of the Bank of the United States nine days earlier and informed the conference that he had made some emergency purchases of securities from particular banks in New York after the failure. In fact, New York had purchased \$100 million of securities and \$75 million of acceptances between November 30 and December 17; the System's discounts and the monetary base increased by \$80 million and \$250 million, respectively. Most of the increase in the base reflected the currency drain, a subject discussed at length in the preliminary memorandum prepared for the meeting and all but completely ignored by the governors.⁵³

Borrowing, currency, and the base continued to rise to the end of the month but, contrary to the normal seasonal increase, loans at weekly reporting banks fell \$500 million in two months (see table 5.9). The risk spread between higher- and lower-rated bonds rose 0.67 to 2.19 in the same period and was almost one percentage point above the August 1929 level by the end of the year.

The conference was willing to leave any decision about further purchases to Harrison but stipulated that the purchases would have to remain within the \$100 million limit set by the OMPC in September. It is not clear whether this was intended as a vote of confidence in New York's ability to handle the crisis or whether the governors were aware that New York had purchased most of the \$100 million for its own account before the meeting and had little remaining authority. During the week of the meeting, discounts rose more than \$100 million to the highest level since the start of the year. New York sold \$50 million, and at the end of the week it reduced its discount and acceptance rates. When the pressure increased in the last week of the year, New York temporarily exceeded its authority by purchasing more securities than the conference had authorized.⁵⁴

52. "The feeling of the Clearinghouse was that the bank could not survive as a Jewish bank" (CHFRS, Rounds, May 2, 1955, 22).

53. Case reported that in the single week ending December 13, 1930, the New York Federal Reserve Bank supplied \$170 billion in currency, 4 percent of the total stock outstanding. For the country as a whole, currency increased \$300 million, about 7.5 percent of the outstanding stock. Part of the increase was seasonal (testimony of J. H. Case, Senate Committee on Banking and Currency 1931, 108-9).

54. During the week ending December 24, a fortuitous increase of \$50 million in float eased the money market and offset the System's open market sales. In the following week, float declined and the pressure on the money market increased. New York purchased more than \$100 million of acceptances and \$85 million in securities during the week; at \$729 million in securities and \$364 in acceptances, the account was more than \$300 million higher

Before December, most failed banks were rural nonmember banks. The Bank of the United States was a medium-sized member bank in the country's main financial center. After calm returned to the markets, evidence of concern remained. Risk spreads between Baa and Aaa bonds remained above the levels customary before the failure, and currency outstanding continued to increase absolutely and relative to the money stock.

The background memo prepared for the December meeting painted a gloomy picture. Industrial production had declined "to the lowest level relative to normal ever reached"; factory employment had declined further; agricultural prices had fallen; the autumn expansion was below average. The memo mentions a decline from 92 to 85 between August and November in the seasonally adjusted production index and a decline in the price index from 85 to 81. Yet these facts had no apparent effect on the OMPC's decision. Member bank borrowing remained below \$500 million; on Riefler-Burgess grounds, the market did not require further support.

Once the money market disturbance subsided, the System began to sell securities and to reduce its acceptance portfolio, following the usual seasonal pattern. Bank loans had declined by almost \$1 billion, nearly 6 percent, in the four months to January 31. Industrial production, prices, and the stock of money continued to decline. Currency held by the public rose from December to January, reversing the standard seasonal movement and suggesting public concern about the financial system. A new element appeared for the first time: member bank excess reserves were above \$100 million, twice the average level of the preceding year.

The rise in excess reserves could have been a signal to the members of the Open Market Policy Conference or to their staffs. In their analysis, excess reserves were small and approximately constant, so the relatively large increase from December to January was inconsistent with the Riefler-Burgess framework. Miller was aware of the inconsistency. He asked why the banks were acquiring surplus reserves and how widespread the practice had become. Harrison replied that excess reserves were most likely a sign of lack of demand by borrowers and of banks' reluctance to use funds; McDougal and Young replied that most of the banks in Chicago and Boston did not have surplus reserves but that the banks were "very liquid." Miller pressed his point, suggesting that the "banking system might be suffering just now from excessive caution and excessive desire for liquidity." Harrison replied that "that was one reason why our easy

than at the time of the OMPC meeting. All of the increase came in December. These figures are higher than those shown by the change in securities in table 5.9, which are based on monthly averages of daily figures. Approximately \$45 million of the purchases were made (net) by New York for its own account.

Table 5.9 O MPC Meeting, December 20, 1930

COMMERCIAL PAPER AND ACCEPTANCES	LOANS OF 101 WEEKLY REPORTING BANKS	GOLD STOCK	BORROWING	BILLS BOUGHT	GOVERNMENT SECURITIES	CURRENCY	MONETARY BASE	MONEY (M ₁)
+34	-\$527	+\$58	+\$149	+\$60	+\$57	+\$175	+\$296	-\$120
30.4%	-3.8%	5.7%	-\$705	+\$133	+\$489	-2.8%	-0.4%	-5.8%
			Current Changes to December 31, 1930					
			Cumulative Changes from August 1929					
BORROWING	EXCESS RESERVES	DISCOUNT RATE (N.Y. AND RANGE)	AAA RATES	AAA- ACCEPTANCES	BAA-AAA	WPI ALL ITEMS (1926 = 100)	WPI FARM (1926 = 100)	INDUSTRIAL PRODUCTION (AUGUST 1929 = 100)
\$588	\$73	2	4.52%	2.64%	2.19%	78	75	70.1
		(2-3.5)	Levels as of December 1930					

Note: Dollar amounts are millions.

Table 5.10 O MPC Meeting, January 21, 1931

COMMERCIAL PAPER AND ACCEPTANCES	LOANS OF 101 WEEKLY REPORTING BANKS	GOLD STOCK	BORROWING	BILLS BOUGHT	GOVERNMENT SECURITIES	CURRENCY	MONETARY BASE	MONEY (M ₁)
-\$67	-\$438	+\$50	-\$85	-\$51	+\$3	+\$9	+\$27	-\$361
25.8%	-6.3%	+6.9%	-\$790	+\$82	+\$492	-2.6%	0%	-7.2%
			Current Changes to January 31, 1931					
			Cumulative Changes from August 1929					
BORROWING	EXCESS RESERVES	DISCOUNT RATE (N.Y. AND RANGE)	AAA RATES	AAA- ACCEPTANCES	BAA-AAA	WPI ALL ITEMS (1926 = 100)	WPI FARM (1926 = 100)	INDUSTRIAL PRODUCTION (AUGUST 1929 = 100)
\$253	\$105	2	4.42%	2.86%	1.99%	77	74	69.8
		(2-3.5)	Levels as of January 1931					

Note: Dollar amounts are millions.

money policy [*sic*] has not proved more effective." No one suggested that the excess reserves could be eliminated by an aggressive policy of monetary expansion or that the banks' "desire for liquidity" should be satisfied by the System.⁵⁵

Although borrowing was only \$250 million, the main discussion at the meeting was not, as in September, about whether there should be sales but about how much should be sold. McDougal suggested they sell \$100 million; George Seay (Richmond) suggested they sell \$200 million; Harrison reported that the directors at New York wanted to sell \$35 million.⁵⁶ Only Meyer suggested that sales might be interpreted as a change to a more restrictive policy. And Meyer added, "The Reserve System has been accused in a number of quarters of pursuing a deflationary policy in the past year." In the end, the governors did not decide on the amount to be sold, but they agreed unanimously that it "would be desirable to dispose of some of the System holdings of government securities."

The tone of the minutes was more pessimistic than it had been at previous meetings. For the first time there was a lengthy discussion of gold, but the problem was an inflow, not an outflow. Harrison had returned from Europe in December. He reported that the European countries were planning to reduce imports from the United States because they could not afford to pay \$600 million in gold each year. Britain, Germany, and Italy had experienced a decline in gold reserves during 1930. With the decline in exports, these countries reduced borrowing. The Smoot-Hawley Tariff had added to the decline in world trade and particularly to reduced exports and imports by the United States.

International cooperation continued. The New York bank purchased sterling bills during the fall because of the "weakness in sterling." Harrison added that in December he had "been urged from many quarters to make a reassuring statement which might aid in quieting the banking situation," but he had declined to do so for fear it might be contradicted by any small bank failure that occurred. McDougal noted that the recent reduction of the discount rate at Chicago had been made without any belief that it would encourage business activity.

Despite these gloomy prospects, the meeting had no recommendation or even discussion of expansive Federal Reserve action. All the members

55. Harrison's response neglected to mention his officers' discussion earlier in the month. At that meeting, one of the officers described the excess reserves as "a result of a period of country-wide apprehension concerning the banking situation" (Harrison Papers, Meeting of Officers Council, January 14, 1931).

56. He did not explain that he proposed selling \$45 million but some of the directors objected that they should not sell (Minutes, New York Directors, January 15, 1931).

believed that policy was easy. There was only one type of evidence to support this belief at the time. Between December and January, member bank borrowing had declined and short-term interest rates had fallen to the lowest point recorded up to that time. To the governors of the Federal Reserve System, nothing was more indicative of the direction of policy and its effect.

Again, an alternative view was presented and rejected. W. Randolph Burgess told the New York directors at their meeting on January 15 that selling securities meant reversing current policy and suggested that they delay the change. Two of the directors recommended that Harrison continue the “easy money policy,” but they were unable to persuade him that selling securities would have an adverse effect. However, when the sale of only \$20 million was followed by a much larger decline of excess reserves, sales were suspended.

A week later, Burgess reported to the directors that Harrison suggested resumption of selling, but “a majority of the Officers Council was of the opinion that it would be better to defer further sales.” One of the directors again urged a policy of expansion; as a compromise, they postponed further sales.

Between the end of January and the end of April, the risk spread on long-term bonds increased by 0.875 percent, but excess reserves declined and the index of industrial production rose by almost two percentage points. The minutes note the rise as early as the February 26 meeting of the New York directors.

The Federal Reserve never discussed using monetary policy to support the modest recovery. On March 5, Harrison advised “maintaining the status quo,” which at the time meant no change in the discount rate, in the buying rate on acceptances, or in open market policy. Meyer, who was present, agreed that it was unwise to take any small steps that might be interpreted as a change in policy when none was intended.

Nor did the rise in industrial production receive much attention at the OMPC meeting. The committee focused on three changes in the data for the monetary system—the continued gold inflow, the decline in the System’s acceptances, and the decline in member bank excess reserves.⁵⁷ At the time of the meeting, the gold stock had increased nearly 5 percent since the previous August, and the rate of increase had quickened during the winter.

57. Much of the gold now came from France. Meyer asked why the Bank of France sold gold. Harrison responded that it probably had more than it needed. Meyer urged that the increased gold be allowed to lower interest rates and expand credit (Minutes, New York Directors, April 23, 1931).

The governors were concerned because the gold imports were not having “their normal and natural effect on the loans and investments of member banks.” The banks were bidding for acceptances in the market and were offering a higher price (lower yield) than the System. There is no mention of the System’s open market sales. Table 5.11 shows that, between January and April, the expansive effect of a gold inflow was balanced by a reduction in acceptances (bills bought) and open market sales of government securities. Despite the increase in currency, the base fell as the banks reduced their discounts. The money stock continued to fall.

Harrison’s report to the Governors Conference argued again that recovery would not occur without an increase in borrowing by foreigners. His analysis of the monetary situation at this meeting differed substantially from those he had offered previously. He noted that the Federal Reserve’s policy between October 1929 and August 1930 had not provided a “vigorous stimulant” to the market and that, although recently “money rates have been at very low levels, there has not been over a period of months any consistent surplus of Federal Reserve funds pressing for use upon the market” (Governors Conference, April 23, 1931).

Friedman and Schwartz (1963, 378) interpret this passage as evidence that Harrison’s understanding of the effects of open market operations was superior to that of the other governors and as an indication that he was not bemused by the decline in short-term market interest rates. There is at best a tenuous basis for this interpretation. The statement probably refers to the failure of long-term interest rates to decline. First, Harrison’s analysis at most of the previous meetings—and particularly at the meeting in September 1930—differed little from the analyses offered by most of the other governors. Second, he did not press for large-scale open market purchases at the time of his statement but argued for open market purchases only if necessary and as a last resort. Third, between April and June he did not use existing authority to purchase securities, despite a renewal of the currency drain and a new wave of bank failures. Fourth, the proposal to purchase appears to have originated with Meyer and Miller. Both had come to the April 23 meeting of the New York directors and had argued for a change in policy. Miller said that a reduction in interest rates in New York would force a redistribution of reserves between New York and the rest of the country, thereby lowering rates generally. Meyer made a more forceful statement urging the bank to reduce rates “no matter how low rates already seem to be.” To the standard complaint that rates were “very low,” Meyer replied, “The whole history of investment showed that money would go from short-term into long-term channels at a price. The problem is to find the price.” Harrison expressed a supporting view only after Meyer’s strong statement and,

characteristically, favored a cautious policy of reducing the buying rate on acceptances by 0.125 percent and observing its effect.⁵⁸

Harrison had no difficulty obtaining approval for the proposed purchases. Because of the gold inflow, several governors spoke in favor of expansion. Governor Fancher stated that the "System can lend its efforts to make money so cheap as to put it to work." Governor Talley said that he still had "confidence that gold will finally express itself in an expansion of bank credit" and that Harrison's program would help to bring this about. Even McDougal supported the motion to purchase up to \$100 million in the open market.

Why could the governors agree to purchase bills and securities at this meeting when they had been unwilling to consider purchases at earlier meetings? The minutes furnish a very clear and simple answer. The gold inflow was a "real" force that should have the effect of lowering market interest rates. Since the expected effect had not occurred, most of the governors were willing to help bring it about. Harrison summarized the widely shared belief. If the banks could be discouraged from acquiring acceptances from the System, they would make loans or acquire securities in the market and thus expand bank credit. Like the others, he regarded an expansion of bank credit and a reduction of interest rates as a "natural" response to the gold inflow, with different consequences than a reduction of interest rates brought about solely by open market purchases. Under gold standard rules, countries were expected to allow interest rates to fall and to encourage expansion in response to gold inflows. To do otherwise was a violation of the accepted rules.

58. The first hint that a policy of purchasing securities was being considered came at the New York directors' meeting of April 9. Harrison was opposed. He noted that he had opposed purchases in the fall because of his fear of a gold drain to France; he now opposed purchases because member banks would not be able to use the reserves to retire indebtedness (a reference to the low level of indebtedness). Moreover, he viewed the risk of "inflation" as a serious danger: "In the absence of an ability to quickly reverse our position, inflation would probably do more harm than good." Meeting with the officers of the New York bank on April 15, Harrison again opposed purchases of government securities but favored purchases of bills because they could be more quickly reversed.

Harrison's argument for open market purchases of \$100 million at the April meeting was based on the decline in the bill (acceptance) portfolio to about \$175 billion at the time of the meeting. Harrison noted that "it was the purpose of the New York bank, if necessary, to reduce its bill rate as low as one percent in the hope of accomplishing its objectives of maintaining or even increasing the bill portfolio in the face of gold imports. . . . It was felt that this policy sooner or later would necessarily [sic], because of its effect upon the short time money rates, encourage banks and depositors, in spite of their present liquidity, to employ their money, which is now becoming relatively so unprofitable." He repeated this argument to the New York directors on May 14, but as late as May 26 he opposed using the authority to purchase because of the danger of inflation.

Early in May, New York reduced the buying rate on acceptances, and during the month ten of the twelve reserve banks reduced their discount rates. The Philadelphia and Chicago banks, which had been most strongly opposed to expansive actions or to further reductions in interest rates, were among the first to approve reductions. Nevertheless, member bank borrowing remained virtually unchanged throughout May; the market's acceptance rate fell below the Federal Reserve's buying rate, and the System's holdings of acceptances continued to decline. Although the gold inflow continued, the executive committee did not meet to discuss open market purchases until late in June.

One puzzling aspect of the discussion that took place during the spring concerns the relation of the currency drain, the deposit rates, and bank failures. The New York directors discussed several proposals aimed at reducing the interest rates New York banks paid on deposits. Most agreed on the desirability of reducing deposit rates, but there is no indication in the minutes that the probable reason the New York banks maintained deposit rates was to hold deposits in the face of a renewed wave of bank failures and a renewed currency drain. Nor is there evidence that the directors saw the relation between the public's rising demand for currency, bank failures, and the growing spread between higher- and lower-quality bonds. By May, yields on Baa bonds were much higher than they had been at the peak of the expansion in August 1929, whereas Aaa yields were lower. Throughout the winter the two yields had moved in opposite directions until they differed by 2.78 percent (table 5.11).

At their March 5 meeting the New York directors considered the increased number of bank failures. Many banks had been forced to close because the decline in the market value of their bond portfolios made them insolvent. Among the proposals made to reduce or prevent failures, none involved open market purchases or monetary expansion.

From April to June \$230 million in gold flowed into the Federal Reserve banks. Half of the increase in the base produced by the rise in gold holdings was taken as currency. Borrowing increased and excess reserves of member banks rose by \$73 million. The rising demand for currency by the public had a contractive effect, so the money stock declined. The rise in currency holdings and in excess reserves are related. Both reflect the increased number of bank failures during the period.

Interest rate changes also show the effect of the currency drain and the series of bank failures during the period. Rates on short-term securities fell to the lowest levels of the contraction. The rate on prime banker's acceptances reached a level (0.88 percent) more than four percentage points below the rate prevailing at the NBER peak in August 1929. Yields on bonds

Table 5.11 O MPC Meeting, April 27-29, 1931

COMMERCIAL PAPER AND ACCEPTANCES		LOANS OF 101 WEEKLY REPORTING BANKS		GOLD STOCK		BORROWING		BILLS BOUGHT		GOVERNMENT SECURITIES		CURRENCY		MONETARY BASE		MONEY (M ₁)	
-	\$118	-	\$697	+	\$83	-	\$98	-	\$33	-	\$47	+	\$79	-	\$33	-	\$311
						Current Changes to April 30, 1931											
						Cumulative Changes from August 1929											
17.8%		-	10.5%	+	9.0%	-	\$888	+	\$49	+	\$445	-	0.6%	-	0.5%	-	8.3%
BORROWING		EXCESS RESERVES		DISCOUNT RATE (N.Y. AND RANGE)		AAA RATES		AAA- ACCEPTANCES		BAA-AAA		WPI ALL ITEMS (1926 = 100)		WPI FARM (1926 = 100)		INDUSTRIAL PRODUCTION (AUGUST 1929 = 100)	
\$	155	\$	56	2		4.37%		2.87%		2.78%		73	70			71.6	
								Levels as of April 1931									

Note: Dollar amounts are millions.

Table 5.12 Meeting, Executive Committee, June 22, 1931

COMMERCIAL PAPER AND ACCEPTANCES		LOANS OF 101 WEEKLY REPORTING BANKS		GOLD STOCK		BORROWING		BILLS BOUGHT		GOVERNMENT SECURITIES		CURRENCY		MONETARY BASE		MONEY (M ₁)	
-	\$63	-	\$74	+	\$30	+	\$35	-	\$52	+	\$10	+	\$98	+	\$183	-	\$67
						Current Changes to June 30, 1931											
						Cumulative Changes from August 1929											
13.5%		-	13.8%	+	14.6%	-	\$53	-	\$3	+	\$455	+	1.9%	+	2.0%	-	9.8%
BORROWING		EXCESS RESERVES		DISCOUNT RATE (N.Y. AND RANGE)		AAA RATES		AAA- ACCEPTANCES		BAA-AAA		WPI ALL ITEMS (1926 = 100)		WPI FARM (1926 = 100)		INDUSTRIAL PRODUCTION (AUGUST 1929 = 100)	
\$	190	\$	129	1.5		4.36%		3.48%		2.72%		70	65			69.1	
								Levels as of June 1931									

Note: Dollar amounts are millions.

rated less than Aaa continued to show the relatively large risk premiums that first appeared in the April 1931 data.⁵⁹

Despite the decline in nominal rates on short-term loans, real rates continued to rise. Wholesale prices had fallen at an annualized rate of nearly 25 percent in two months and a 20 percent annual rate since the start of the year. Farm prices had fallen faster. In response to the high real rates and the declining economy, bank lending fell at an annualized 20 percent rate in the first six months of 1931.

At the June meeting, members of the executive committee commented on the changes that had occurred since the previous meeting. Harrison referred to the currency withdrawals, and several governors referred to the "banking situation." Governor Meyer reported that the Board's staff estimated that from \$300 million to \$375 million of currency "was now hoarded."⁶⁰ Moreover, none of the governors disagreed with Harrison's appraisal of the economic situation or with his judgment that the prospects for a revival were now poorer than they had been only a few weeks before.

A new element was the "threat of a general moratorium and a possible breakdown of capitalism in Europe," a reference to the series of coups in Eastern Europe and the rise of the Nazi Party in Germany.⁶¹ There was also a possible moratorium on payments by some South American countries. These comments, and other more explicit statements, show that the governors recognized that the gold inflows were not solely the result of short-term capital movements in response to interest rate differences but were indications of a flight of capital from foreign countries and signs of a possible breakdown in the international payments mechanism.⁶²

Harrison proposed purchases up to \$50 million to his directors on June 18, hoping that lower interest rates would slow the gold inflow.⁶³ During May and the first half of June, the United States received \$170 million in

59. Bank failures were so severe that the Governors Conference voted to seek legislation permitting Federal Reserve banks to make advances in emergencies against securities of Federal Intermediate Credit Banks. Governors Calkins, Martin, and Talley voted against.

60. This is approximately the result one would get by assuming a constant ratio of currency to money stock and measuring the decline from the peak in August 1929. Currency had increased by \$75 million since the peak instead of declining as the money stock declined.

61. On June 4, Harrison discussed the problem of Credit Anstalt in Austria and its likely effect on Germany. He favored a loan to Germany (Harrison Papers, Memoranda, New York Executive Committee, June 4, 1931).

62. During 1930 Brazil lost its entire gold holding, more than \$150 million when valued at \$20.67 per ounce. From early 1929 to June 1931, Argentina lost \$300 million in gold, half of its gold holdings. The outflow of gold from Germany during June had reduced the German stock by 40 percent, more than \$200 million, and had prompted President Hoover on June 20 to propose a moratorium on intergovernmental payments for reparations and war debts.

63. Harrison said that "we should not heedlessly embark upon a program of purchasing Government securities . . . he thought that the arguments in favor of such purchases now out-

gold, with more on the way. The directors agreed that the gold inflow had not been put to work. They differed over whether additional purchases would help, but they voted their support.

When the OMPC executive committee met in June, governors were divided about the action to be taken. Neither Black nor Meyer was a member of the executive committee, but both were present at the meeting and advocated purchases in the strongest terms. Meyer stated that the Board would be sympathetic to the purchase of governments and added that he personally favored a larger program than the \$50 million Harrison proposed. Black regarded the purchase program as a “logical continuation of the affirmative policy” adopted at the April meeting. Harrison took an intermediate position. Although he had proposed the program of purchases and supported it at the meeting, he was doubtful about buying governments unless there was at least an informal understanding with the principal member banks concerning “the employment of excess reserves.” He hoped the banks would place bids for lower-quality bonds to prevent price quotations from falling.⁶⁴ Talley supported Harrison’s proposal in the hope that the banks would be encouraged to “use their funds courageously.” McDougal, Norris, and Young believed that money was easy and that further purchases would make it even easier. All three agreed that something should be done in support of the president’s proposal for a one-year moratorium on reparations and intergovernment repayments of debt and interest. They did not believe further reductions in interest rates would accomplish much. McDougal voted to support the purchases because he believed positive action would have a beneficial effect on the public’s state of mind. Norris abstained, and Young (Boston) opposed the purchase program because he “believed that (gold) sterilization had been and was natural and inevitable under the operation of the Federal Reserve System” (Open Market Policy Conference, Board of Governors File, June 22, 1931).

On the same day, the New York directors agreed to make advances to the central banks of Hungary and Germany as part of an international central bank consortium. New York provided \$2 million of the \$10 million loan to Hungary and \$25 million of the \$100 million loan to the Reichsbank. Late

weighed the arguments against them. . . . [T]he Board was of the opinion that now is the time to purchase Government securities” (Minutes, New York Directors, June 18, 1931).

64. Harrison thought the problem of falling bond prices on lower-quality bonds might be solved if the banks placed bids in the market. The difficulty, as he saw it, was not so much that bonds were “being pressed for sale as that in many cases, there are no bids whatsoever.” Meyer assured him that a program of open market purchases would “be more effective in preventing losses by the banks than anything that could be done to improve their income.” Meyer continued, “There is a question whether the Reserve System can be said to have done everything within its power, until it has tried that policy [purchases of securities] more vigorously.”

in May, and again in June, New York agreed to participate in two \$14 million credits to the Credit Anstalt, a private Austrian bank with large foreign liabilities, and lent \$1.08 million to the Austrian National Bank. The loans were less than 10 percent of Germany's short-term liabilities. The assistance proved insufficient to stem the flight of capital from any of the countries for more than a few days or weeks or to prevent these countries, and later the British, from suspending convertibility.⁶⁵

Although Eichengreen (1992) repeats the argument that international cooperation failed, there is a remarkable difference between the flurry of activity set off by the foreign exchange crisis and the continuing failure to respond to the domestic crisis.⁶⁶ Harrison was willing to risk having some of the New York bank's assets "frozen" in Central Europe to maintain the prevailing exchange rates and the gold exchange standard, but he had been unwilling to offer assistance to prevent bank failures at home (Harrison Papers, Conversation with Meyer, June 23, 1931). In the fall he refused to offer rediscounts to banks that were willing to participate in a lending pool designed to prevent the spread of domestic bank failures. The difference was not ignored at the time. One of the directors questioned Harrison about the difference in approach to domestic and international crises, but there is no record of an explicit reply (Harrison Papers, Meeting of the Executive Committee, June 22, 1931).

The contrast between domestic and international policy was particularly sharp during the summer. Although the executive committee of the OMPC approved purchases of up to \$50 million on July 6, the System purchased only \$30 million. Harrison favored delaying further purchases, at first because the international monetary system had deteriorated and he believed the timing was poor, later because the banks held excess reserves. Although he fully discussed the rising rate of failure and insolvency among New York banks, he never mentioned the relation between rising excess reserves and rising failure rates. He believed that open market purchases would be useful only if the banks acquiring reserves used them to acquire lower-quality bonds, and he attributed the increased bank insolvency to

65. Clarke (1967, 182–219) reports on the series of crises discussed in the minutes and the Harrison Papers. Eichengreen (1992, 265) lists public and private short-term debts of these countries. Central banks in Hungary, Germany, and Austria owed \$25 million, \$194 million, and \$122 million. The Austrian figure includes banks, of which the Credit Anstalt amount was \$100 million (Clarke 1967, 187). In his memoirs, President Hoover is critical of the Federal Reserve for being unhelpful and even obstructionist in arranging the moratorium on intergovernment debt payments (Hoover 1952, 73–80; Todd 1994, 9).

66. It is, of course, true that the United States, France, and Britain did not lend the \$1 billion that Germany requested in July, but as Eichengreen notes (1992, 276), domestic German firms would not lend half that amount.

bad management and more careful examination.⁶⁷ He favored open market purchases to relieve a sudden change in pressure on the New York money market only after the Bank of France withdrew \$50 million from the money market and only to the amount of \$50 million (Harrison Papers, Open Market II, August 10, 1931).

The decision to purchase \$50 million, made at the June meeting of the executive committee, went into effect at once. The System made additional purchases of \$30 million after Harrison conferred with other members of the executive committee. In July excess reserves stopped rising, and member bank borrowing declined. Both long- and short-term interest rates fell during the month. By the usual money market indicators, the money market was easier during July than in June, and no purchases were made between July 8 and early August.

Harrison told his directors that Meyer wanted to make additional purchases. Harrison opposed because the System was likely to extend additional credit to foreigners. He favored waiting (Minutes, New York Directors, July 23, 1931). The following week the directors approved purchase of \$125 million of prime commercial bills, endorsed or guaranteed by the Bank of England, for three months.⁶⁸

67. The lower-quality bonds were mainly railroad bonds that banks held. At the time, banks' bond portfolios were marked to market value under examination rules. As railroad earnings fell, many railroad bonds became ineligible for bank portfolios. In anticipation of the ineligibility expected to occur when railroads released their 1931 earnings reports, the banks sold bonds, lowering their price. Bank examiners, using the market value of the bonds to value the bank's assets, found many banks insolvent. The minutes record that 222 banks were threatened with insolvency. Harrison favored methods of revaluing the bonds and changes in the examination procedures used by the state and the Comptroller of the Currency.

Harrison's response to the domestic banking crisis was very different from the response of Owen Young, one of his directors. At the August 10 meeting, Young noted that "the country looked to the Federal Reserve System and not to the Comptroller of the Currency to assume leadership in banking crises." His suggestion for a series of strong measures to assist the banks appears to have been ignored. On August 13, Harrison told his directors that "the events of the past year have made bank examiners much more critical and have brought to light weaknesses in management and in assets which previously were not so apparent."

Contrast with insurance companies suggests what might have been done. The National Association of Insurance Administrators agreed not to revalue the bonds in life insurance portfolios by the full decline in price if the bonds were not in default. As a result, many fewer insurance companies failed.

68. The Bank of France made an identical purchase, so in total the Bank of England received \$250 million. Owen Young, a New York director, urged making a larger purchase. He argued that the larger the credit, the more effective it would be because announcement of a large credit would deter speculation. Harrison then talked to Meyer. Meyer doubted the Board would approve more than \$125 million. He "thought that England's present difficulties were so fundamental that much of the help needed should be obtained through a Government loan in this market" (Minutes, New York Directors, July 30, 1931).

Table 5.13 OMPC Meeting, August II, 1931

COMMERCIAL PAPER AND ACCEPTANCES		LOANS OF 101 WEEKLY REPORTING BANKS		GOLD STOCK		BORROWING		BILLS BOUGHT		GOVERNMENT SECURITIES		CURRENCY		MONETARY BASE		MONEY (M ₁)	
-\$143		-\$28		-\$7		-\$21		-\$42		+\$64		+\$63		+\$19		-\$81	
3.7%		-14.0%		+14.5%		-\$874		-\$45		+\$519		3.5%		2.3%		-10.1%	
<i>Current Changes to July 31, 1931</i>																	
<i>Cumulative Changes from August 1929</i>																	
<i>Levels as of July 1931</i>																	
BORROWING	\$169	EXCESS RESERVES	\$124	DISCOUNT RATE (N. Y. AND RANGE)	1.5 (1.5-3.5)	AAA RATES	4.40%	AAA- ACCEPTANCES	3.52%	BAA-AAA	3.07%	WPI ALL ITEMS (1926 = 100)	70	WPI FARM (1926 = 100)	65	INDUSTRIAL PRODUCTION (AUGUST 1929 = 100)	68.1

Note: Dollar amounts are millions.

Purchases resumed early in August. Harrison explained the August purchases by first noting that the banks in New York had held excess reserves of \$60 million to \$80 million during the past two months: "In the past few days, due to currency withdrawals and the action of the Bank of France in allowing Treasury bills and bankers bills to run off, this excess had been wiped out and the banks had been obliged to borrow at the Reserve bank from \$40 to \$80 million. . . . In view of this sudden and unusual change, and to avoid a disturbance to the money situation, the New York Reserve Bank had made purchases on August 10 and 11, for its own account, of \$50 million of government securities."⁶⁹

The Open Market Policy Conference held a lengthy discussion of open market policy. Harrison described the economic situation and talked of the prospect of economic, social, and political upheavals and of the high rate of unemployment expected in the winter. He introduced a motion to authorize the executive committee to buy up to \$300 million "when they thought it was necessary," but he indicated that the time for purchases had not yet come because "the attitude of the banks and the investors was such that funds thus made available" would be held idle. Authority to purchase up to the larger amount was necessary he thought, because of the currency drains and the recent action of the Bank of France.⁷⁰ Calkins introduced an amendment reducing the authorization to \$120 million, an amount equal to the estimated autumn seasonal. Harrison and Young (Boston) opposed the amendment, the latter because he opposed further purchases. The amended motion passed, Governor Young dissenting.

A preliminary memorandum prepared for the meeting explained that in the typical seasonal pattern currency reached a low point near the end of July. The memo noted that the increase in currency during the autumn months would be superimposed on the estimated hoarding, \$500 million in currency, and that there would be further increases in the demand for currency. Harrison, Meyer, and Black wanted authority to offset the cur-

69. These purchases are not shown in table 5.13 because they came after the end of July. On August 6, Leslie Rounds reported on bank failures in the district. Owen Young asked: "Must we stand by and see these banks fail?" Harrison replied that "there is no alternative" (Minutes, New York Directors, August 6, 1931).

70. The memo prepared for the August 11 meeting refers to 166 bank failures in the country in June, the largest number since January. Total deposits in failed banks reached \$218 million, the largest since December 1930. A table showed the number of suspended banks and their deposits from January 1930 through July 1931. The big months are November and December 1930, January and June 1931. Totals for 1930 were 273 and \$865 million, and for 1931 through July, 773 and \$498 million. The memo concluded, however, that financial difficulties abroad were more severe than the difficulties at home. The principal concerns abroad were the loss of \$150 million in gold from the London market and the suspension of debt payments by South American countries.

rency drain and the seasonal movement if it developed. The other governors raised two related arguments, both of which were answered to no avail.

Governor Calkins argued that not all the reserve banks could participate in the purchase program, hence not all would benefit from the higher earnings if the System undertook large-scale purchases. Gold holdings were not distributed in the same proportion as the liabilities of the System, so not every bank had reserves to cover its share of the additional deposits and currency. The second argument was about the System's volume of "free gold." Governor Meyer presented a detailed analysis showing over \$800 million of "free gold" was available and that the key problem was not gold but currency hoarding and bank failures.⁷¹

Once again the Board favored a more expansive policy than the Governors Conference. Meyer and other Board members expressed disappointment at the small volume of purchases authorized and urged the members to undertake an effective program of purchases. This discussion was in vain. Money market pressures did not increase during the month, the System's holdings of acceptances increased slightly, and the inflow of gold slowed. Despite the continued increase in currency held by the public, the System did not use its authority to purchase securities.

Although Harrison argued for a more expansive policy than the OMPC approved, he made it clear that he did not plan to put the purchase program into effect even if approved. His argument for standby authority is very

71. The Federal Reserve defined free gold in terms of the excess gold reserves of the reserve banks. Two definitions were sent to all the reserve banks in 1930. "Excess reserves: deduct from cash reserves the thirty-five percent required reserves against deposits and the forty percent against Federal reserve notes in circulation. Free gold: deduct from excess reserves the amount by which gold required as collateral against outstanding notes and for the Gold Redemption Fund exceeds forty percent of the notes in circulation."

On August 21, Harrison followed up Meyer's discussion of "free gold" in a letter to McDougal. With the letter, Harrison sent a memo showing the effect of \$300 million in purchases on the ability of the System to maintain gold reserves sufficient for the additional note issue. The memo showed that after the purchase, there would be \$600 million of "free gold" and that the amount could be increased to \$900 million by reducing the amount of Federal Reserve notes issued but not in circulation. (These notes were held at reserve banks and could be canceled.) The memo argued that with the increased demand for currency, the banks would discount eligible paper that could replace gold as collateral for outstanding notes.

The "free gold" problem is similar to the problem the Bank of England periodically encountered during the nineteenth century. Friedman and Schwartz's useful discussion of the "free gold" problem in 1931-32 suggests that the problem had not been discussed before the thirties. Traditional central bank concern with the gold reserve ratio and with the effect of monetary expansion on the demand for currency shows that the issue was an old one. During the twenties, the Board used the "free gold" position to argue against expansion in 1928, and Burgess had discussed the "free gold" position in a published paper. For references to these discussions, see Harris 1933, 1:377-81. See also Friedman and Schwartz 1963, 399-406.

similar to the statements he made in his discussion with Governor Miller of the Board almost a year earlier. A program of purchases would not be effective, in his view, if it added to the excess reserves of the member banks. He did not see any prospect that reserves would be used to purchase securities or to expand credit, and he did not urge the executive committee to make the limited volume of purchases that the OMPC authorized.

Friedman and Schwartz gave considerable attention to this meeting. On their interpretation, Harrison desired a more expansive policy but was unable to convince the other members to support his position and therefore failed to carry out the expansive policy that Governor Strong would have followed had he lived. In fact, Governor Meyer made the case for expansion.⁷² Harrison's statements at the meeting and his actions during the summer show little interest in an expansive policy. He told the other governors that he did not intend to undertake large-scale purchases based on the increased authority to purchase; he desired standby authority to offset the effect of larger than usual demands for currency and renewed gold flows that he expected because of the weakened position of many of the banks and the repeated crises in the markets for foreign currencies.

When Harrison discussed the OMPC report with the New York directors on August 20, he complained only about procedure. The Board and the OMPC had agreed to a procedure under which the Board approved a general program proposed by the governors, and the executive committee of the Governors Conference decided on the timing and amount of purchases or sales. This time the Board had not approved the program but had delegated to Governor Meyer the right to approve purchases (but not sales) recommended by the executive committee. Meyer was present in New York and replied that the OMPC had not presented a program. The Board would have approved a "real program" of purchases but was opposed to sales and did not approve the OMPC report because it permitted the executive committee to buy or sell at its own discretion without limit as to time. Harrison's complaints about the difficulty of obtaining the agreement of

72. Charles Hamlin, a member of the Board, testified about the August decision: "Governor Meyer . . . went before the committee for 2 hours explaining that under existing conditions nothing but a major stroke would help the situation, and perhaps that would not; but that it was vitally important that the System should make a bold stroke and buy, say, 300 millions or 400 millions of Government securities hoping that might turn the tide. For 2 hours he discussed the math with the governors. We then came together in a conference and we found, after their meeting by themselves, . . . [they] cut the power from \$300,000,000 to \$120,000,000. The \$20,000,000 was an unexpended balance. . . . [This] naturally would destroy the effect because it would cease to be a major operation" (Senate Committee on Banking and Currency 1935, 945-46). In September Meyer told the New York directors they should raise interest rates but purchase securities to show that policy had not changed (Harrison Papers, Memorandum, September 3, 1931).

the other governors seem hollow in view of his failure to carry out or even recommend a regular program of monetary expansion.

Why did Harrison fail to press for purchases under the August decision? He told the executive committee of his directors on September 1 that he expected the seasonal requirements for credit to be small, but he anticipated a continued demand for currency. In keeping with Riefler-Burgess doctrine, he saw no advantage in making purchases unless an expansion of member bank credit would result; he had discussed the matter with bankers, and they indicated that any increase in excess reserves would remain idle. There would be no increase in real bills, hence no reason to provide reserves.

In fact, Federal Reserve credit increased \$200 million during August as banks sold bills to obtain currency. Harrison at first favored purchases to offset any increase in market rates, but after listening to several directors argue that higher rates might be interpreted as a sign of recovery, he concluded—inconsistently—that “no action should be taken . . . to prevent such a seasonal firming of money rates.”

At the next two directors' meetings, attention shifted to the prospects for selling the \$50 million in securities that the New York bank had acquired early in August. Both Harrison and Meyer opposed the sale, fearing misinterpretation of any move toward tightness. Meyer added, “The opinion was being expressed by substantial people that the System had not taken sufficiently aggressive action to maintain the volume of credit as a support for the commodity price level,” an indication of congressional attention that introduced a new element, fear of “inflationary legislation,” into the Federal Reserve's discussions during the winter of 1932.

FROM THE BRITISH DEVALUATION TO THE BANKING HOLIDAY

Two years had passed since the cyclical peak, but the end of the decline was not in sight. Two events were about to happen that permanently changed beliefs and attitudes. First came the British decision to leave the gold standard. In less than two years, most gold standard countries followed.⁷³ In retrospect, these decisions led a majority of the public, economists, and eventually central bankers to reconsider the alleged virtues of the gold standard, by first questioning the gold exchange standard and later the gold standard in its various forms.

73. The British Empire and all British dominions except South Africa followed Britain. Three Scandinavian countries also suspended gold payments immediately. By the end of the year, they were joined by Portugal, Egypt, Bolivia, Finland, and Japan. Several South American countries had suspended gold payments in 1929 and 1930.

Second, in many countries, including the United States, government took more responsibility for managing the economy through regulation and controls. In the United States the first steps came within a few weeks of the British devaluation. Concerned about a renewed wave of bank failures, President Hoover pressed for the formation of a public-private partnership, the National Credit Corporation, to support the banks by supporting the bond market. This was a forerunner of the Reconstruction Finance Corporation.

Britain Leaves the Gold Standard

Britain had remained on the gold standard for most of the preceding two hundred years. The Bank of England had suspended specie payments in crises but had always returned to convertibility at the former gold price. After the Napoleonic Wars and again after World War I, the government and the bank engineered socially costly deflations to restore gold parity. The decision to suspend gold payments and allow the pound to float was therefore a climactic event for Britain and, given Britain's important international role in lending and borrowing, a major event for the world economy.

Conventional opinion at the time criticized the government and the bank for offering only a weak defense. Bank rate had remained at 4.5 percent. In many previous crises the bank had raised the discount rate to 10 percent to attract gold.⁷⁴ Many of these comments reflected the prevailing orthodoxy—suspension was evidence of failure to follow proper policies. The freedom to end deflation, gained by suspension, represented the choice of inflation over sound, proper policies.⁷⁵

Although the Bank of England did not raise its discount rate, Britain had not been idle. The British announcement on September 20 came after six months of recurrent payments difficulties that started in Austria and Hungary, then shifted to Germany and later to London. Resort to exchange controls and blocked balances on the Continent increased the magnitude of the problem confronting the Bank of England by freezing British balances abroad.

74. Harrison reported a comment by officers of the Bank of France, who described "tremendous feeling in Paris" against the weak British action (Harrison Papers, Memoranda, September 3, 1931); memo, Consequences of the British Suspension of Gold Payments, Minutes, New York Directors, October 15, 1931). There was no mention of the severe deflation or the very high real interest rate then in effect.

75. Kindleberger (1986, tables 12 and 19) permits comparison of the depreciation of the pound (relative to the French franc) and the change in French and British prices as recorded during this period. Between August and December, the pound exchange rate in France fell 31 percent, and British prices rose 37 percent relative to French prices. These data suggest that Britain did not "beggars its neighbor." It was able to lower its interest rate and stop deflation.

During the two months from July 23 to September 19, Britain paid out \$972 million of reserves. To finance the reserve loss, the Bank of England borrowed \$650 million in New York and Paris during July and September. The Federal Reserve, with the approval of the Board, agreed to lend \$125 million on July 30, and the Bank of France lent a similar amount. Throughout August and into September, Harrison negotiated with the Bank of France and acted as intermediary for the Bank of England with the New York bankers to find a set of terms for a one-year private loan (Clarke 1967, 201–8).

The Federal Reserve's assistance to the Bank of England and its earlier assistance to the Austrian, German, and Hungarian central banks showed an ability to respond promptly to events it understood.⁷⁶ Treasury Secretary Andrew Mellon, who served *ex officio* as chairman of the Federal Reserve, at first opposed aid to European banks, but he changed his views as the crisis spread from Austria and Hungary to Germany (Todd 1994, 8). Perhaps as a result, policy toward international and domestic troubled banks differed markedly. Harrison and other central bankers lent money to support Credit Anstalt, a private Austrian bank. Under the leadership of Gates McGarrah, a former chairman of the New York bank who had become president of the Bank for International Settlements, central banks in June had made available a second \$14 million credit to the Austrian National Bank contingent on an agreement by the Austrian government to negotiate a \$21 million, two- to three-year foreign loan to strengthen the position of Credit Anstalt. Yet the Federal Reserve was unwilling to take any new steps to prevent the failure of United States banks.

The Federal Reserve's first response to the international monetary crisis was to raise the buying rate on acceptances to 1.25 percent on September 25 and to purchase \$14 million in the open market. On October 8 the New York directors approved an increase in the discount rate of 1 percent (to 2.5 percent).⁷⁷

Harrison gave two reasons. First was the gold export. Second was his

76. Harrison remained cautious toward countries with structural problems. "Governor Harrison raised the question as to what this bank could best do. . . . He expressed the opinion that this bank should not dissipate its resources by making loans to various countries to help them stay on the gold standard when it appeared doubtful whether such loans would be adequate for the purpose" (Consequence of the British Suspension of Gold Payments, Minutes, New York Directors, September 24, 1931). The countries mentioned are Uruguay, Bolivia, and Colombia. These central banks needed more than short-term credits so, Harrison said, they should borrow from commercial banks.

77. A comparison of the loans made to the United Kingdom in the weeks before suspension and open market operations casts doubt on Eichengreen's argument about lack of cooperation. In July the Federal Reserve and the Bank of France each lent £25 million (approximately \$120 million). Later J. P. Morgan and a French bank each lent \$200 million additional,

conversation with Governor Clement Moret of the Bank of France. Moret complained that rates were too low; this contributed to a lack of confidence.⁷⁸ Harrison explicitly dismissed a shortage of “free gold,” the argument subsequently used by Federal Reserve officials to explain policy inaction. He “pointed out that the amount of free gold held by the System had not been materially affected by the recent loss of gold, so that there was still considerable leeway for purchases of Government securities (Discount Rate Advance, Minutes, New York Directors, October 8, 1931). A week later the bank set the rate at 3.5 percent and the System sold the purchased securities.⁷⁹ Before the second increase, New York’s rate had been the lowest in the System. Once New York put its rate at 3.5 percent, the other reserve banks followed. Table 5.14 shows some of the principal money market changes during the period.

The Federal Reserve responded to the gold outflow by increasing interest rates. It ignored the currency drain and the banking failures. Again, a main reason for the difference is that the gold stock fell, market interest rates rose, and the money market indicators the governors relied on revealed the changes accompanying the gold and currency movements. As table 5.14 shows and as Harrison’s comment made clear, market interest rates rose slowly at first. Not until late October did the market rate on banker’s acceptances rise above the posted acceptance rate. The increase in the market rate forced the System to buy bills or raise its buying rate.

Start of the Reconstruction Finance Corporation

Alarmed by spreading failures and continued declines, President Hoover called a meeting of nineteen bankers at Secretary Mellon’s apartment in Washington on October 4 to discuss steps that might be taken to prevent bank failures. A memo read at the meeting noted that 1,215 banks with \$967 million in deposits had failed in the first nine months of the year, most of them during the summer. The memo interpreted these and other data on currency hoarding and bank failures as showing that bankers and the public had lost confidence in the banking system. Then Hoover’s memo continued: “Prior to the establishment of the Federal Reserve Bank System, it [the banks’ demand for liquidity] would probably have been met

a total of \$640 million. Federal Reserve open market purchases for the two years following the August 1929 peak were only \$519 million (table 5.13).

78. From England, W. Randolph Burgess cabled recommending against any action to increase rates. Harrison read the cable to the directors, but it had no effect.

79. Meyer was at the meeting. He said that “the advance in the rate was called for by every known rule, and believed foreigners would regard it as lack of courage if the rate were not advanced. . . . [H]e did not see how it could affect depositors in this country” (Discount Rate Advance, Minutes, New York Directors, October 15, 1931, 2).

Table 5.14 Money Market Variables and Changes in Gold and Currency, Weekly September–October 1931

FEDERAL RESERVE BANK OF NEW YORK				TOTAL FEDERAL RESERVE SYSTEM			
WEEK ENDING	DISCOUNT RATE (%)	ACCEPTANCE RATE (%)	MARKET RATE ON PRIME ACCEPTANCES (%)	WEEK ENDING	DISCOUNTS	BILLS BOUGHT	GOLD OUTFLOW PLUS CURRENCY DRAIN
9/26	1.50	1.25	1.06	9/23	+\$47	+\$25	+\$186
10/3	1.50	1.25	1.25	9/30	+23	+226	+238
10/10	2.50	1.75	1.25	10/7	+135	+112	+284
10/17	3.50	3.12	2.75	10/14	+160	+149	+260
10/24	3.50	3.12	3.25	10/21	+70	+39	+119
10/31	3.50	3.12	3.25	10/28	+19	-44	+24
				Total	\$454	\$507	\$1,111

Source: Board of Governors of the Federal Reserve System 1943.

Note: Dollar amounts are millions.

through the relationship between the banks in the principal centers and their out of town correspondents, but, with the establishment of the Federal Reserve System, there grew up a tendency to feel that it was to the Federal Reserve System rather than to the banks in central reserve cities that all other banks should look” (Harrison Papers, Miscellaneous Letters and Reports). President Hoover then proposed a central organization, the National Credit Corporation (NCC), to rediscount assets not legally eligible for discount at the Federal Reserve banks and purchase marketable assets of insolvent banks.⁸⁰ To provide capital, commercial banks would subscribe \$500 million. The corporation would have the power to borrow an additional \$1 billion.

The New York clearinghouse bankers agreed on the following day to subscribe \$150 million of the \$500 million. Harrison notified the president on October 7 that “there was quite general and enthusiastic support

80. Railroad bonds posed the main problem. During the 1920s, small banks with insufficient local loan demand bought railroad bonds to increase earnings. Also, many banks invested savings deposits in bonds (CHFRS, Rounds, May 2, 1944, 20). Interest payments became uncertain as railroad earnings declined, so bond prices fell. Examiners priced the bonds according to a scale based on bond ratings. If the average (dollar weighted) rating fell below 80 (a BBB bond), the bank could be declared insolvent (*ibid.*). The examiner closed the bank and sold the bonds, depressing their prices. At the October 4 meeting, Harrison proposed raising freight rates to increase earnings. President Hoover dismissed that proposal as not likely to help. Railroad unions opposed wage reductions on the grounds that employed workers contributed 20 percent of their income for relief of unemployed members. The president then suggested that the NCC buy bonds from solvent but illiquid banks and pay depositors of insolvent banks. He proposed also making NCC obligations eligible for discount at the reserve banks and increasing the capital of the Farm Loan banks (Minutes, New York Directors, October 5, 1931).

throughout New York for your proposal, not merely to the formation of a \$500 million corporation but also to the enlargement of the rediscount facilities of the Reserve System.” Support in the Federal Reserve was more restrained. Harrison’s report on Hoover’s proposal to the executive committee of his directors on October 5 mentions his own proposal to increase the market value of railroad bonds by raising railroad freight rates or reducing railroad wages but does not record his opposition to broader lending powers for Federal Reserve banks. However, he had made his opposition to such proposals clear on October 1, and at an October 26 meeting he firmly opposed any plan that allowed Federal Reserve banks to acquire assets that were not self-liquidating (Harrison Papers, Miscellaneous Letters and Reports, October 5, 1931). The NCC was organized without a Federal Reserve commitment.⁸¹

Hoover proposed the NCC as a temporary measure during the emergency.⁸² Once Congress reconvened in December, he intended to ask it to broaden the powers of the Federal Reserve to discount paper secured by government securities (Hoover 1952, 84–88). In January Congress passed the Reconstruction Finance Corporation Act, and in February it extended Federal Reserve powers to discount in the first Glass-Steagall Act.⁸³ The Treasury provided \$500 million as capital for the Reconstruction Finance Corporation. The RFC could borrow \$1.5 billion either from the Treasury or from private sources. In July 1932 Congress increased the borrowing line to \$3 billion.

Return to Inaction

Monetary and economic conditions deteriorated considerably between the July OMPC meeting and the executive committee meeting on October 26

81. Todd (1994, 11–13) reports that Eugene Meyer was one of the principal proponents of the NCC and later of the Reconstruction Finance Corporation. Todd credits Meyer with obtaining the support of the commercial bankers. Meyer became chairman of the new organization while remaining governor of the Board. The only other instance of a Federal Reserve chairman accepting an administration position while remaining chairman came with Arthur Burns in the 1970s.

82. The NCC advanced only \$15 million between October and mid-December, an inconsequential amount in relation to the shrinkage of capital values (see table 5.17, p. 352) The data on advances are from a cable Harrison sent to Governor Moret of the Bank of France. The French feared that Congress was about to pass “inflationary legislation.” The cable restates Harrison’s opposition to making obligations of the National Credit Corporation or the proposed Reconstruction Finance Corporation eligible for discount at the reserve banks.

83. Hoover’s report of the meeting with congressional leaders recalls a past era. “The group seemed stunned. Only Garner [Speaker of the House] and Borah [Senate majority leader] voiced approval. The others seemed shocked at the revelation that our government for the first time in peacetime history might have to intervene to support private enterprise” (Hoover 1952, 90, as quoted in Todd 1995, 7).

(table 5.15). Industrial production fell 12 percent, the index of stock prices more than 25 percent. Bank loans and money also fell by \$1 billion. The risk spread was one percentage point higher than in July as bank failures and the currency drain returned.

In the five weeks following the British suspension, new member bank borrowing offset 85 percent of the direct effect of the gold outflow. Although the OMPC had approved purchases of up to \$120 million, Harrison saw no reason to undertake any large volume of purchases, and none was made. McDougal, supported by a telegram from Calkins, favored sales.

The preliminary memorandum prepared for the October 26 meeting and the minutes of the meeting pay far less attention to the British decision than to the renewed bank failures and currency “hoarding.” Harrison noted that four hundred banks closed during the first three weeks of October. Banking problems are described as “the most important” problems facing the System, and the preliminary memorandum suggested that all actions be considered in terms of their effect on bank failures.⁸⁴

What action was appropriate? The consensus of the meeting was that “everything should be done to persuade the (city) banks to adopt a liberal policy” of lending to banks in difficulty and rediscounting at the Federal Reserve banks. Despite the references to bank failures in the minutes, the Federal Reserve gave less assistance to the banking system than it had arranged for the Bank of England. Nor did it contribute the type of support for the commercial banks that it and other central bankers had urged the Austrian government to give to Credit Anstalt.

Within a month, the Federal Reserve allowed acceptances to run off. The preliminary memorandum prepared for the November meeting conveyed the sense of satisfaction about the System’s response to the “largest gold export . . . and a heavy domestic withdrawal of currency continuing a movement of almost a year’s duration.” The memorandum described the response as “classic” and, to reinforce the point, quoted heavily from Bagehot. By lending freely at an increased discount rate, the System had followed Bagehot’s advice for central banks confronting a crisis. The preliminary memorandum referred to the fact that Federal Reserve credit had expanded by \$1 billion during the weeks of the crisis. The maximum amount outstanding, more than \$2 billion in the week ending October 14, was the largest total in more than ten years, and the rate of increase—doubling in less than two months—was the largest change in Federal

84. Harrison explained that the receivers of closed banks liquidate marketable assets quickly, depressing the bond market. The Comptroller had proposed that certificates backed by the assets of closed banks be eligible for rediscount. Harrison opposed because the assets were not self-liquidating (memo, Executive Committee, Minutes, OMPC, October 26, 1931).

Table 5.15 Meeting, Executive Committee, October 26, 1931

COMMERCIAL PAPER AND ACCEPTANCES		LOANS OF IOI WEEKLY REPORTING BANKS		GOLD STOCK		BORROWING		GOVERNMENT SECURITIES		CURRENCY		MONETARY BASE		MONEY (M.)	
-	\$270	-	\$945	-	\$657	+	\$445	<i>Current Changes to October 31, 1931</i>		\$	479	\$	249	-\$1,092	
-	14.6%	-	19.6%	-	1.6%	-	\$429	<i>Cumulative Changes from August 1929</i>		+	15.8%	+	5.8%	-14.2%	
								AAA-		+	\$613				
								AAA RATES	AAA-AAA	+	\$59*				
								AAA RATES	AAA-AAA	+	\$578				
								AAA-ACCEPTANCES	BAA-AAA						
								<i>Levels as of October 1931</i>							
								4.99%	2.74%	4.05%	70	59	60.3		
								3.5							
								(3-4)							

Note: Dollar amounts are millions.

* Purchases were made during the first two weeks of August, none thereafter.

Table 5.16 OMPC Meeting, November 30, 1931

COMMERCIAL PAPER AND ACCEPTANCES		LOANS OF IOI WEEKLY REPORTING BANKS		GOLD STOCK		BORROWING		GOVERNMENT SECURITIES		CURRENCY		MONETARY BASE		MONEY (M.)	
-	\$75	-	\$205	+	\$122	+	\$81	<i>Current Changes to November 30, 1931</i>		\$	34	\$	112	-\$355	
-	19.8%	-	20.8%	+	1.3%	-	\$348	<i>Cumulative Changes from August 1929</i>		+	14.9%	+	4.2%	-15.5%	
								AAA-		-\$					
								AAA RATES	BAA-AAA	+	\$72				
								AAA-ACCEPTANCES	BAA-AAA						
								<i>Levels as of November 1931</i>							
								4.94%	1.78%	3.99%	70	59	59.5		
								3.5							
								(3.5-4)							

Note: Dollar amounts are millions.

Reserve credit in any two-month period up to that time. Bank failures and currency movements received little attention.

The immediate crisis had passed without reliance on open market purchases, and the governors expressed little interest in a purchase program during the following months. Miller's suggestion that they start a bold program received very little support. The data on member bank borrowing show that at last an increase in real bills could be used to justify open market purchases. Harrison argued for delay, although he recognized that the volume of borrowing had increased substantially and expected the New York banks to borrow heavily during December. Others saw no reason to keep New York and Chicago banks out of debt.

The OMPC gave the executive committee authority to purchase up to \$200 million in securities during December to be sold after the start of the year. Clearly intended as a seasonal adjustment, the authority was used in precisely that way. The weekly figures show changes ranging from +\$200 million to -\$150 million during December and early January and a net increase of less than \$50 million during the month.

Why was the increased borrowing ignored? Harrison made his position clear at meetings with his directors in November and December. His first argument opposed purchases because the gold flow had reversed. Gold had come into the country during November, but the reduction in Federal Reserve credit exceeded the gain in gold mainly because acceptances had run off and had not been replaced. This showed "disinclination on the part of member banks to use Federal Reserve credit for the purpose of extending credit to their customers." Several of the directors urged purchases; Owen Young pointed out that it was the end of the year and a "bad time to impose any further load of indebtedness on member banks." Harrison dismissed this argument, and when Young persisted in urging purchases, Harrison offered a whole catalog of arguments purporting to show that the purchases would be badly timed and would do no good.

A month later, on December 24, Harrison showed the directors a chart of the relation between bank credit, business activity, and the price level. Based on past relations, he predicted a further deflation and "commented on the serious aspects of any further deflation of prices." Still, he urged no purchases because of the "present free gold position and the potential demands which may be made on us at home and abroad." Some of the directors pointed out that the New York City bankers were almost unanimous in opposing purchases. After a brief discussion, the directors agreed to wait until after the first of the year and to observe the progress of the bill to replace the privately financed National Credit Corporation with a publicly financed Reconstruction Finance Corporation (RFC).

Again, Harrison's discussion shows that he knew the crisis had deepened. He referred to the decline in bank credit as the largest in the history of the country and reported that his staff had estimated its size at \$5 billion in the first two years of contraction. Further, he noted that the rate of decline had increased during the fall.⁸⁵ He was aware, also, that the effect of a further decline would be a further contraction in business activity and further deflation, and he discussed these problems with his directors. Moreover, he had received a confidential memo in early December showing the position of the banks in the New York Federal Reserve district (Harrison Papers, Memoranda, December 24, 1931). Table 5.17, taken from the memo, points up that he knew, in considerable detail, how much the position of the banking system had deteriorated between November and the first week of December. However, yields on lower-rated bonds increased during the autumn, as shown by the yield spread in table 5.16. The estimated "shrinkage" of capital funds in table 5.17 is the amount the banks lost mainly as a result of the decline in the market value of their bond portfolios. The memo notes that 300 of the approximately 800 banks had losses nearly equal to their capital funds and that an additional 150 to 200 had some capital impairment. The table included all banks in the New York district except 23 money market banks.

On January 4, Harrison again discussed purchases with his directors. He believed the time had come for the Federal Reserve to consider substantial purchases of government bonds: "His only hesitation in recommending such a program . . . [was] . . . the relatively small amount of 'free gold'" (Minutes, New York Directors, January 4, 1932).⁸⁶ Congress was considering legislation that would permit the Federal Reserve to pledge all of its assets as collateral for the note issue. Once the legislation passed, it would be able to supplement the legislative program by taking action in the open market.

One of the directors (Clarence M. Woolley) asked Harrison whether there was nothing that so great an organization could do to stem the tide of disaster. He was not satisfied with the usual answer that the banks would not make use of the reserves created by the purchase of government securities. Harrison pointed to the "free gold" position. "We must," said Harrison, "be

85. *Banking and Monetary Statistics* (Board of Governors of the Federal Reserve System 1943) shows the decline at weekly reporting banks as more than \$3.7 billion (20 percent) from August 1929 to December 1931 and an additional \$374 million (20 percent) in commercial paper and acceptances. Call reports show nearly \$7 billion (26 percent) decline in total loans at all member banks from October 4, 1929, to December 31, 1931. Weekly reporting banks gained relatively, no doubt influenced by fewer failures.

86. Harrison later revised this view. See below.

Table 5.17 Capital Shrinkage, New York Federal Reserve District

CLASS	NUMBER OF BANKS	DEPOSITS	CAPITAL AND SURPLUS	SHRINKAGE OF CAPITAL ON THE DATE OF EXAMINATION (NOVEMBER–DECEMBER 1931)	SHRINKAGE AS OF DECEMBER 7, 1931
1	245	1,192	226	26	125
2	245	943	167	47	126
3	174	687	123	60	117
4	89	352	60	47	77
5	83	176	22	30	44

Source: Harrison Papers, Memoranda, December 1931. Excludes money market banks.

Note: Dollar amounts are millions.

on relatively safe ground before we embark on a program of government security purchases, which is not the case at the moment when banks are failing by the score, the renewal of currency hoarding is a probability, and substantial gold withdrawals by foreign holders of dollars are quite possible.”

The directors did not accept Harrison’s answer. But Harrison held firm and urged delay so that actions could be synchronized with the passage of Reconstruction Finance Corporation legislation (passed at the end of January), the (downward) adjustment of railroad wages, and other pending changes. Then they could reduce the discount rate to encourage borrowing and begin open market operations.

Delay during the fall allowed a large part of the banking system to fail. In two months, September and October 1931, the deposits of suspended banks rose to \$705 million, as much as in the entire year 1932 yet to come. Nearly 30 percent of the bank suspensions between August 1929 and February 1933 came in the last four months of 1931.

Member bank borrowing had fallen at the time of the January meeting from the seasonal peak at the end of December, and short-term open market rates had fallen also. As borrowing fell, the Federal Reserve sold some of the securities acquired in December. The amount of borrowed reserves and market rates on both short- and long-term securities remained high relative to the recent past. The money stock continued to decline, reflecting the additional increase in demand for currency and the contractive policy of the Federal Reserve.

In the six months between June and December 1931, the money stock fell about 6 percent and industrial production about 14 percent. The risk premium on bonds rose nearly four percentage points above their level at the peak of the expansion in 1929, and even rates on Aaa bonds were above the August 1929 level. With wholesale prices 11 percent below the December 1930 level, real yields on Baa bonds were above 20 percent. The risk spread was above five percentage points.

Table 5.18 O MPC Meeting, January II, 1932

COMMERCIAL PAPER AND ACCEPTANCES	LOANS OF 101 WEEKLY REPORTING BANKS	GOLD STOCK	BORROWING	BILLS BOUGHT	GOVERNMENT SECURITIES	CURRENCY	MONETARY BASE	MONEY (M ₁)
-\$84	-\$241	+\$46	+\$79	-\$220	+\$50	+\$101	+\$277	-\$461
-25.5%	-22.2%	+2.4%	-\$269	+\$216	+\$622	+17.5%	+8.1%	-17.2%
				Current Changes to December 31, 1931				
				Cumulative Changes from August 1929				
BORROWING	EXCESS RESERVES	DISCOUNT RATE (N.Y. AND RANGE)	AAA RATES	AAA- ACCEPTANCES	BAA-AAA	WPI ALL ITEMS (1926 = 100)	WPI FARM PRODUCTION (1926 = 100)	INDUSTRIAL PRODUCTION (AUGUST 1929 = 100)
\$774	\$60	3.5 (3.5-4)	5.32%	2.32%	5.10%	69	56	59.0
				Levels as of December 1931				

Note: Dollar amounts are millions.

The gold outflow stopped in November and reversed in December. The Open Market Policy Conference decided that the time had come for a reduction in bill rates and in discount rates. Much of the discussion at the meeting concerned the government's budget and the desirability of a balanced budget as a means of reducing pressure on market interest rates. The members apparently continued to favor a reduction in member bank borrowing brought about by a continuation of gold inflows. They hoped the currency drain would reverse.

Despite his statements at the directors' meetings earlier in the month, Harrison neither urged open market purchases on the other governors nor advocated any other expansive action. Nor did he urge the directors to reduce the discount rate when he returned to New York. When two of the directors, Clarence M. Woolley and Theodore F. Whitmarsh, pressed for immediate action at the January 14 meeting, Harrison advocated caution and delay. Again, on January 21, Whitmarsh urged Harrison to reduce the discount rate, and again Harrison urged delay and caution. The following week Owen Young joined Whitmarsh and Woolley in urging Harrison to take some expansive action, but Harrison pointed to the "free gold" position as a reason for delay. Young was not deterred and pressed Harrison to purchase \$50 million while maintaining the discount rate unchanged to stem any outflow of gold. The only concessions Harrison made were an agreement that purchases would be considered in an emergency and that a change in the discount rate would be reconsidered the following week. At the next meeting, February 4, the gold outflow had stopped temporarily, and the "foreign situation" was no longer an excuse for inaction. Harrison now cited a "bad banking situation on the Pacific Coast" as a reason for delaying any decision to reduce the discount rate.

At each weekly meeting with his directors, Harrison urged delay. Before Congress passed the RFC legislation, he argued for an expansive program to accompany congressional approval of the RFC. Later he wanted to wait for the Glass-Steagall Act, or similar legislation removing the restrictions on the assets eligible for discount and the use of government securities as collateral for the note issue. Once such legislation appeared likely to pass, he favored delay because the proposed legislation might alarm foreigners. When Owen Young pointed out that Harrison had offered a variety of reasons for postponing action and urged an end to the "ruinous" decline in bank credit, Harrison modified his position and agreed that, once the Glass-Steagall Act passed, they could both reduce the discount rate and buy government securities.

Free Gold

One of the reasons given for delay was that the System either lacked free gold or was at risk of doing so.⁸⁷ The Board made this argument in its 1932 annual report, and Goldenweiser (1951), Thomas (1941), Burgess (1964), and other Federal Reserve officials used the argument later to explain delay and inaction.⁸⁸ As noted earlier, Eichengreen (1992) accepted the System's argument, but Friedman and Schwartz (1963) rejected it. The next two sections present the case for and against the importance of free gold as a reason for delaying open market purchases.

THE CASE FOR FREE GOLD Harrison cited the free gold position several times in the four months between the British suspension and the passage in February 1932 of the Glass-Steagall Act, removing the free gold problem. Most of these citations are in months with relatively large gold outflows, October 1931 and January 1932.⁸⁹ Taken alone, these statements support the Federal Reserve's explanation of its inaction.

With the benefit of hindsight, Harrison rejected the argument he made at the time. A year later he told Gates McGarrath that when the Glass-Steagall Act passed, the System "had around \$350 million of excess gold; that even if there had been a further drain, the \$350 million did not represent the maximum of our capacity to export gold since additional borrowings would have been forced upon the banks which would have given us

87. Free gold was the amount of gold held by reserve banks that was not required as a reserve against outstanding base money. Note issues required 40 percent gold and 60 percent eligible paper as backing. In addition, reserve banks had to hold 5 percent of the difference between notes outstanding and notes in circulation (Harris 1933, 2:770). The decline in borrowing and the rise in currency more than exhausted the stock of eligible paper, so reserve banks substituted gold as backing. This reduced free gold. As noted earlier, each reserve bank met the requirement from its own resources (but could borrow gold from other banks). For the System, the ratio on February 28, 1932, was 71 percent, implying free gold of about \$300 million. This number is approximate because each reserve bank had its own free gold. As noted in the text below, Federal Reserve banks could have increased the amount by canceling notes in their vaults.

88. Thomas's statement is ambiguous (1941, 33): "Had the Reserve banks bought Government securities . . . then it would have been necessary to substitute gold as collateral, and there might not have been sufficient gold."

89. Harrison Papers, Open Market, October 5, 1931: "He considered the gold position of the System paramount at this time, and on that account would not be inclined to purchase government securities." *Ibid.*, January 4, 1932: "His only hesitancy in recommending such a program at the moment, he said, was on account of the relatively small amount of free gold." January 28, 1932: Governor Harrison pointed out that our free gold position must still be considered in relation to further purchases of Government securities." All references are to Harrison's statements to the New York directors.

additional collateral which would have released gold"⁹⁰ (Harrison Papers, Confidential Files, Telephone Conversation with Mr. McGarrah, October 10, 1932).

To reconcile these contradictory statements, note that Harrison made the last statement months after the event. His expressions of concern about free gold came when the gold outflow was large, and no one could predict how long the outflow would last or how large it would be. These were real concerns at the time. Between late September and late February, the Federal Reserve's gold stock declined by 8.7 percent, reversing the entire inflow received since the August 1929 peak.

The free gold problem affected New York, Chicago, Boston, and Philadelphia. By November 1931, reserve banks in Richmond, Atlanta, Dallas, Minneapolis, and Kansas City together had sold almost \$50 million of securities to other reserve banks to meet gold reserve requirements.⁹¹ In addition, several of the regional banks stopped participating in the System's acceptance (bill) purchases, thereby shifting purchases to the other reserve banks.

THE CASE AGAINST FREE GOLD Section 10C of the Federal Reserve Act permitted the Board to suspend any reserve requirement for thirty days followed by an additional fifteen days if needed. Suspension of the gold reserve against note issues required the reserve bank to pay a small tax; for reductions from 40 to 32.5 percent, the tax rate was 1.5 percent. Miller (1925a) referred to this provision.

This was not the only recourse. The System could have reduced the discount rate on acceptances to increase its holdings of the \$1 billion of acceptances outstanding in November 1931 (Board of Governors of the Federal Reserve System 1943, 465). It could have canceled currency in its vaults to save a 5 percent gold reserve against unissued notes. It could have speeded the return of notes issued by other reserve banks.⁹² It could have issued other currency not subject to a gold reserve. It could have asked Congress to suspend gold reserve requirements, as Britain often did in the nineteenth century.

More important, free gold can explain inaction for only a very short pe-

90. The commercial banks would lose reserves, so they would borrow from the reserve banks, increasing eligible paper (real bills).

91. New York took more than half of the acceptances. Its relative size was about 30 percent at the time.

92. Until 1954, a reserve bank paid a tax for reissuing notes of other reserve banks, so it returned these notes. The notes in transit were considered outstanding, thus subject to the 40 percent gold reserve requirement and, under prevailing conditions, the substitution of gold for eligible paper.

riod, October 1931 to March 1932. The Federal Reserve had ample gold to support expansion before the British suspension, and the constraint was not binding after February. Further, the Federal Reserve did not find it necessary to invoke the Glass-Steagall Act when it began large-scale purchases in March.

Did the free gold problem delay open market purchases? The answer is certainly yes. Harrison gave several reasons for delay, and several governors opposed purchases generally, so the System might have delayed in any case. Nevertheless, the many references to free gold as a reason for delay, and the initiation of purchases as soon as the Glass-Steagall Act passed, support the case if only in the limited sense that passage of Glass-Steagall put the administration and Congress, including Senator Carter Glass, on record as favoring purchases. The System could not ignore the message in this action.⁹³

THE 1932 PURCHASE PROGRAM

Passage of Glass-Steagall temporarily suspended the collateral requirement for notes by permitting reserve banks to substitute government securities for commercial paper or real bills.⁹⁴ Though intended to be temporary, this was a major retreat from the principles underlying the Federal Reserve Act. Passage of the 1932 legislation recognized that the real bills doctrine did not provide the flexibility (elasticity) to expand the note issue or prevent the crisis from deepening.⁹⁵

Despite worsening business and financial conditions, only two banks reduced discount rates between the meetings on January 11 and February 24. In late January, Richmond and Dallas lowered their rates from 4 percent to 3.5 percent. The system took no other expansive action despite a 20 percent decline in loans of member banks, a 35 percent decline in open market paper outstanding, and a 15 percent increase in the public's currency holdings during the last six months of 1931. The buying rate on acceptances remained below the market rate, so the bill portfolio declined.

93. Harrison gave three reasons for not using the authority to purchase that had been agreed on at the January OMPC meeting: "various elements in the domestic situation had developed more slowly than had been anticipated, . . . gold withdrawals to Europe, and . . . the limited amount of free gold held by the System" (Harrison Papers, Open Market, February 24, 1932).

94. Congress renewed the temporary provision several times before making it permanent.

95. Glass recognized what had happened. He told Burgess: "You tell George Harrison that I am now just a corn-tassel Greenbacker" (Burgess 1964, 226). The act was prepared mainly by Walter Wyatt, the Board's general counsel.

The Glass-Steagall Act

The Glass-Steagall Act relaxed Federal Reserve collateral requirements in three ways. First, government securities became eligible as collateral for note issues, as discussed previously. Second, reserve banks could lend on previously ineligible commercial paper at a rate 1 percent above the discount rate. This provision permitted banks to borrow against a much broader range of assets. Third, groups of five or more banks could borrow on the group's credit. This provision permitted clearinghouses to borrow directly and encouraged the formation of county clearinghouses in rural areas.

Exchange rates and bond yields responded almost at once to the new provisions and the start of the RFC. The dollar weakened against the pound, falling 5 percent between December and February and an additional 8 percent by its trough in April. Yields on government bonds rose between December and February, but yields on corporate bonds fell, particularly on lower-rated bonds, as perceived risks declined. Both changes suggest that markets interpreted the change as a less deflationary policy.

Glass-Steagall was a temporary change, scheduled to last a year. Several New York directors criticized the one-year limit. Some noted that if the gold outflow continued, the System would be in crisis at year end, unable to replace government securities with gold or commercial paper. Harrison responded that he hoped hoarded currency would return to the banks, releasing gold reserves (Minutes, New York Directors, February 11, 1932).

Permitting banks to borrow on ineligible paper alarmed the governors: "A number of governors pointed out the dangers in the Federal Reserve System's becoming loaded down with loans of this sort" (Governors Conference, February 24, 1932, 2). Talk shifted to ways of limiting the volume of ineligible paper. Governor Meyer suggested a 5.5 percent rate, the rate charged by the RFC (4); Governor Black (Atlanta) warned against thwarting the will of Congress.

Purchases Begin

By the time the Open Market Policy Conference met late in February, it had become clear that neither a decline in the demand for currency nor an inflow of gold could be counted on to reduce the level of member bank borrowing and short-term market interest rates. As table 5.19 shows, gold flowed out during January and February, and the demand for currency again increased. In fact Harrison told the members of the OMPC to expect additional reductions in the gold stock of about \$50 million a month. Further, he thought "it seemed unnecessary for the banking position to be

subjected to severe strain” because of the hoarding of currency. The Glass-Steagall Act, which Congress was about to pass, gave them the power “to purchase government securities to relieve the banks of some of their indebtedness to the Reserve banks.”

As on most previous occasions, the OMPC followed Harrison’s recommendation. By a vote of ten to two, it approved purchases of \$250 million; the executive committee, three to two, authorized purchases at the rate of \$25 million a week. The Board approved immediately. The magnitude of the operation, though small compared with the decline in money, bank loans, output, or prices, should not be underrated. At the time the decision was taken, the Federal Reserve held \$741 million in securities, so the decision permitted the System’s security holding to increase by one-third. The addition to the security portfolio during the next few weeks was equal to 50 percent of the securities purchased during the two and one-half years since the August 1929 peak in economic activity.

Many of the banks that voted to purchase did not take part in the program. Only four banks—New York, Philadelphia, Cleveland, and Kansas City—participated in the initial purchases, with New York taking 80 percent of the first \$70 million.⁹⁶ Some banks had sold part of their portfolio to others, but Chicago and Boston did not participate because they opposed purchases. James B. McDougal (Chicago) said the new legislation encouraged borrowing, so there was no reason for purchases. George W. Norris (Philadelphia) preferred to wait until “all serious troubles are behind us. . . . [H]e feared further possible bank failures, further commercial failures and possible municipal defaults” (Harrison Papers, Open Market, February 24, 1932, 6). He voted for purchases after being assured that New York would buy most of the securities but that the money would flow all over the country. If he had voted against, a majority of the five-person executive committee would not have supported purchases.

Why did the System finally decide to act in a way that, at the time, seemed bold? There are at least three reasons. First, the action was consistent with the Riefler-Burgess framework. Member bank borrowing and short-term rates had not declined. Borrowing was well above the \$500 million range considered high in an ordinary recession and was almost back to the 1929 peak. A program to reduce the volume of borrowing by undertaking purchases was consistent with the dominant view that credit markets could be eased by forcing a reduction in the System’s portfolio of real bills. The preliminary memorandum prepared for the meeting talks about

96. At the time, New York owned 33 percent of the System portfolio and was expected to buy 27 percent under the formula used to allocate System securities to individual reserve banks (Board of Governors File, box 1452, March 16, 1932).

the deflationary effect of the large volume of member bank borrowing and compares the borrowings of banks outside principal money market cities with the amount borrowed in 1929 when the "Reserve System was exerting the maximum pressure for deflation." Gold flows to the United States or a return of currency to banks had not occurred, so borrowing had remained high. System action would not be seen as inflationary.

Second was passage of the Glass-Steagall Act on February 27, 1932, and the start of Reconstruction Finance Corporation purchases on February 2, 1932. Third was the threat of additional legislation, particularly the passage of two bills that had been introduced in Congress, one calling for a soldiers' bonus, the other for an issue of paper currency, or "greenbacks." When some directors expressed concern about the inflationary effect of the purchase program, Harrison replied that "the only way to forestall some sort of radical financial legislation by Congress" was an expanded program of purchases.

The New York directors had urged Harrison to purchase for weeks. Woolley was enthusiastic and urged purchases of \$100 million a week instead of \$25 million. Roy A. Young (Boston) expressed fears that an inflationary policy would drive the country off the gold standard, but after receiving assurances from Treasury Secretary Ogden Mills that the next budget would be balanced unless Congress passed the bonus bill, Young conceded that "by working toward controlled inflation we would be working against uncontrolled inflation by the Congress." He then shifted his position and urged Harrison to double the weekly rate of purchase and get an agreement from the other governors to purchase \$500 million at a rate not less than \$50 million a week. "If we are going into this program," he said, "the more vigorously and promptly we act, the less we shall have to do."⁹⁷

Harrison's principal concern was that Congress would approve "inflationary policies" before Federal Reserve purchases could help the economy. During the Coolidge administration, the government had promised a bonus to World War I veterans, payable in 1945. One group in Congress wanted to pay the soldiers' bonus at once. Another group, led by Senator Thomas, wanted to print \$2.4 billion of Federal Reserve banknotes, collateralized by 2 percent government bonds sold to the Federal Reserve banks. Neither group could get its bill passed, but the two groups had started to work together. Their plan was to use Federal Reserve banknotes to pay the bonus. This would stimulate spending. Senator Elmer Thomas, author of the bonus bill, told Harrison that "if his bill is not favorably received, even

97. Both Young's use of "we" and his demand for a more expansive program contrast with his bank's failure to participate in the purchase program.

more radical proposals will be forthcoming from Congress” (Minutes, New York Directors, April 4, 1932).

Political concerns accomplished what economic disaster could not. The Thomas bill, and the threat of other legislation, aroused Harrison to action. He told his directors, “The only way to forestall some sort of radical financial legislation . . . is to go further and faster with our own program” (*ibid.*, 2).⁹⁸ He proposed purchasing \$500 million in the next month, an extraordinary amount and rate of purchase and completely out of character for Harrison.

Although the purchase program had been in effect for five weeks when the OMPC met in April, System policy had not yet become expansive. The money supply fell during March, as table 5.20 shows. The preliminary memorandum prepared for the April 5 meeting of the executive committee noted, on Riefler-Burgess grounds, that the “program of security purchases has been even more successful than had been hoped . . . as member bank indebtedness has been reduced by more than \$200 million.” The memorandum correctly noted the contribution made by the reversal of the currency flow and by the small gold inflow. Moreover, the risk premium had fallen two percentage points since the end of 1931.

On April 5, the OMPC’s executive committee unanimously approved continuing the purchase program. Even McDougal and Young, who had opposed the program when it started in February, voted to continue purchasing because they did not believe that the executive committee should stop a program adopted by the full Open Market Policy Conference. But the executive committee did not accept Harrison’s argument to expand the program. It deferred action pending a meeting of the full OMPC the following week.

The New York directors wanted a more aggressive program. At their meeting on April 7, they talked about a “race against time” and urged Harrison to take “dramatic action,” to make “emergency purchases” for their own account immediately, and to “go it alone” without waiting for the other reserve banks. When Harrison reported that Senator Thomas had told him

98. He seemed to describe himself. “There will always be some reason for postponing action, and we shall never do the courageous thing if we wait for absolutely clear skies” (Board of Governors File, box 1452, March 16, 1932, 2). He then described four difficulties: System approval would be needed; New York might have to buy most of the securities; New York would have to invoke the Glass-Steagall provision; and the critics would call New York’s policy inflationary. He did not mention the loss of gold, a major offset to the expansion. France held approximately \$80 million in short-term acceptances. By late March it had adopted a policy of withdrawing \$12.5 million in gold each week. Governor Moret of the Bank of France wanted to increase the rate. Harrison told him that the New York bank did not object to any gold purchase and export program he chose.

Table 5.19 OMPC Meeting, February 24, 1932

COMMERCIAL PAPER AND ACCEPTANCES		LOANS OF IOI WEEKLY REPORTING BANKS		GOLD STOCK		BORROWING		BILLS BOUGHT		GOVERNMENT SECURITIES		CURRENCY		MONETARY BASE		MONEY (M.)	
-71	-493	-106	+74	-189	-34	-195	+74	-189	-34	-198	+220	+23.1%	+5.3%	-584			
-30.4%	-35.1%	-0.2%	-195	<i>Current Changes to February 28, 1932</i> <i>Cumulative Changes from August 1929</i>												-19.5%	
BORROWING		EXCESS RESERVES		DISCOUNT RATE (N.Y. AND RANGE)		AAA RATES		AAA- ACCEPTANCES		BAA-AAA		WPI ALL ITEMS (1926 = 100)		WPI FARM (1926 = 100)		INDUSTRIAL PRODUCTION (AUGUST 1929 = 100)	
\$848	\$44	3	5.23%	3	3.64%	66	51	66	51	56.0							
		(3-3.5)		<i>Levels as of February 1932</i>													

Note: Dollar amounts are millions.

Table 5.20 Meetings, Executive Committee, April 5, 1932, and OMPC, April 12, 1932

COMMERCIAL PAPER AND ACCEPTANCES		LOANS OF IOI WEEKLY REPORTING BANKS		GOLD STOCK		BORROWING		BILLS BOUGHT		GOVERNMENT SECURITIES		CURRENCY		MONETARY BASE		MONEY (M.)	
-5	-336	+36	-134	-46	+66	-81	+2	-81	+2	-200							
-30.7%	-27.1%	0.7%	-329	-19	+654	+21.0%	5.4%	+21.0%	5.4%	-20.2%							
				<i>Current Changes to March 31, 1932</i> <i>Cumulative Changes from August 1929</i>													
BORROWING		EXCESS RESERVES		DISCOUNT RATE (N.Y. AND RANGE)		AAA RATES		AAA- ACCEPTANCES		BAA-AAA		WPI ALL ITEMS (1926 = 100)		WPI FARM (1926 = 100)		INDUSTRIAL PRODUCTION (AUGUST 1929 = 100)	
\$714	\$59	3	4.98%	3	3.05%	66	50	66	50	55.0							
		(3-3.5)		<i>Levels as of March 1932</i>													

Note: Dollar amounts are millions.

he “might be satisfied not to press for congressional action [on the bonus bill] if the System would proceed more vigorously,” one of the directors urged an immediate purchase of \$100 million.

Thus prodded by Senator Thomas and his directors, Harrison introduced a resolution at the April 12 OMPC meeting calling for purchases of up to \$500 million in addition to the unexpired authority under the February 24 decision. Purchases were to be made as rapidly as practicable with at least \$100 million purchased in the current week. The OMPC approved the program ten to one, and the Board added its approval on the same day.

Governor Young of Boston was the main opponent. His argument was very similar to the argument made by Governor Norris eighteen months earlier. A purchase program could not be successful unless the commercial bankers approved. Previous programs had failed; he saw little point in continuing the program.

Meyer replied to each of Young’s arguments. The country was not in a favorable position to take advantage of the funds made available. He believed the program would inspire confidence and would not be opposed by the banks. Governor Harrison reinforced this view: “The uncertainty as to the budget and bonus legislation had constituted obstacles,” but it was not necessary to wait for these questions to be resolved. He believed the success of the program depended on the use member banks made of their excess reserves, but he thought the wisest course was vigorous action by the Federal Reserve.

Several governors said they regarded the purchase program as a success, supporting their statements with references to various measures. The minutes note that open market rates had fallen, that government security prices had fallen markedly, and that banks had reduced borrowing and accumulated excess reserves. Some hoped that the decline in member bank loans and investments had ended, as suggested by the data for weekly reporting banks early in May.⁹⁹

Purchases Slow

The signs of improvement quickly disappeared. The data in table 5.21 show that by the end of May the risk premium had risen to the highest level experienced in the depression. Despite open market purchases of more than \$100 million a week, Aaa rates were back to the December level, and Baa rates were at a new high. The gold outflow to Europe, mainly to France, increased during the spring. The gold stock was now below the level at the

99. Seasonally unadjusted data show a small increase in loans and investments for the week ending May 4. Loans declined at a slower rate (Board of Governors of the Federal Reserve System 1943, 145).

previous peak in 1929, one of the few times this had occurred during the downswing. Perhaps influenced by the new rules for collateral or fear of congressional action, the members of the OMPC paid little attention to the gold movement and authorized additional purchases of \$500 million, at a reduced weekly rate.

Bank lending, commercial paper, and acceptances continued to fall. Industrial production fell five percentage points in May to a level nine percentage points (15 percent) below the December 1931 level and 50 percent below its value at the 1929 peak. Wholesale and consumer prices continued to decline; the wholesale price index reached 64 (base 100 in 1926). The index of farm prices was 16 percent below the previous December level, a 38 percent annual rate of decline.

Governors Young and Martin could find no beneficial effect of the past purchases. Both thought that the Reconstruction Finance Corporation had helped but that open market purchases had had no effect. Adolph Miller also believed the purchase program had failed. McDougal favored slowing the program down until the large excess reserves were put to work.¹⁰⁰ He hoped there would be no specified amount of security purchases fixed in advance, and he expressed his fears that the System would dissipate its resources and not be in a position to meet a crisis.

Pulled in different directions by opposition within the OMPC, concerns about congressional and public reaction, and his characteristic indecisiveness, Harrison took a position midway between McDougal and the New York directors. On May 5 he opposed the proposal by one of his directors, supported by Burgess, that the System buy longer-term securities. A week later he talked about setting an objective, a terminal point such as a specific level of member bank reserves. He again opposed proposals to purchase longer-term securities and a suggestion that New York reduce its discount rate from 3 percent to 2.5 percent. On May 16, with Harrison absent, Burgess told the executive committee of the directors that the System was trying to find an objective for the purchase policy, perhaps by tying the volume of purchases to the volume of reserves. He expressed his own view that after a long period of credit contraction, credit expansion required larger reserves than in normal times.

Bank reserves had increased by \$725 million between February and May, mainly as a result of System purchases. Member banks had reduced borrowing or increased excess reserves by almost \$600 million. When Harrison reported to his directors on May 26, he favored a slower rate of

100. More than one-third of the \$600 million purchased in April and May was held as additions to excess reserves at the end of May.

purchase. He reasoned that the “best policy would be to keep our program alive for a considerable period rather than to fire all of our ammunition at once.” In the previous two weeks, the rate of purchase had declined from \$100 million to \$86 million and then to \$58 million. Currently, he thought, \$50 million to \$60 million was sufficient to offset gold exports, month-end and holiday currency withdrawals, and other demands for reserve bank credit. On June 9 he opposed the proposal by one of the directors to increase the rate of purchase, again stressing the importance of stretching out the program instead of using up “ammunition.”

The rate of purchase continued to slow after the May meeting. By the June meeting of the executive committee purchases had fallen to about \$40 million a week. Some governors claimed they had achieved the aims of the purchase program. The volume of member bank borrowing was \$350 million below the late February level. Although the risk premium had risen to more than six percentage points, short-term market interest rates had fallen. At the end of June, loans at weekly reporting member banks were 13.5 percent lower than at the start of the year. Late in June the Federal Reserve lowered the buying rate on acceptances from 2.5 percent to 1 percent and set the discount rate at New York at 2.5 percent. The Federal Reserve’s discount on acceptances remained above the market’s discount, so the System did not expect acceptance holding to increase.

All the accustomed indicators of Federal Reserve policy showed that policy was “easy” and suggested to the governors that the time had come for a less active policy. At the June meeting of the executive committee, Governor Meyer noted that the weekly telephone discussion about the volume of purchases could be avoided by agreeing on a policy target. He suggested that member bank excess reserves be kept between \$250 million and \$300 million, approximately the amount held by banks at the time of the meeting. The committee decided that the System should continue to purchase securities so as to avoid any indication that policy had changed. The purchases, however, were to be as small as required to maintain the volume of excess reserves.

Another reason for slowing purchases was the absence of a System policy. Most of the reserve banks did not accept their allotment of securities, and some did not participate at all. New York took more than half, at times 75 to 80 percent of purchases. Gold exports to Europe drained New York’s gold reserves disproportionately, and banking problems in the country drained correspondent balances of New York banks. With his gold reserves falling, Harrison became reluctant to continue purchases without more support from other reserve banks, particularly large banks such as Boston and Chicago: “Given the comparative reserve positions of the two

Table 5.21 OMPC Meeting, May 17, 1932

COMMERCIAL PAPER AND ACCEPTANCES		LOANS OF 101 WEEKLY REPORTING BANKS		GOLD STOCK		BORROWING		BILLS BOUGHT		GOVERNMENT SECURITIES		CURRENCY		MONETARY BASE		MONEY (M ₁)	
-	\$120	-	\$673	-	\$238	-	\$228	-	\$64	+	\$604	+	\$3	+	\$171	-	\$579
-	38.8%	-	31.0%	-	5.1%	-	\$557	-	\$83	+	\$1,258	21.1%	21.1%	7.8%	7.8%	-	22.4%
<i>Current Changes to May 31, 1932</i> Cumulative Changes from August 1929																	
BORROWING		EXCESS RESERVES		DISCOUNT RATE (N.Y. AND RANGE)		AAA RATES		AAA- ACCEPTANCES		BAA-AAA		WPI ALL ITEMS (1926 = 100)		WPI FARM (1926 = 100)		INDUSTRIAL PRODUCTION (AUGUST 1929 = 100)	
\$	486	\$	277	3	(3-3.5)	5.36%		4.36%	4.36%	6.27%	64	47	50.0				

Note: Dollar amounts are millions.

Table 5.22 Meetings, Executive Committee, June 16, 1932, and OMPC, July 14, 1932

COMMERCIAL PAPER AND ACCEPTANCES		LOANS OF 101 WEEKLY REPORTING BANKS		GOLD STOCK		BORROWING		BILLS BOUGHT		GOVERNMENT SECURITIES		CURRENCY		MONETARY BASE		MONEY (M ₁)	
-	\$48	-	\$282	-	\$233	+	\$9	+	\$9	+	\$284	+	\$213	+	\$78	-	\$82
-	42.1%	-	32.7%	-	10.1%	-	\$548	-	\$74	+	\$1,542	22.65%	22.65%	8.8%	8.8%	-	22.7%
<i>Current Changes to June 30, 1932</i> Cumulative Changes from August 1929																	
BORROWING		EXCESS RESERVES		DISCOUNT RATE (N.Y. AND RANGE)		AAA RATES		AAA- ACCEPTANCES		BAA-AAA		WPI ALL ITEMS (1926 = 100)		WPI FARM (1926 = 100)		INDUSTRIAL PRODUCTION (AUGUST 1929 = 100)	
\$	495	\$	234	2.5	(2.5-3.5)	5.41%		4.53%	4.53%	6.11%	64	46	48.2				

Note: Dollar amounts are millions.

banks, he said, it is difficult to see why we should pump funds into the market which will then be siphoned off to Chicago" (Minutes, New York Directors, June 23, 1932, 2).¹⁰¹ A new round of bank failures in Chicago made him hesitant to stop purchases entirely, so the directors agreed to purchase up to \$30 million in the last week of June.

The following week, Owen Young described the purchase program as having "served to check a contraction of credit rather than stimulate an expansion of credit. We have been clearing away for action, rather than taking action."¹⁰² Harrison agreed, citing the decline in borrowing "to a minimum" and the withdrawal of gold by France and other large holders. He added that "our program is only now getting a real test as an agency for recovery" (Minutes, New York Directors, June 30, 1932).

That test did not come. Harrison favored continued purchases, possibly at a higher rate, only if "the program be made a real system program and that the Federal Reserve banks of Boston and Chicago, in particular, give it their affirmative support" (*ibid.*). Further, he wanted to transfer securities to these banks to acquire gold, and he wanted the Federal Reserve Board to get Chicago and Boston to agree.¹⁰³ In response to a director's question, he proposed a \$250 million to \$300 million target for excess reserves, as much as \$80 million above the prevailing level.

Chicago Banking Problems

Bank failures continued in the Chicago district throughout June, rising to a peak in the last full week of June, when twenty-six banks failed (Calomiris and Mason 1997). Fearing that the crisis would spread, the public withdrew deposits from some of the leading banks that held relatively large portfolios of municipal warrants, real estate mortgages, or loans to electric

101. New York had a 50 percent gold reserve ratio compared with 58 percent for the System and 75 percent for Chicago. Excess reserves of the Chicago reserve bank were now larger than New York's (Minutes, New York Directors, June 23, 1932).

102. He based his statements on a report showing that \$1 billion of purchases had offset a gold loss of \$500 million, reduced discounts by \$400 million, and increased reserve bank credit by \$100 million.

103. It is difficult to know whether this was a serious recommendation or simply a response to those New York directors (and Burgess) who wanted to continue or expand the purchase program. Harrison knew that Young and McDougal opposed the program and that Boston (Young) had not participated at all. Harrison then added the condition that the RFC become more active in stopping bank failures. He accused it of being too cautious. On the other hand, Charles Hamlin probably described this meeting in testimony several years later: "The Governor delivered an oration worthy of Demosthenes. He nearly drew tears to my eyes, when he told us it was the duty of the Board to force Boston and Chicago into line. I agreed with him entirely." Hamlin promised to try to get the Board to either force the two banks to purchase or rediscount for New York (Senate Committee on Banking and Currency 1935, 948). Hamlin gives the date as the fall of 1933, but that is clearly incorrect.

utilities, particularly those associated with Samuel Insull's collapsed holding company. The City of Chicago had stopped paying interest on its bonds, paid wages and salaries intermittently, and sold illiquid tax warrants to local banks to finance payments to suppliers and some creditors (*ibid.*).

The Central Republic Bank was one of the threatened banks.¹⁰⁴ On Sunday, June 26, Harrison, Burgess, and Meyer talked with Treasury and RFC officials. These officials reported that the bank was insolvent, an assessment some Chicago bankers did not share. Afraid to close the bank for fear of additional runs, the RFC lent \$90 million (and Chicago banks lent \$5 million), sufficient to cover all the Central Republic Bank's deposits. This was the largest loan by the RFC to that time. It permitted the bank to pay its depositors and go into voluntary liquidation (see Upham and Lamke 1934, 158–60).¹⁰⁵

Purchases End

In the month following the June meeting of its executive committee, the System purchased less than \$150 million. The July meeting of the Open Market Policy Conference authorized purchases of at least \$5 million a week for four weeks and no more than \$15 million per week until the time of the next meeting. The OMPC agreed unanimously to hold excess reserves at approximately \$200 million and limit total purchases between July and January to the \$207 million remaining from the authorization given at the May meeting.

Harrison supported the recommendation and argued against a proposal to sell \$150 million provided excess reserves did not fall below \$250 million. No strong support for sales developed, so the committee postponed discussion of sales until the next meeting, scheduled for January 1933.

104. The bank's head was General Charles G. Dawes, author of the Dawes Plan for German reparations and vice president of the United States in the Coolidge administration. Dawes was a prominent citizen who received the Nobel Peace Prize for his work on German reparations. But Dawes had been administrative head of the RFC until June 1932. A few days after leaving the RFC, the RFC made its largest loan to Dawes's bank. To embarrass Hoover and Dawes, the Democrats in Congress forced the RFC to publish the names of banks that received assistance to show that Dawes's bank received the largest loan up to that time. Publication of names weakened the listed banks and made banks reluctant to apply for RFC assistance.

105. Hoover had asked Congress to appropriate \$500 million and permit the RFC to borrow an additional \$3 billion. Congress set initial borrowing authority at \$1.5 billion. After the Chicago failures, on July 21, 1932, it increased borrowing authority to \$3.3 billion. In March 1933, Congress increased the RFC's powers and permitted it to acquire preferred stock in weak or failing banks.

In the last two weeks of July and the first weeks of August the System made its maximum authorized purchase (\$15 million) when discounts increased and its minimum required purchase (\$5 million) when discounts fell. After mid-August, the requirement to purchase expired. Since member bank discounts were near the level of the previous autumn and continued to decline, the Riefler-Burgess framework suggested that the market had returned to the "degree of ease" prevailing before Britain left the gold standard. After mid-August, the acceptance portfolio remained unchanged. The System did not undertake any additional purchases even though the executive committee had not yet made all the purchases authorized in May. Short-term open market rates remained below the levels of summer 1931. On the Riefler-Burgess interpretation, there was no reason to purchase.

Riefler-Burgess reasoning was not the only motivation for ending purchases. As is often the case in committee decisions, no single argument appealed to all the members. That the program did not trigger a rapid expansion in bank credit, however, strengthened the opponents and weakened the supporters. Governor Young of Boston had opposed the program from the start, and Norris of Philadelphia had voted for the program without any belief that it would succeed. Boston and Chicago refused to participate in further purchases. Although Harrison recognized that purchases had offset a gold outflow, permitted member banks to repay borrowing, and greatly reduced the rate of decline in bank credit, the demand for credit had not increased. Foreign governments had sold their United States securities and taken gold. Continued purchases would have a more expansive effect. Harrison told his directors that he was willing to continue purchasing provided that other banks, particularly Boston and Chicago, participated and that the RFC liberalized its operations so as to stop further bank closings (Minutes, New York Directors, July 7, 1932). Since Harrison knew neither condition would be met, his proposal seems disingenuous, more an effort to placate some of his directors than a program for open market purchases.

Harrison wanted to protect New York's gold reserve. The New York bank had taken 55 percent of the System's purchases between April 13 and July 13, slightly more than twice its standard allotment. Boston, Richmond, Kansas City, and Dallas had taken much less than their standard allotment. One result was that New York had the second smallest gold reserve ratio in the System even after selling securities worth more than \$164 million to other reserve banks for gold. Table 5.23 shows these data.

On July 9 McDougal wrote to Harrison to explain his bank's decision not to purchase. He noted that between February and June, Chicago and New York had taken a much larger share of the securities than required by

Table 5.23 Purchases, Allotments, and Adjustments, April 13 to July 13, 1932

CITY	PARTICIPATION AT TIME OF PURCHASE (%)	RESALES (-) OR PURCHASES (+) (MILLIONS OF DOLLARS)	STANDARD ALLOCATION RATES (%)	OVER (+) OR UNDER (-) PRO RATA SHARE (MILLIONS OF DOLLARS)	GOLD RESERVE RATIO 7/11/32 (%)
Boston	1.1	+30.6	7.25	-22.7	64.4
New York	55.2	-164.3	27.0	+81.4	49.1
Philadelphia	7.9	0.0	7.75	+1.1	53.9
Cleveland	8.7	+15.5	10.50	0.0	55.1
Richmond	1.5	+15.2	5.00	-15.6	50.6
Atlanta	2.4	+18.0	4.75	-2.4	46.3
Chicago	12.8	0.0	12.75	0.0	71.2
St. Louis	2.2	+16.6	4.25	-0.8	54.2
Minneapolis	1.7	+11.4	3.00	0.0	50.6
Kansas City	1.4	+19.9	5.50	-15.6	53.9
Dallas	1.0	0.0	3.75	-24.4	53.8
San Francisco	4.1	+37.0	8.50	-1.0	49.3
	100.0	0	100.0	0.2	

Source: Open Market, Board of Governors File, box 1452, July 14, 1932.

Note: Total purchases \$872.77 million.

the allotment formula. This was particularly difficult for the Chicago bank, which had an “abnormally large amount of circulation . . . over 25 percent of the entire [currency] circulation of all the Reserve banks.”¹⁰⁶ McDougal then expressed concern about the integrity of the note issue and the dangers that might arise because of reliance on the provisions of the Glass-Steagall Act permitting the reserve banks to use government securities as collateral.

The Chicago bank had faced an increased demand for currency after the Chicago bank failures. The failures may have convinced a skeptical and reluctant McDougal to stop participating in the purchase program. Harrison told his directors on July 25 that McDougal feared the newly issued currency would later return to the banks, producing excess reserves that would flow to New York. Chicago would have to settle the balance with

106. Letter dated July 9, 1932, from McDougal to Harrison. McDougal supported his argument with data showing that in the Chicago district, member bank reserves were only about one-third of the note issue, whereas in New York, member bank reserves were more than 1.4 times currency outstanding. The implicit point was that his bank was more vulnerable because the demand for currency was much greater in his district. In fact, Chicago also had a much higher ratio of gold to monetary liabilities than New York. The Glass-Steagall Act had removed the requirement that currency had to be backed by real bills and gold, but as noted in the text, McDougal did not want to use government securities as backing for the note issue. Epstein and Ferguson (1984) argue that commercial banks wanted purchases to end because lower interest rates reduced their profits. Coelho and Santoni (1991) dispute this claim by showing that Federal Reserve purchases did not contribute to lower bank profits.

New York in gold. McDougal did not want to further reduce Chicago's gold reserve by increasing currency (Harrison Papers, Memoranda, New York Executive Committee, July 25, 1932).

Concern at the New York and Chicago banks about their gold reserves represents another failure of the Federal Reserve Act. Chicago acted as banks had acted before the act. The Federal Reserve Board did not force banks to pool their reserves, as the act intended. Knowing that it could not rely on support from other banks, New York also acted to protect its gold reserve by first limiting, then ending, open market purchases.

By late June, Harrison's interest in purchases had become conditional on actions by Chicago and Boston and more aggressive efforts by the RFC. On July 11 he reported to his directors on his conversation with Meyer.¹⁰⁷ Meyer agreed that the RFC had been "defensive" but made no commitment about future policies. Meyer wanted the System to continue the purchase program: "If for no other reason, it is politically impossible to stop at this particular time. . . . If the program were terminated just as Congress adjourned, we would be crucified next winter."¹⁰⁸

A decline in excess reserves early in July proved to be temporary. By late July, excess reserves were again above \$250 million. With the rise in excess reserves, Harrison's interest in the purchase program disappeared. He told the executive committee of his directors that the "need for further purchases is subsiding." Purchases ended in early August.

The rise in excess reserves reflected the return flow of gold during July, a flow that continued throughout the fall. After August, excess reserves generally remained above \$400 million, member bank borrowing was less than excess reserves, and short-term interest rates remained below the discount rate and in the range traditionally regarded as "low."

Results of the Purchase Program

In the year following the British decision to suspend gold payments—from September 1931 through August 1932—the System's balance sheet showed the following changes:

107. Eugene Meyer, governor of the Federal Reserve Board, served ex officio as first director of the Reconstruction Finance Corporation until July 1932, when he asked to be replaced at the RFC for health reasons. This is one of several examples of a Federal Reserve governor or (later) chairman taking an active role in economic policy. Federal Reserve directors also served on regional branches of the RFC (Todd 1994, 16).

108. Congress had considered, but not passed, legislation to reflate, principally the Goldsborough bill mandating a return to the 1920s average price level. The Federal Reserve opposed it, as it had opposed similar efforts by Congressmen T. Alan Goldsborough and James A. Strong to stabilize the price level in the 1920s. Congress approved issuance of \$500 million in Federal Reserve banknotes (greenbacks) at the discretion of the president.

<i>Securities</i>	<i>Other Portfolio</i>	<i>Gold Stock (in millions)</i>	<i>Other</i>	<i>Reserves</i>	<i>Currency</i>
+1,124	-14	-911	-229	-228	+656

Expressed in terms of a change in the monetary base, the data show that the monetary base increased approximately \$400 million. The sources of the increase were the excess of security purchases over the gold outflow (\$213 million) and the change in "other," mainly a decline in deposits of nonmember banks at Federal Reserve banks.

Chart 5.1 shows that the gold outflow followed open market purchases after a brief lag. This was the classical reaction, substitution of domestic assets for gold on the central bank's balance sheet. Substitution was incomplete, however. During March, gold flows were small and positive. From March 30 to early July, the period of large-scale open market purchases, gold losses were more than half the size of open market purchases. The gold flow reversed before purchases ended. By mid-January 1933, the Federal Reserve's gold holdings had returned to the level reached before the British devaluation.

Gold losses did not force an end to the purchases program. The System's gold reserve ratio did not fall below 56 percent, well above the minimum requirement. To a limited extent, individual reserve banks transferred security holdings to others to meet the gold reserve requirement.

Reductions in discounts and advances were the other main offset to purchases. These also remained far below the volume of open market purchases. During the peak purchase period, from March to July, member bank discounts declined \$133 million, 14 percent of open market purchases. Together gold and discounts offset 64 percent of purchases. With discounts reduced and many foreign balances withdrawn, the offset would have fallen had purchases continued. Economic recovery would have reversed the gold flow and the reduction in member bank borrowing.

As these comparisons suggest, seasonally adjusted data show that the stock of money—currency and demand deposits—increased during the summer and fall (Friedman and Schwartz 1963, table A-1). Output responded to the increase in money. After falling to 47 in July, the seasonally adjusted index of industrial production (August 1929 = 100) rose to 53 in October, an increase of more than 12 percent.¹⁰⁹ It seems likely that had

109. The index went from a 20 to 30 percent annualized rate of decline in the winter and spring to a 50 percent annualized rate of increase from July to October. Growth stopped in November, and decline resumed in December.

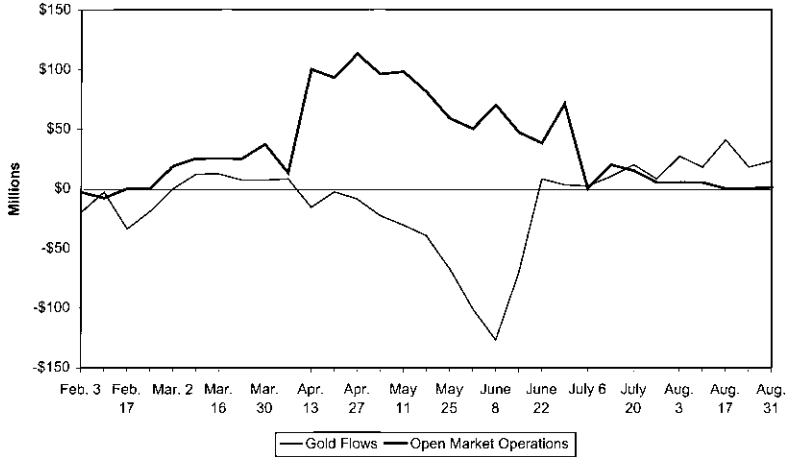


Chart 5.1 Gold flows versus open market operations, February–August 1932, Wednesday series. Source: *Federal Reserve Bulletin* (various issues).

purchases continued, the collapse of the monetary system during the winter of 1933 might have been avoided.¹¹⁰

The Federal Reserve recognized the improvement at the time. At the August 11 meeting of the New York directors, Meyer described the rise in commodity and security prices as the best in nearly three years. He then dismissed “those who think things are going too fast; they are not going fast enough.” Meyer saw a continued rise in commodity prices as the chief hope for banks and the economy.¹¹¹

The Federal Reserve’s purchase program was not the only factor working toward improvement in the financial system and the economy. From

110. A memo prepared for the July 14 meeting of the OMPC compared the current recession with previous deep recessions. Previous deep declines in industrial activity, 1873–78, 1892–94, 1920–21, and 1923–24, measured 24 to 34 percent from peak to trough. The current decline was 56 percent from June 1929 to June 1932. Payrolls had fallen by more than two-thirds in several durable goods industries, where employment had fallen by 50 percent or more. Unemployment had increased to 10 million, a rise of 3 to 4 million in a year. The memo mentions the threat of social disturbance and radical legislation. It also recognizes some signs of improvement—the nearly complete withdrawal of foreign short-term balances, an end to domestic gold hoarding, passage of tax increases to balance the budget (*sic*), and expanded powers for the RFC. Banks had stopped reducing credit, “since the Reserve System began its policy of vigorous purchases of government securities” (Open Market, Board of Governors File, box 1452, July 14, 1932). The OMPC did not use this analysis as a reason for continuing purchases.

111. The index of common stock prices (base 100 in 1935–39) confirms Meyer’s statement. The low point of the index is 35.9 in June 1932. By August the index reached 56.3, more than 50 percent above its low point. The performance of the index of railroad stocks is even more dramatic. After reaching a low of 37.5 in June, the index rose to 91.5 in September. None of the com-

the date of its inception, January 22, 1932, to the end of August, the Reconstruction Finance Corporation authorized loans of \$784 million to more than 4,000 banks as compared with only \$155 million lent to 575 banks by the National Credit Corporation in the three months ending January 1932. Under the impact of monetary expansion and RFC lending, the bank failure rate declined markedly. The improvement was so great that by October 1932, repayments to RFC exceeded new loans. The improvement did not last, however. In December the number and deposits of suspended banks rose once again.¹¹²

At the July 1932 meeting, a majority of the reserve banks were in favor of continuing the purchase program on a limited scale. Only one governor, George Seay of Richmond, joined Young and McDougal in opposing purchases.¹¹³ It seems likely that if Harrison had urged continued expansion, he would have had the support of the smaller banks and the Board. Harrison failed to continue the program, ostensibly because he did not have the support of two banks that had taken less than 20 percent of the previous purchases. To protect New York's reserve, he did precisely what Bagehot had warned central bankers to avoid.

THE FINAL COLLAPSE

The standard seasonal pattern called for an increase in reserves to prevent a seasonal increase in interest rates. With little upward pressure on interest rates and declines in November and December, the System was inactive throughout the fall. The main discussion was the timing of sales.

Gold continued to flow in, adding to excess reserves. The System remained passive despite a resumption of banking failures, the beginning of state or area bank closures, and the renewed gold outflow during the winter. Despite requests for assistance from President Hoover, it remained almost passive as the financial system collapsed, stirring itself only at the very last moment.

mon stock indexes ever returned to the June 1932 low point. Bond yields also reversed direction. Moody's corporate bond yields reached 8.01 in June, then declined to 6.45 in August and 6.08 in September. Yields on lower-quality Baa bonds declined more than one-third, from 11.63 in May to 7.61 in September, in part a result of Reconstruction Finance Corporation activities.

112. In the four months through January 1932, deposits of suspended banks exceeded \$1 billion. In the remaining eleven months of 1932 deposits of suspended banks declined to just under \$500 million. See *Federal Reserve Bulletin*, December 1933, 664.

113. The vote differs from Harrison's report to the executive committee of his directors (July 9) that the majority of the executive committee of the OMPC would like to stop purchases but that they were not able to do so without a vote of the full committee. At the time, he described McDougal and Young as opposed to further purchases and Norris (Philadelphia) as "lukewarm." The other members of the committee were Fancher (Cleveland) and Harrison. Philadelphia voted with the majority in mid-July.

Open Market Policy Discussions

Once the purchase program ended in August, Harrison showed no interest in a new program. Burgess spoke in favor of continuing the purchase program in early August, but Harrison preferred to rely on the gold inflow to maintain excess reserves and talked about the prospects for reducing System holdings of government securities by allowing Treasury bills to run off. In September and October, Burgess proposed additional purchases; Harrison discussed the appropriate time for sales.¹¹⁴ Governor Norris expressed the view of many when he told the New York directors on September 13, "The only question to be decided is when and how we shall reduce our portfolio." Harrison agreed that securities should be sold but was uncertain about the appropriate timing. He was concerned that "too large an amount of excess reserves would mean that the credit situation might get out of control" (Harrison Papers, Meeting of the Officers' Council, September 13, 1932). His discussion presages the deflationary policy action later in the decade, when the System raised reserve requirements.

Burgess responded, opposed sales, and argued for additional purchases. The Federal Reserve should "keep on all possible upward pressure in order to stimulate business improvement." There was "plenty of time for us to turn around" because there would be no sudden upsurge that would restore employment and output. He thought recovery would take months and perhaps years, so he favored continued purchases.¹¹⁵ Governor Norris was present at the New York meeting and expressed the dominant opinion. He could not "see that it would be worthwhile to burden the city banks much longer with large accumulations of excess reserves."

The November meeting of the Open Market Policy Conference considered a proposal to sell up to \$150 million of securities provided that excess

114. Harrison called a meeting of the principal New York officers on September 13 to discuss when sales should begin. He said that the traditional indicator of the monetary situation, the rate of increase in bank credit relative to business activity, did not suggest the need for sales. Some of the officers challenged the use of that indicator, suggesting that it had misled them. Burgess defended it. "If we had acted in the light of the bank credit-business activity index in the past, we would have acted promptly enough for our purposes and in the right direction" (Harrison Papers, Meeting of the Officers' Council, September 13, 1932, 2). Harrison expressed concern about the risk of inflation. Burgess pleaded for an expansive policy, citing "the fact that we are approaching a terrible winter from the standpoint of unemployment and widespread social distress" (3).

115. A month later, Burgess expressed very similar views at a meeting of the New York directors. He declared that "the time has not yet come for a reversal of our System open market policy." He then analyzed the policy of the previous year as one that had encouraged people to switch from cash or liquid assets to short-term securities. By continuing to purchase, they could now force a switch from short- to long-term securities. This would lead to the employment of men and machinery.

reserves remained above \$250 million. There was general agreement that the recent election, the choice of a new Congress, and other uncertainties made it appropriate to delay sales. The OMPC voted to reopen the question during the first week of January after defeating a motion by Governor Seay, supported by McDougal, to reconvene in December. The only action was to ask Congress to extend the Glass-Steagall provisions for a second year.

Harrison and Meyer stated the prevalent arguments for and against sales at a meeting of the New York directors on December 22. Harrison rested the case for selling on two main points. In both, he treated excess reserves as a redundant surplus and ignored Burgess's earlier argument. (1) The purchase program had accomplished the objective of stopping a "drastic deflation" but not the secondary and "unavowed objective" of stimulating business recovery. However, it was unclear whether the \$700 million to \$800 million of excess reserves was any more effective in stimulating recovery than \$400 million. (2) The accumulation of excess reserves created a risk: "We do not have real control as contrasted with psychological control until member banks are forced to borrow at the reserve banks. If excess reserves pile up, . . . we must remember that we are relinquishing a lever of immediate control."

Meyer's response emphasized political as well as economic factors. The inflationists in Congress were looking for a reason to inflate. Sales would be interpreted as deflationary and would fly in the face of predominant congressional sentiment. Also, sales would attract a gold inflow by raising interest rates. The present inflow was "embarrassing"; a further inflow generated by a deliberate policy of raising interest rates was hard to justify to foreign governments.¹¹⁶

It is impossible to reconcile Meyer's statement that sales would raise interest rates with Harrison's treatment of excess reserves as a redundant surplus. Meyer's comments on the level of excess reserves correctly interpret the increase as a response to expected System policy. He suggested that the variability of excess reserves was as important as the level and that the banks had failed to use the excess reserves as a basis for expansion of deposits and earning assets because of uncertainty about future Federal Reserve policy.¹¹⁷ The banks expected sales, and Meyer did not strongly op-

116. Owen Young, a director, offered a succinct statement of a major problem. "There is deflation in the country which loses the gold and no inflation in the country which receives it" (Minutes, New York Directors, December 22, 1932, 2).

117. Meyer's statement is in the minutes of the directors' meeting. At the time, Treasury bill yields had been driven almost to zero—an average of 0.085 percent for the month. "Concerning the most effective pressure of excess reserves, Governor Meyer said that if the banks knew that there is going to be a constant amount of excess reserves over a long period, the amount can be relatively small and still be more effective than a much larger but uncertain

pose selling. He believed that if sales were to be made, the time for it would be January, when currency would return to the banks.

The background memo for the January 4, 1933, OMPC meeting showed that bank credit (loans and investments) was 2 to 3 percent above the July low point, but growth had stopped in October. Loans at weekly reporting banks were below the July level (table 5.24). Member bank borrowing had fallen about \$600 million. Excess reserves, mainly at New York and Chicago banks, continued to increase. Most of these funds came from regional and rural banks seeking investment in the New York and Chicago markets. The memo noted also that the rise in commodity prices and industrial production during the spring and summer had reversed.¹¹⁸

The OMPC members had different interpretations of excess reserves, but there was general agreement on a policy of purchases or sales to maintain the level of excess reserves no higher than \$500 million, slightly less than the amount that prevailed at the time of the meeting. Seay and McDougal wanted the System to reduce excess reserves by \$125 million at once, but they voted for the resolution and it passed unanimously.

During the next few weeks New York followed the instructions almost to the letter. It sold approximately \$60 million and maintained the banks' excess reserves close to \$500 million. By early February, currency drains had reduced excess reserves below the target. Burgess wanted to return to the target, but Harrison was cautious and limited purchases to \$25 million. After February 8, the committee ignored the instructions. Purchases failed to offset the increase in currency, so excess reserves fell. Between mid-February and the banking "holiday" of early March, weekly purchases did not exceed \$25 million. On February 16, New York reduced its acceptance rate to 0.5 percent and purchased \$27 million.

The final bank runs had started. Harrison told his directors on February 16 that the OMPC could not meet because reserve bank governors could not leave their districts. New York might have to purchase securities for its own account, offering participation to other reserve banks later. He reported increased gold withdrawals by domestic residents and foreigners. In the second half of February, Michigan, New Jersey, Missouri, Maryland,

amount. To be effective, he said, the pressure of excess reserves has to enter into the calculations of people who are going to use the money over a period of time. We have not obtained the full effect of recent large excess reserves because of uncertainty as to our future policy" (Minutes, New York Directors, December 22, 1932).

118. A table in the memo compared levels of excess reserves in previous deep recessions back to 1884–85. The table showed that in previous recessions excess reserves had been larger relative to requirements, that business activity lagged six to eighteen months behind the increase in excess reserves, and that there was little risk of a sudden rise in commodity prices.

Table 5.24 OMPC Meeting, January 4, 1933

COMMERCIAL PAPER AND ACCEPTANCES		LOANS OF 101 WEEKLY REPORTING BANKS		GOLD STOCK		BORROWING		BILLS BOUGHT		GOVERNMENT SECURITIES		CURRENCY		MONETARY BASE		MONEY (M ₁)	
-\$59		-\$1,080		+\$594		-\$213		-\$16		+\$157		-\$129		+\$240		-\$108	
-46.1%		-39.1%		+38%		-\$761		-\$90		+\$1,699		23.2%		12.2%		-23.2%	
<i>Current Changes to December 31, 1932</i>																	
<i>Cumulative Changes from August 1929</i>																	
BORROWING		EXCESS RESERVES		DISCOUNT RATE (N. Y. AND RANGE)		AAA RATES		AAA-ACCEPTANCES		BAA-AAA		WPI ALL ITEMS (1926 = 100)		WPI FARM (1926 = 100)		INDUSTRIAL PRODUCTION (AUGUST 1929 = 100)	
\$282		\$526		2.5 (2.5-3.5)		4.59%		4.21%		3.83%		63		44		51.8	

Note: Dollar amounts are millions.

Ohio, Pennsylvania, Indiana, and Kentucky either authorized banks to close as required or declared bank holidays.¹¹⁹

Once again, the Federal Reserve watched events take place and failed to respond as long as the level of market interest rates remained low. Once again, when market interest rates rose the System responded by discounting “freely” at a higher rate, by raising the acceptance rate at the New York bank, and by purchasing very little in the open market. Even Governor Meyer shared the dominant view. He told the Board on February 27 to follow gold standard rules: “Continued purchases of government securities at the present time would be inconsistent from a monetary standpoint . . . the New York money market should protect itself against the higher rates abroad by increased rates and not through open market purchases of governments by the Federal Reserve Banks. . . . Any reasonable amount of open market purchases at this time would prove to be ineffective and appear to be a vain attempt to prevent a readjustment of rates which is inevitable.”

Renewed currency demand, “hoarding of gold coins in aggravated form,” weakness in the foreign exchanges, and foreign demand for gold produced almost no response.¹²⁰ During February, reserve bank credit increased only \$284 million, mainly by bill purchases in the last week. In the same period, currency circulation increased by almost \$400 million. Table 5.25 shows some principal financial measures at the end of February and the changes from the August 1929 peak.

Final Currency and Gold Drains

The banking crisis was not a sudden, unanticipated event. It developed over months, spreading from state to state, and when it was left unattended, spread fear throughout the country. Failure to stop the growing crisis arose at many levels. Boston and Chicago would not participate in purchases, so New York did not ask for a System policy. The Board would not insist on a Systemwide program. It watched passively while its staff prepared for a financial collapse. The political system was in transition from

119. Rockoff (1993, table 2) lists the restrictions by date and state beginning in October 1932. He notes that restrictions had begun earlier. His data are from the *Commercial and Financial Chronicle* (1933). See also his table 3, showing the restrictions in place on Sunday, March 5, just before the national bank holiday.

120. The only major action discussed in the minutes was purchase of Treasury securities to prevent “violent price fluctuations” when the Treasury had to borrow \$350 million and refinance \$650 million on March 15. Harrison urged his directors to agree to support the Treasury market during the sale if needed. One director dissented but changed his vote to make the decision unanimous (Harrison Papers, New York Executive Committee, February 27, 1933).

Table 5.25 Financial Conditions, February 1933

LOANS 101 WEEKLY REPORTING BANKS	COMMERCIAL PAPER AND BANKER'S ACCEPTANCES	BILLS BOUGHT	GOVERNMENT SECURITIES	DISCOUNTS	CURRENCY	MONEY (M ₁)
\$10,036	\$755	\$336	\$1,866	\$582	\$5,588	\$19,982
			<i>Change from August 1929</i>			
-\$6,933	-\$713	+\$160	+\$1,716	-\$464	+\$1,669	-\$6,489
			<i>Percent Change</i>			
-40.8	-48.6				+23.0	-24.5
INTEREST RATES (%)						
DISCOUNT RATE (NEW YORK AND RANGE)	RATE	ACCEPTANCE AAA RATE	BAA RATE			
2.5 (2.5-3.5)	0.88	4.48	8.37			

Note: Dollar amounts are in millions.

Hoover to Roosevelt. Without Roosevelt's agreement, Hoover would not take responsibility for actions whose legality he suspected. Roosevelt would not accept responsibility until he was inaugurated and had authority to act. Clearinghouse banks would not issue currency substitutes, scrip or clearinghouse certificates, because they believed the crisis differed from the crises in the 1890s or 1907, when they had last issued clearinghouse certificates.¹²¹

Roosevelt was elected without commitment to a specific program. His advisers included people with known views, but these views covered several different policies. Roosevelt would not commit to balance the budget or maintain the gold value of the dollar during the four months between his election and inauguration on March 4, 1933. Several senators and congressmen proposed legislation to raise prices by increasing money. The proposals, if enacted, would have made devaluation a likely outcome.¹²² These proposals, speculation about Roosevelt's plans and intentions, a con-

121. The three main arguments were that the crisis was not caused by a shortage of currency (as in the past) but by insolvent banks; that scrip would exchange at a discount against Federal Reserve notes; and that checks payable in scrip could not be transferred through Federal Reserve banks. At best such checks would be noncash items, but only if they contained the words "payable in scrip" on their face (Memorandum re: Proposed Plan for the Issuance of Secured or Unsecured Bank Scrip, Board of Governors File, box 2222, February 15, 1933). The source contains analyses of the programs used in 1890, 1893, and 1907 and for the possible use of scrip in 1907 and 1914.

122. Eichengreen (1992, 327) cites press accounts at the time showing recognition of the threat to the dollar's gold value. The proposals included calls for stabilizing the price level at the 1920s level and for printing greenbacks. See discussion of the Thomas amendment in chapter 6. Federal Reserve discussions did not distinguish between proposals to raise the price level and to print fiat money.

gressional mandate requiring the RFC to publish the names of banks it assisted, and the long delay between election and inauguration heightened uncertainty, adding to the crisis.

Between February 1 and March 4, the demand for Federal Reserve notes and gold increased \$1.43 billion and \$320 million respectively. In the same period, foreigners moved \$300 million in gold into earmarked accounts, \$200 million in the week before the inauguration (Eccles 1951, 115).¹²³ The public's increase in note and gold holdings was about one-third of the outstanding stock at the end of December 1932, the gold loss, 6 percent of the December 1932 stock.

These data suggest that most of the gold purchases were made by foreigners, including foreign central banks. If we attribute all or most of the currency drain to domestic demand, foreigners account for about 10 percent to 20 percent of the run on the monetary system in early 1933 and about the same percentage in the climactic two weeks from February 22 to March 8, when currency outstanding increased \$1.55 billion and the gold stock fell \$2.7 million (Board of Governors of the Federal Reserve System 1943, 387).

Bagehot (1962) describes the remedy for an internal and external drain as lending freely at a high rate. The Federal Reserve continued to ignore this advice. Banks therefore could not meet demands for currency and gold. In the four months between election and inauguration, the Hoover administration tried unsuccessfully both to activate the Federal Reserve and to cooperate with the incoming administration.

Burdened by its history of crises, a lame duck administration, Federal Reserve inaction, and Roosevelt's silence, the financial system collapsed.

123. These data are not entirely consistent, as is shown by the comparisons of Eccles's and the board's estimates of currency withdrawals. Combining the end of January data and weekly data ending March 8, official figures show a \$310 million fall in the gold stock and a \$41.9 billion increase in "money in circulation" (Board of Governors of the Federal Reserve System 1943, 376, 387). The latter figure includes vault cash. Gold sales are close to Eccles's claim, so I use his numbers with Federal Reserve data for Federal Reserve notes, gold coin, and gold certificates (412). These items show a combined increase of \$850 million in the month of February, suggesting that the demand for Federal Reserve notes, gold coins, and currency increased \$580 million in the critical days of early March. New York reserve bank estimates show an increase of \$162 million in gold coin between January 11 and March 4 and \$172 million in gold certificates from February 8 to March 4 (Sproul Files, memo E. Despres to Burgess, March 18, 1933).

Weekly data on earmarked gold are not available. Monthly data show transfers to earmarked gold in early 1933.

January	\$91.5 million
February	\$178.3
March	\$100.1
Total	\$369.9

By inauguration day, thirty-five states had declared bank holidays, closing all banks. Closings typically were for limited periods, but some were indefinite. In the states without declared holidays, withdrawals were severely restricted; often no more than 5 percent of deposits could be withdrawn (Board of Governors File, box 2166, March 1933).

The final crisis did not come suddenly. In November, Harrison and Secretary Mills discussed a likely December default on intergovernmental debt payments. Greece had defaulted earlier in the month; Britain wanted an international meeting to discuss intergovernmental debt payments and had asked to postpone its December payment. Harrison and Mills thought Roosevelt would probably not accept a private invitation to discuss problems with President Hoover. The best available course was an open letter, discussing the problems and inviting cooperation. The letter appeared on November 3, 1932. Roosevelt accepted the invitation the following day, but the meeting achieved nothing.¹²⁴

In late November, Harrison warned Mills about the beginning of flight from the dollar. Although the gold stock continued to increase, Harrison explained that Britain had stopped buying dollars and started using them to strengthen its exchange rate against the French franc. This involved selling dollars for francs in Paris and selling francs for pounds in London.

By December the staff began informing the New York directors about the number of banks in the United States that had closed since the previous week. In mid-February Michigan joined the several states that had declared banking holidays, closing all banks. Michigan's action closed the Detroit banks.¹²⁵ To avoid loss of deposits, corporations moved their balances to New York banks, thereby draining reserves from small and medium-sized cities. New York made a feeble effort to relieve the pressure by lowering the buying rate for bills to 0.5 percent on February 16. The directors

124. The campaign had been bitter, so there was not much spirit of cooperation. Mills's discussion shows that the administration believed the election repudiated its program, so it was reluctant to act alone and uncertain about how a Democratic-controlled Congress would receive its proposals (Harrison Papers, Conversations with Ogden Mills, November 11, 13, 14, 1932).

125. Awalt (1969) describes negotiations with Henry Ford before the failure of one of the large Detroit banks. Ford's company was a large depositor, and members of the Ford family were principal stockholders in one of the banks. Ford believed the collapse was "inevitable" (354). He refused to subordinate his deposit liability in exchange for additional capital from the RFC. Instead he threatened to withdraw \$7.5 million in deposits from the trust company, forcing it to close, and \$25 million from one of the banks, putting it at risk. The secretary of commerce warned him that his actions would cause a run on other Michigan banks, force bank closures, and cause great distress. Ford persisted, so the governor of Michigan closed the banks before they opened on February 14, 1933. Awalt was the acting comptroller of the currency in 1932–33. He participated in meetings in Detroit with Henry Ford, Secretary Roy D. Chapin, and others.

approved purchases of \$20 billion to \$25 billion of government securities a week during February and bought \$350 million in commercial bills for the month.

In mid-February, President Hoover wrote to Roosevelt to inform him about capital flight, currency drains, and the threat to the exchange rate and the gold standard. Hoover's letter blamed the problem on agitation to tinker with the financial system, publication of RFC loans, and the like. The letter asked Roosevelt to commit to a policy based on the gold standard and a balanced budget and to reassure the public that the country would recover if the government followed sound policies. Roosevelt replied that "mere statements" would do nothing to stop the runs (Moley 1939, 141-42).¹²⁶

Hoover next wrote to the Board on February 22, referring to capital flight and to the "hoarding of currency, and to some minor extent of gold, [that] has now risen to unprecedented dimensions," and asked whether there was a need for some action, or some additional powers (Hoover to the Board, Board of Governors File, box 2158, February 22, 1933). The Board replied on Saturday, February 25, that it was watching the situation develop but "did not desire to make any specific proposals for additional measures or authority" (Meyer to Hoover, Board of Governors File, box 2158, February 25, 1933).

The following Monday the Board met with Ogden Mills present.¹²⁷ Mills referred to the pressures in the market and on the Treasury arising from the Treasury's debt sales to finance the Reconstruction Finance Corporation's assistance to failed banks. He urged the Board to arrange for open market purchases of up to \$100 million that week.

Governor Meyer saw no reason for purchases. The rise in bond yields was a "necessary readjustment in a market which has been too high" for current conditions. The proper response was for the New York market to increase money rates and for the Federal Reserve to increase bill rates to protect against higher rates abroad: "Purchases of Government securities at the present time would be inconsistent from a monetary standpoint," although the Treasury might wish to purchase some long-term securities for

126. The reply was not sent for eleven days. Raymond Moley (1939, 142 n. 5) blames an oversight by one of Roosevelt's secretaries. Hoover's letter reached Roosevelt when he returned to New York, after an attempted assassination killed Chicago's Mayor Anton Cermak, who was riding beside Roosevelt. Moley comments on Roosevelt's calm following the attempted assassination. He spent the evening discussing the financial crisis and his response to Hoover. "I detected nothing but the most complete confidence in his own ability to deal with any situation" (142).

127. Mills had replaced Andrew Mellon as secretary of the treasury and ex officio chairman of the Federal Reserve Board a year earlier.

the postal savings account. A readjustment of rates was “inevitable,” so it was wrong for the Federal Reserve to try to prevent it (Minutes, Board of Governors File, box 2158, February 27, 1933, 2–3).

President Hoover wrote again on February 28. This time the letter was more urgent. He noted that the Board was not an adviser to the president, but he wanted its advice on three proposals in the “emergency”: federal guarantee of bank deposits; issuance of clearinghouse certificates by established clearinghouses in the affected areas; and “allow[ing] the situation to drift along under the sporadic state and community solutions now in progress” (Hoover to Board, Board of Governors File, box 2158, February 28, 1933).

The Board did not reply until March 2, two days later. It was “not at this time prepared to recommend any form of Federal guarantee of banking deposits.”¹²⁸ Clearinghouse certificates present “a number of complications from the standpoint of practical operation.” The Board discussed the actions under consideration in several cities but made no recommendation. As to Hoover’s third suggestion, “the question is not whether the situation should be allowed to drift along under the sporadic state and community solutions now in progress,” but whether there was something better to be done: “No additional measures or authority have developed in concrete form which . . . the Board feels it would be justified in urging” (Board to Hoover, Board of Governors File, box 2158, February 28, 1933).¹²⁹

Soon after the letter was delivered, the situation changed. The attorney general had met with the Treasury and Board counsels and now opined that section 5 of the (World War I) Trading with the Enemy Act justified declaring a national bank holiday if the president believed the emergency justified it.¹³⁰ Secretary Mills told the Board that “the matter was not free from doubt and he did not feel that he should advise the President to do so without the consent and approval of the incoming administration.” Nevertheless the Board voted unanimously that a banking holiday be declared for March 3, 4, and 6 and recommended that Congress be called into session to pass legislation supporting the president’s order. The president had

128. Once the banks had closed, Harrison favored deposit guarantees to get them reopened. Roosevelt opposed the plan.

129. At the same meeting, the Board approved an increase in the New York discount rate to 3.5 percent. Miller voted no. On March 2, New York sold \$142 million of its portfolio to Boston and \$95 million to Chicago to keep its gold reserve ratio above 40 percent (Minutes, New York Directors, March 2, 1933, 142). Meyer reported to the Board meeting that he had talked to all governors except San Francisco. They reported that “the situation on the whole is comparatively quiet” (Board Minutes, February 28, 1933, 1).

130. Awalt (1969, 357) was present at the meeting after 10 P.M. on March 2. Hoover asked the Board whether he should declare a bank holiday and, if so, requested it to draft a proclamation. Mills and Meyer favored a three-day holiday, from March 3 to 5, followed by congressional approval of emergency legislation. Miller and Hamlin opposed the holiday (357–58).

gone to bed by the time the decision was reached, so the meeting adjourned (Board of Governors File, box 2158, March 2, 1933).¹³¹

At its March 3 meeting the Federal Reserve Board discussed the growing number of states with bank holidays. Miller advocated the use of clearinghouse certificates, but he opposed any plan to guarantee bank deposits.¹³² Others proposed legislation. No one suggested additional open market purchases to provide reserves that banks could exchange for currency. The only decision was that Governor Meyer should talk to the president and recommend a nationwide bank holiday.

Earlier in the evening, Hoover actively considered plans for a holiday. Meyer reported to the Board that Hoover agreed to the holiday provided Roosevelt would approve the action (Board of Governors File, box 2158, March 3, 1933, afternoon meeting).¹³³

131. Mills's desire to have Roosevelt agree to the bank holiday was not a new idea and was not likely to succeed. Governor Harrison had approached Roosevelt's adviser, William Woodin, in mid-February with an offer to brief the president-elect on the banking and monetary situation. Roosevelt declined to meet Harrison. Woodin became secretary of the treasury at the start of the Roosevelt administration. He had been president of American Locomotive Company. He had served as a director of the New York bank, so he was acquainted with Harrison. Harrison also met with Raymond Moley, one of Roosevelt's advisers from Columbia University, to urge a balanced budget. Woodin urged Harrison to persuade Carter Glass to accept appointment as treasury secretary, a position he held after World War I. Glass wanted Roosevelt to commit to a balanced budget and the gold standard. Roosevelt had campaigned on both issues, but he would not commit to either for the long term (Harrison Papers, New York Federal Reserve Bank, file 2010.2. Moley (1939, 118–21) handled the negotiations with Glass after Roosevelt offered the appointment. When Glass asked for assurance about Roosevelt's policy on the gold standard, Moley delivered Roosevelt's reply: "We're not going to throw ideas out of the window simply because they're labeled inflation." Glass then mentioned his health problems and, after a few days, declined. Moley believed it was unlikely that Roosevelt and Glass would have gotten along. He did not know Roosevelt's monetary plans at the time, but he described Roosevelt as "experimental, tentative, and unorthodox," the very opposite of Glass (1939, 121). Moley served as an assistant secretary of state early in the administration, with principal duties as presidential policy adviser. He resigned within a few months.

132. The New York Clearinghouse also considered issuing clearinghouse certificates, as it had done in 1907. Leslie Rounds, a deputy governor of the New York reserve bank, dismissed the proposal because it was impossible to substitute clearinghouse certificates for the entire stock of bank deposits. The earlier use of certificates to substitute for banknotes required many fewer certificates. This argument presumes that most of the stock of deposits would be exchanged for certificates. No further discussion is reported (Minutes, New York Directors, March 4, 1933, 154).

133. Moley's account (1939, 145–47) of the March 3 meeting with Hoover, at which Meyer and Mills were present, is somewhat different. Roosevelt came to pay a courtesy call on President Hoover but was warned at the last minute by a White House staff member that substance would be discussed. He sent for Moley. Hoover proposed a proclamation giving government control of foreign exchange withdrawals but leaving the banks open. Hoover reported that his attorney general doubted the legality of closing banks, so he was concerned that Congress would challenge the closure. He wanted Roosevelt's assurance to prevent this challenge. Roosevelt replied that his designated attorney general believed the president had

At a special meeting of the New York directors in the afternoon and evening of March 3, Harrison reported that the overall gold reserve ratio for the system remained above 40 percent, but the New York reserve bank's ratio had fallen to about 24 percent.¹³⁴ Normally the deficiency could be covered by rediscounting with other reserve banks, but an internal drain of gold now supplemented the external drain.¹³⁵ Harrison told Governor Meyer that "he would not take the responsibility of running this bank with deficient reserves" (Special Meeting, Minutes, New York Directors, March 3, 1933, 2).

adequate authority. He told Hoover to declare a holiday for his remaining term if he wished. Roosevelt would decide once he was in office (Awalt 1969, 359). That was as far as Roosevelt would go. The meeting ended with Roosevelt telling Hoover: "I shall be waiting at my hotel, Mr. President, to learn what you decide" (Moley 1939, 146). The source of the problem was doubt about whether the 1917 act expired at the end of World War I.

134. The estimates are from Burgess's statements to the New York directors (March 7, 1933, 160). Awalt (1969, 358) reports that New York sold \$200 million of gold on March 3. It was short about \$250 million. Chicago also faced a run. It had orders for \$100 million of gold from banks in its district. Awalt claims that part of the demand in Chicago was an effort to prevent the New York reserve bank from borrowing in Chicago.

The New York directors met for about ten hours between 3:00 P.M. and 2:40 A.M. on the morning of March 4. Herbert Lehman, who replaced Roosevelt as governor, considered declaring a bank holiday for New York. As usual, Harrison was indecisive. A holiday "would not solve the problem in other parts of the country nor with respect to foreign countries where the Federal Reserve Bank of New York acts . . . for the whole Federal Reserve System" (Minutes, New York Directors, March 3, 1933, 146). Deputy Governor Case informed them that the Chicago board had voted that a national holiday should be called but, failing that, holidays should be declared in New York and Illinois. Harrison explained that New York could not declare an embargo on gold. That would be a "usurpation of a government function" (147). The directors agreed. The directors then voted in favor of immediate passage by Congress of legislation remedying banking problems; if that could not be done, they favored a national holiday and suspension of specie payments if a holiday was not declared. Harrison telephoned this decision to the Board. The Board explained that banking legislation was impossible.

135. Most of the speculation against the dollar in London and Paris came from London and included the Bank of England. The bank sold sterling and bought francs in New York, sold francs for dollars in Paris "in fairly substantial amounts," and used the dollars to buy gold in London. Harrison learned about these transactions from bankers in New York who executed some of them (Harrison Papers, Memo Crane to files, file 2610.1, February 28, 1933). He mentioned these operations to Montagu Norman of the Bank of England in late February and urged him to let the pound rise (from about 3.4 to the dollar). Norman was noncommittal about his purchase and sale operations but "emphatically . . . said that it was their intention to continue their present policy and to keep the sterling rate about its present level" (Harrison Papers, Conversations with Norman, file 3115.4, March 1, 1933, 1-2). (From December to March the pound appreciated about 4.5 percent against the dollar.) Norman also did not respond to Harrison's suggestion that he seek to lower the rate London banks were offering for dollar deposits. Robbins (1934, 221) shows the Bank of England's gold reserve rising from a low of £120.6 million in December 1932 to £172.7 million in March 1933, a 43 percent increase, somewhat less than the £253 million reported in Board of Governors of the Federal Reserve System (1943, 551). The December value is the lowest since the early 1920s; the March value is exceeded only by values for a few months in 1928. France and Germany show modest reductions in official holdings from December to March.

The Board suspended the gold reserve requirement. That action removed the legal issue, but the bank was open, so the gold drain continued. Harrison told Meyer and Mills that at current rates of loss the gold reserve would be depleted. There were three courses of action: declare a bank holiday; suspend specie payments; or suspend reserve requirements for the entire System.¹³⁶ Harrison considered suspension of reserve requirements least attractive, since it would continue payments to speculators and hoarders. Suspension of specie payments was “almost equally unattractive . . . [H]ysteria and panic might result, and there probably would be a run on the banks” (*ibid.*, 3).

That left a national bank holiday. He gave this recommendation to Meyer and Mills. They had suggested instead that Governor Herbert Lehman of New York declare a holiday for the state, but Harrison was not sure a state bank holiday was sufficient basis for refusing to pay out gold to foreigners. He was reluctant to continue losing gold, but he saw no alternative without a holiday.¹³⁷ After further discussion, the directors learned that both Hoover and Roosevelt had retired for the night. Secretary Mills called to say that President Hoover would not declare a national holiday. Harrison went to meet with Governor Lehman to discuss a state holiday.¹³⁸

136. Although one of the main purposes of the Federal Reserve Act was to permit gold reserves to be pooled in an emergency, New York had difficulty borrowing from Chicago. On March 3, Chicago refused to purchase \$410 million of government securities from New York in exchange for gold. On March 4, Harrison asked Governor Meyer for help, specifically to use the interdistrict settlement fund to transfer gold to New York against securities. Under section 11a, this required the votes of five Board members and, Meyer later reported, the Board did not agree. The transfer was finally agreed to on March 7, after the New York directors adopted a resolution requesting the Board to require other reserve banks to rediscount for New York (*Minutes, New York Directors, March 7, 1933, 160–62*). The same day, the Board instructed Boston, Cleveland, Richmond, Chicago, and St. Louis to rediscount for New York at 3.5 percent. This was the first time since 1922 that the System used interbank rediscounts. In all, New York made \$210 million in rediscounts, \$150 million with Chicago. New York raised an additional \$230 million by selling government securities and acceptances to the five banks plus San Francisco. Philadelphia also required assistance. New York paid a \$10,000 tax for its reserve deficiencies. Data are from McCalmont 1963, 76–77. On March 9 the reserve banks reopened. New York's gold reserve ratio was 41.3 percent, including \$245 million obtained from other reserve banks (*Minutes, New York Directors, March 9, 1933, 168*). The Board later waived penalties on member banks that were unable to meet reserve requirements on deposits, but it collected the penalty from the reserve banks (*Board Minutes, April 1, 1933, 4*).

137. At this point in the meeting, Deputy Governor Case told the meeting that the Chicago bank directors had voted to ask the Board to recommend a national holiday. The New York banking superintendent announced a sixty-day notice of withdrawal at savings banks.

138. Governor Lehman wanted the Clearinghouse Association or the Federal Reserve or both to request the bank holiday. The clearinghouse bankers did not want to request the holiday, because they were solvent and still liquid. They told the governor they would cooperate if he acted. Harrison was also reluctant to ask for the holiday without a request by the banks.

Later he phoned the meeting to report that the clearinghouse banks and the state superintendent had asked for a state holiday. Governor Lehman wanted a request by the Federal Reserve also. The directors voted the recommendation, and the governor declared the holiday.¹³⁹ Illinois, Pennsylvania, Massachusetts, and New Jersey also declared holidays.

Finally, after midnight the Federal Reserve Board voted to recommend a three-day banking holiday. Aides woke Hoover, but he did not act. One of his last acts in office was an angry letter to the Board, on March 4, stating that he had received their letter at half past one in the morning. He was “at a loss to understand why such a communication should have been sent to me in the last few hours of this administration.” The Board’s letter, Hoover said, had been written after the Board was aware that Roosevelt “did not wish such a proclamation issued” and while the states of New York and Illinois were in process of declaring state holidays, “thus accomplishing the major purpose which the Board apparently had in mind” (Hoover to Meyer, Board of Governors File, box 2158, March 4, 1933).¹⁴⁰

The Board remained in session until after 3:00 A.M. Before adjourning, it received word of the decisions by the governors of Illinois and New York to close banks in those states. The Board could not decide whether to order Federal Reserve banks to close, so in a final lack of decision, it voted not to object if the directors voted to close.

On his first day in office, Sunday, March 5, President Roosevelt declared an emergency to meet “heavy and unwarranted withdrawals of gold and currency” and “increasingly extensive speculative activity.” His proclamation used the recommendation the Board had made to President Hoover

139. Early in the morning of March 4, Governor Lehman, acting “on the request of the New York Clearinghouse banks and with the advice and recommendation of the Federal Reserve of New York” declared a state bank holiday for March 4 and 6. Federal Reserve banks closed along with commercial banks. This posed a problem. Ohio had not declared a holiday on March 4, so the Cleveland reserve bank remained open. Dallas also remained open until it received a wire from a bank in Pittsburgh asking for \$10 million in cash. Told that a plane was on its way, Dallas closed (CHFRS, interview with Joseph P. Dreibilbis, March 9, 1954). Dreibilbis was counsel to the Dallas bank.

140. Hoover’s letter also said that the “authorities on which you were relying were inadequate unless supported by the incoming administration.” This point had been made forcefully by Secretary Mills on many occasions, most recently at the midnight meeting of the Board. Mills reported that the attorney general had advised the president not to issue the proclamation. Todd (1995, 21–22) reports a conversation between Glass and Roosevelt in Roosevelt’s hotel room at 11:30 P.M. on March 3. Roosevelt told Glass he had rejected Hoover’s request that they act jointly. Glass then asked Roosevelt what he planned to do. Roosevelt replied: “Planning to close them, of course.” Glass pointed out that Roosevelt lacked the authority to close any banks and especially state banks, but Roosevelt insisted he would have the authority as president.

the day before, citing the 1917 Trading with the Enemy Act as authority to prevent the export, hoarding, or earmarking of gold or silver.¹⁴¹ The proclamation closed all banks first from March 6 to March 9, then later for two additional days. On March 9 Congress approved the holiday, and strengthened its legal foundation, by passing the Emergency Banking Act.¹⁴²

The act extended and broadened the president's powers to close, liquidate, license, and reopen banks under the Trading with the Enemy Act, removing any possible challenge to the legality of his proclamation. The act also strengthened the Reconstruction Finance Corporation, authorized national banks to issue preferred stock, and permitted the RFC to purchase shares in national and state banks. And it prepared for the nationalization of gold holdings by empowering the secretary of the treasury to order all domestic gold owners to sell their holdings to the Treasury.

The bank holiday was a climax to the depression because it forced the government and the Federal Reserve System to respond to the domestic financial and economic collapse. Actions that had seemed beyond consideration were no longer unthinkable. In the next few months the administration chose domestic expansion over fixed exchange rates and dismissed the opportunity to return to the gold standard. Employment, agricultural prices, and other domestic concerns replaced the gold price and real bills as guides to economic policy.

EMPIRICAL STUDIES: THE ROLE OF MONEY

The Great Depression was mainly a monetary event in two senses. Monetary policy could have mitigated or prevented the decline but failed to do so. A different set of Federal Reserve policy actions could have avoided the severe deflation and reduced the depth and severity of the economic decline. In this sense the Great Depression was a response to monetary policy.

There is another sense in which the depression was a monetary event. The initial decline could have been a response to a negative monetary impulse or sequence of impulses. A few writers have taken this view (Anderson, Shugart, and Tollison 1988). Other students of the period suggest that monetary forces had no role (Temin 1976).

The extreme positions—that monetary policy was the only cause or that

141. There were few legal challenges. South Carolina's decision to close its banks was upheld by the Supreme Court in December 1933 (Board of Governors File, box 2165, December 5, 1933).

142. Walter Wyatt, the Board's legal counsel, prepared the act. According to Joseph Dreibilbis, one of the Federal Reserve attorneys, there was only one copy of the act when it passed (CHFRS, Dreibilbis, March 9, 1954).

monetary policy played no role—are difficult to sustain.¹⁴³ A more plausible explanation is that the depth and severity of the Great Depression were the consequence of a series of shocks that the Federal Reserve neglected or failed to offset completely. The shocks include French gold policy, banking panics, increased demand for currency, departure of Britain from the gold standard, the stock market decline, failure of banks in Austria and Germany, collapse of United States export markets in Latin America, the effects of tariffs and retaliation on prices and thus on gold movements, and other events. Some of these events are both the effect of prior changes and the proximate cause of subsequent changes. We are unlikely to develop a complete list of “true” causes that operated independently of other events.

One alternative is to look for outliers, or large changes, in output and the money stock. A Kalman filter, developed by Bomhoff (1983), uses the past history of a series to predict future values. The difference between predicted and actual values is a measure of changes that could not have been foreseen from the history of the series. Using quarterly data reported in Balke and Gordon (1986) from 1890 or 1915 through 1984, the filter predicts each quarterly observation, then uses the error to revise subsequent predictions. Predictions of GNP, money, and prices are made independently, so it is possible to check on the consistency of the predictions of GNP by summing the errors in predicting real output and prices. For 1928–33, these sums are generally in the same direction and have similar magnitude as the error in GNP. Table 5.26 shows all errors in M_1 and errors in GNP and prices greater than or equal to 1 percent for this period.

The data support five principal implications. First, the depression was caused by a series of unanticipated changes or shocks, not by a single event. There were large shocks to nominal and real GNP, both positive and negative, throughout the period. Despite the reversals in sign, the cumulative sum of the shocks to nominal GNP from the peak in third quarter 1929 to the trough in first quarter 1933 (17.4 percent) represents about one-third of the decline in nominal GNP.¹⁴⁴

Second, most of the large shocks to nominal GNP were also large shocks to real GNP in the same direction. There are fewer large shocks to the price level, suggesting that price changes were mainly the result of sys-

143. After a thorough examination of several types of data, Hamilton (1987) draws a similar conclusion. He interprets much of the deflation as unanticipated based on commodity prices, interest rates, and newspaper accounts.

144. This calculation excludes the continuing effects of the shocks in subsequent quarters, hence it understates their impact. Ohanian (2001) attempted a nonmonetary explanation of the decline in productivity. He concludes that nonmonetary factors explain only one-third of the decline.

Table 5.26 Large Prediction Errors for United States GNP, Prices, and Money, 1928–33 (percent)

DATE	NOMINAL GNP	PRICES	REAL GNP	MONEY (M_1)
1928.3	+2.88		+3.84	-1.44
1928.4				2.44
1929.1	+1.73		+2.23	-1.57
1929.2	-2.09		-1.64	0.20
1929.3		1.47	-1.87	1.35
1929.4	-4.68	-1.23	-4.02	-0.13
1930.1	-3.68		-3.22	-3.71
1930.2				0.60
1930.3	-3.00	-2.19		0.64
1930.4	1.71		1.33	0.72
1931.1	4.02	-1.56	5.55	-0.34
1931.2				-1.62
1931.3	-6.25		-7.84	0.49
1931.4	-3.47		1.16	-3.18
1932.1	-1.48	-1.62	1.17	0.56
1932.2	-1.82		-2.26	1.44
1932.3	1.10			1.37
1932.4	8.38		7.92	3.27
1933.1	-8.25		-12.18	-3.43
1933.2	21.78		19.62	-0.91

tem response to current and past shocks acting on output and spending. Large price-level shocks typically have the opposite sign from contemporary output shocks, suggesting that the shock affected supply. Since most of the supply shocks are positive, they cannot explain the long and deep decline in output.

Third, shocks to money either are contemporaneous or lead shocks to GNP by a quarter or more. The largest monetary shock comes early in 1930, when M_1 fell 11 percent (annual rate), the largest decline in any quarter since 1921. Negative shocks to money dominate 1931, particularly following the Federal Reserve's response to the British devaluation. The monetary shocks change sign in 1932 following (or accompanying) the relatively large open market purchases in second and third quarter 1932. Positive shocks to real and nominal GNP follow. Although the money stock continued to fall during most of that year, the rate of decline slowed for a time and money stock rose in the fourth quarter. Industrial production and stock prices rose in fall 1932. These data suggest that, contrary to some Federal Reserve interpretations, the 1932 open market purchases did not fail. Continuation of the positive shocks by more expansive actions in 1931 and 1932 or earlier would likely have changed the course of the depression.

Fourth, some periods show negative shocks to output that are large relative to current or past shocks to money. Fourth quarter 1929 and third

quarter 1931 are prominent examples. In both quarters there was some prominent event: for third and fourth quarter 1929 we have the peak in the economy in August 1929, the spread of recession abroad, and the fall in United States stock prices in October 1929; in third quarter 1931 there were banking problems in Germany and the suspension of gold payments by the Bank of England in September 1931. These changes may have affected monetary velocity.¹⁴⁵ Waves of bank failures and suspensions in 1930.4, 1931.2, 1931.3, 1931.4, and 1932.1 had mixed effects. Shocks to money and nominal GDP were positive in 1930.4, relatively small but positive for nominal GDP in 1931.2, commingled with the effect of the British suspension of gold payments in 1931.3, and accompanied by a large negative shock to money and nominal GDP in 1931.4. Only the bank closings in 1932.1 are accompanied by negative shocks to output and a positive monetary shock that would support a major role for nonmonetary factors associated with bank suspensions. None of this evidence rules out a nonmonetary channel, but it does not suggest a dominant effect of nonmonetary shocks.

Fifth, there is not much evidence of a decisive monetary surprise, or series of surprises, in the year preceding the start of the depression. The cumulated monetary shocks in the year ending 1929.2 is a small negative value. Price data show a sequence of small deflationary shocks (or errors) for the year ending 1929.2. Nonmonetary factors may have contributed to the deflation and the start of the depression.

An alternative for investigating nonmonetary shocks uses errors computed from a demand function for money to see if there were large unexplained increases in the demand for money as suggested by Temin (1976). Table 5.27 shows the percentage errors from a demand function in which the logarithm of real money balances depends on the logarithms of interest rates and wealth or expected income. The equation is estimated separately for the logarithms of levels and changes of real money balances, using annual data for 1902 or 1903 to 1958. An appendix shows the equations. Errors are actual values minus estimates from the equation.

For both equations, most of the errors are comparatively small. These data give no evidence of a sudden large, unexplained desire to accumulate real money balances. Most of the errors in log levels are negative, suggesting that real money balances fell below predicted values. This typically occurs when money growth falls more than anticipated. The years 1928 and 1930 are notable in that regard.

145. Since monetary velocity is measured by GNP/M_1 , the numerator reflects the fall in nominal GNP. It is not possible to measure velocity shocks independently using the Kalman filter. An alternative procedure is discussed below.

Table 5.27 Errors in the Demand for Money, 1928–33

YEAR	LOG LEVEL	CHANGE
1928	-.063	-.067
1929	-.027	.027
1930	-.041	.013
1931	-.024	.045
1932	+.009	-.095
1933	-.038	.014
Standard error of estimate	.046	.049

The years 1928 and 1932 are the only ones before the middle 1930s with relatively large errors in the change in real balances. Chart 5.2 shows that real balances fell much more in 1928, and rose much more in 1932, than anticipated by the demand equation. The negative error in 1928, for both levels and changes, suggests that before the recession demand for real balances fell more than actual balances.¹⁴⁶ Factors other than income, wealth, and interest rates played a role in reducing growth of desired real money balances. In 1932 actual growth of real balances is 6 percent above the growth expected at a time of increased nominal money following several years of falling nominal money. Chart 5.2 shows the prediction errors for 1922–40.

Gandolfi and Lothian (1977) estimated a demand for money equation using data for a cross section of states for the years 1929–68. Their findings also suggest that the demand function for money remained relatively stable during the Great Depression. They reject the presence of a liquidity trap. Their measure of the interest elasticity declined as interest rates fell, contrary to the liquidity trap. (See also Brunner and Meltzer 1968a.)

Would a more expansive monetary policy have prevented the Great Depression or reduced it to a typical recession? McCallum (1990) simulated the response of nominal GNP assuming the Federal Reserve followed a monetary base rule from 1923 to 1941.¹⁴⁷ McCallum's rule is activist but not discretionary. The Federal Reserve adjusts the growth of the monetary base each quarter to reflect past changes in base velocity and deviations from a 3 percent growth rate.¹⁴⁸

146. This finding contradicts Field's (1984) claim that stock market speculation increased the demand for money. A more likely explanation is the unanticipated decline in money growth following the French stabilization. Typically in periods of unanticipated decline in money growth, velocity (the ratio of income to money) rises. Consequently, the demand for money (per unit of income) falls.

147. Bordo, Chaudri, and Schwartz (1995) take a similar approach using a rule that keeps growth of M_2 constant. In some of their simulations, there is no depression. In others, as in McCallum's, a typical recession would have occurred.

148. McCallum adjusts his rule to allow for differences between the growth rates of M_1 and the monetary base arising from currency drains and bank failures and suspensions.

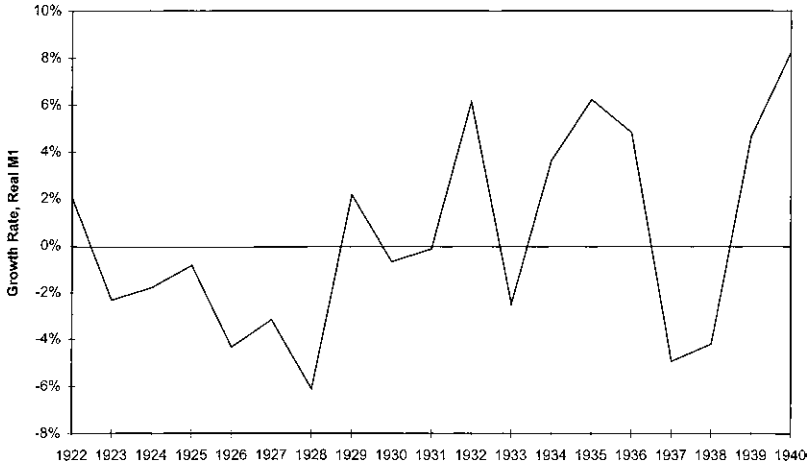


Chart 5.2 Errors in growth of demand for money, 1922–40. Source: See chapter appendix.

The simulations by McCallum (1990) and by Bordo, Chaudri, and Schwartz (1993) support two propositions. First, the Federal Reserve's inaction converted a modest or possibly moderate recession into the Great Depression. In this limited sense, the depression was caused by monetary policy. Second, nonmonetary events contributed to the decline. All of McCallum's simulations, and most of the simulations by Bordo, Chaudri, and Schwartz, show a recession in 1929 and 1930.

Taken together, the estimates of the role of money in 1929–33 point to a relatively large role for money growth both as a factor deepening the recession and, at times, reversing the fall in output. There is no evidence that money was the unique cause of the decline. Systematic effects of other factors, including tax increases or expenditure reductions to balance the budget or tariff increases and retaliation abroad, have not been ruled out.

Sweden avoided severe deflation. Its central bank, the Riksbank, followed the policy advocated by some members of Congress in the 1920s and at the time; acting under parliamentary guidance, the Riksbank worked to stabilize the domestic price level. Sweden could not offset the real effects of an international decline, but after leaving the gold standard in 1931, the country avoided the deflation and its effects on output, financial institutions, firms, and households (Berg and Jonung 1998). The Swedish recession was comparatively mild.

Bernanke (1983, 1994), Bernanke and James (1991), and others link monetary and nonmonetary factors in the Great Depression and at other times. These authors accept that bank failures and suspensions during the depression reduced the money stock. They propose, in addition, that

Table 5.28 Ratio of Open Market to Bank Lending, 1929–33 (percent)

DATE	RATIO	COMMENT	DATE	RATIO	COMMENT
August 1929	8.6	Expansion peak	August 1931	9.5	
November 1929	10.9		November 1931	8.8	
February 1930	12.6	Peak ratio	February 1932	8.0	RFC begins
May 1930	11.4		May 1932	7.7	
August 1930	11.0		August 1932	7.2	Trough
November 1930	12.1	Bank suspensions rise	November 1932	8.0	
February 1931	11.8		February 1933	7.5	
May 1931	11.6				

Source: Board of Governors of the Federal Reserve System 1943, 142, 143, 144, 145, 465.

bank failures and suspensions reduced bank lending. Since small and medium-sized firms depend disproportionately on bank loans to produce and finance output or sales, reductions in bank lending have a large impact. Further, during the depression, these authors claim, deflation had a nonneutral effect on debtors by forcing contraction, lowering net worth, and reducing access to bank credit. The last of these effects, debt deflation, requires borrowers to be affected more, or more quickly, than creditors.

Bernanke does not dispute the monetary effect of the Federal Reserve's failure to stop the bank runs by open market operations. That bank loans declined with bank deposits is an expected consequence of monetary contraction. The extraordinary real rates of interest and high-risk premiums on Baa bonds after late 1930 testify to a general reluctance to extend credit to any borrowers, particularly lower-rated or unrated borrowers.

More problematic is the particular, nonneutral effect of the decline in bank loans on smaller firms. For this effect to have aggregate consequences, bank loans must decline relative to open market lending by non-bank firms. The data for the second half of the depression show the opposite. Short-term open market lending fell relative to bank lending. Table 5.28 shows the ratio of commercial paper plus banker's acceptances to loans at 101 weekly reporting member banks at each three-month interval from the peak in August 1929 to February 1933.

The data show a relative expansion of open market lending during the early months of the decline. The ratio reached a peak in the first six months; thereafter open market lending declined relative to bank lending. The relative decline accelerated when suspensions (measured by deposits of suspended banks) rose beginning in November 1930. During the peak period of bank suspensions in second half 1931, the ratio fell below its value in August 1929.¹⁴⁹

149. Commenting on this section in oral discussion, Bernanke attributed the result to a change in the commercial paper market. This does not explain banker's acceptances. Further, as shown in Greef 1938, most of the change occurred before the 1930s.

Table 5.29 Percentage Decline in Lending, December 1929 to December 1932

Weekly reporting banks	18.1
All member banks	41.8
All banks	37.6
All banks minus weekly banks	61.4
Banker's acceptances	59.0
Commercial paper	75.7

Source: Board of Governors of the Federal Reserve System 1943, 18, 76, 142, 146, 465.

Table 5.28 gives little support to the argument that the decline in bank lending had a nonneutral effect that augmented the monetary effect. The common decline in lending by banks and nonbanks suggests a reduction in desired borrowing in response to poor opportunities and widespread beliefs that the recession would continue. These beliefs are documented in the minutes of the Federal Reserve.

Table 5.29 compares the percentage decline in lending for different groups of banks to the decline in external finance. Weekly reporting banks show the smallest percentage decline. To get a better measure of small banks, subtract weekly reporting banks from all banks. Line 4 of the table shows that this class declined by about the same percentage as banker's acceptances and less than commercial paper.

The relative share of credit by large banks rose despite the sharp decline in acceptances and commercial paper. These markets were much smaller than the bank loan market in absolute size. If we assume that large banks lend mainly to large firms, the evidence suggests that credit to large firms declined less than credit to other firms. This conclusion is tempered, however, by the comparison of all member banks and all banks. These groups declined in the same proportion.

These data do not separate a decline in the demand for loans from restrictions on supply to small firms. The data are entirely consistent with a relative decline in loans demanded by small firms. Data are not available on sales by size of firm, so an examination of the proposition is incomplete.

Chart 5.3 shows, however, that total loan volume declined with GNP. Predicted loans are estimated from a simple regression in which loans depend only on nominal GNP. The decline in loans differed little from the decline in GNP. It seems fanciful to suggest that the decline in loans caused an immediate decline in GNP in each period. The more likely explanation is that households and businesses reduced borrowing as their incomes fell. Falling demand explains most of the decline in loans. Given the real return to lending, banks should have been eager to lend to solvent borrowers.

Haubrich (1990) tested Bernanke's nonneutrality hypothesis for Canada. Canada had no bank failures, but banks closed many of their

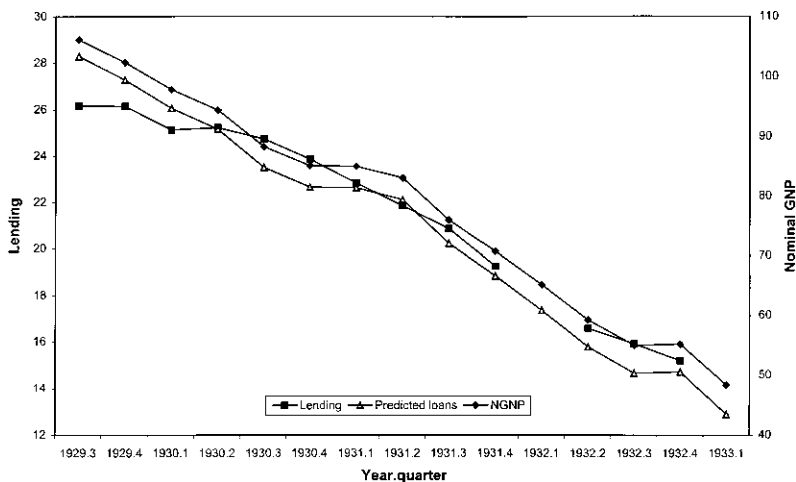


Chart 5.3 Actual and predicted bank loans and GNP, 1929–33.

branches, probably disrupting lending arrangements. Canada also had a smaller share of interest payments on loans past due, but Canadian commercial failures were a larger fraction of GNP. Canada was effectively off the gold standard after January 1929. Haubrich finds no support for bank closings and commercial failures in Canada as a reason for decline.

The United States was not the only country experiencing bank runs and failures. The public in many countries expressed its fear of bank failures by withdrawing deposits and holding currency. Spain and the Netherlands experienced large increases in the ratio of currency to deposits. Austria, France, Norway, and Canada had smaller, but not negligible, increases. A central bank can offset the effect on the economy of an increased demand for currency by expanding the monetary base by more than the increase in currency demand. Under the gold standard, the government may have to temporarily suspend convertibility, as Britain did in such circumstances several times in the nineteenth century.

To study the effect of currency drains (or bank runs) on real income during the decline, 1929–32, I regressed percentage changes in the real value of the monetary base, the ratio of currency to deposits, and base velocity on the percentage change in real income for twenty countries in Europe, North America, and South America. The twenty countries for which data are available report very different experiences. Denmark, Greece, Hungary, Norway, and Spain show a rise in real income for the period as a whole. The United States, Canada, Brazil, Mexico, Austria, France, and Germany show double-digit declines in real income for the three-year period. Estimates and a list of the countries are given in appendix B.

The data attribute about half of the decline in real income in these countries to the combined effects of the change in the real value of the country's monetary base and the change in base velocity. The change in base velocity includes changes in the demand for currency per unit of income. The larger the currency drain, other things equal, the larger the decline in base velocity. Currency drains and bank runs do not appear to have had any significant effects through a lending channel or other channel, independent of their effects on the real value of the monetary base and base velocity. The statistical results again suggest that monetary factors had an important role in the decline, but other factors affecting the demand for money were also significant for the twenty countries. I return to the role of gold in the concluding section.

Federal Reserve records suggest that the real bills or Riefler-Burgess doctrine is the main reason for the Federal Reserve's response, or lack of response, to the depression. With few exceptions, the Federal Reserve governors accepted this framework as a guide to decisions. They believed that a low level of member bank borrowing and low nominal interest rates suggested there was no reason to make additional purchases. Additional purchases of government securities would expand credit based on speculative assets, which was inconsistent with the real bills doctrine and the gold standard.

Federal Reserve purchases at the start of the 1929 recession were much larger than at the start of previous recessions. One reason is that New York started to purchase at the time of the stock market break. Also, member bank borrowing was over \$1 billion, far above the range that the Federal Reserve regarded as restrictive. At a March 1926 meeting of the Governors Conference, Strong restated the Riefler-Burgess doctrine and described how it would be applied at the start of a recession: "Should we go into a business recession while the member banks were continuing to borrow directly \$500 or \$600 million (if bills are included nearly \$800 million) we should consider taking steps to relieve some of the pressure which the borrowing induces by purchasing government securities and thus enabling member banks to reduce their indebtedness" (quoted in Chandler 1958, 239).

Table 5.30 compares member bank borrowing and interest rates at the beginning and one year after the start of three recessions. The 1929–33 recession started with more member bank borrowing and higher interest rates than the others. By the end of the first year, the Federal Reserve had purchased \$350 million to \$400 million more than in the two previous recessions. In the 1923–24 recession, the Federal Reserve made seasonal securities purchases in December, seven months after the peak, but sold in January. Sustained purchases did not begin until February 1924, nine

Table 5.30 Borrowing and System Purchases in Three Recessions
(millions of dollars)

PEAK	MAY 1923	OCTOBER 1927	AUGUST 1929
Length of recession	14 months	13 months	42 months
Acceptance rate			
At peak	4.13	3.88	5.13
Peak + 12 months	3.25	3.19	1.88
Peak + 18 months	2.38	3.75	1.44
Borrowing			
At peak	771	690	1,046
Peak + 12 months	441	412	215
Peak + 18 months	242	834	198
Borrowing plus: Acceptances			
At peak	1,030	1,013	1,222
Peak + 12 months	524	754	383
Peak + 18 months	556	1,191	307
Securities purchased			
First 12 months	+161	+221	+578
First 18 months	+392	-5	+449

months after the cyclical peak. In 1926–27 the System made small-scale securities purchases at once, partly for seasonal reasons, since the recession started in October. Sustained purchases began in February, four months after the cyclical peak.

The earlier recessions reached a trough after thirteen or fourteen months. Eighteen months after the peak, the levels of borrowing or borrowing plus acceptances on the Federal Reserve balance sheet were very different after 1929 than after the earlier recessions. Interest rates on ninety-day acceptances are highest in the October 1926 cycle, lowest in the August 1929 cycle. Securities purchased show the same ordering. Judged by the measures that Riefler, Burgess, and Strong emphasized, Federal Reserve policy shifted from restraint to ease and back to restraint in the 1923–24 and 1926–27 cycles. In 1929–30 these measures indicated that credit conditions had eased substantially.

The monetary base shows a different pattern, largely unrelated to the Federal Reserve's measures of credit conditions. In 1923–24 the base started to rise six months after the cyclical peak and continued to rise through the first six months of the recovery. Three months after the 1929 peak, the base was below the level reached at the August peak, and it continued to fall through the spring and summer of 1930, as shown in tables 5.5 to 5.8 above.¹⁵⁰

150. In 1926–27, the base changed very little in the recession and in the early months of recovery.

CONCLUSION

People see most clearly what they are trained or disposed to see. The Riefler-Burgess version of the real bills doctrine was not a mechanical formula directing Federal Reserve policy, but it directed attention to member bank borrowing and market interest rates as measures of tightness and ease. In 1929–30, most members of the Federal Reserve Board and governors of the reserve banks accepted this framework. They believed they had acted decisively to ease credit conditions, and on their measures they had.

The real bills doctrine taught that central bank credit should finance self-liquidating commercial loans. Government paper, stock market loans, and real estate mortgages were “speculative” investments that had no place on a central bank’s balance sheet. Since speculative loans were not self-liquidating, they were considered inflationary finance.

To a modern reader, fear of inflation seems a strange concern after a year or more of falling prices. Yet there are surprisingly few proposals to restore the price level. The comments of W. Randolph Burgess, occasional comments by Governor Meyer or some New York directors, and the efforts of a few members of Congress are the only official comments to that effect that I have found.

Eichengreen (1992, 251–53) contrasts the Riefler-Burgess emphasis on borrowing and interest rates with the “liquidationist view,” so called because Treasury Secretary Mellon is said to have advised President Hoover to “liquidate labor, liquidate stocks, liquidate the farmers, liquidate real estate” (251). Mellon’s advice is entirely consistent with the real bills doctrine and the firm belief that Federal Reserve policy had financed speculative lending; its effects had to be purged (liquidated). An increased demand for borrowing to finance real bills would, on this view, show that liquidation was complete and that recovery could occur without inflation. That is why the most extreme proponents of the real bills doctrine—Governors McDougal, Norris, and Young—typically opposed purchases. These men, and many others, repeatedly referred to the contraction as “inevitable”—the inevitable consequence of providing speculative credit.¹⁵¹ In 1929–33 their principles told them that deflation was both necessary and inevitable. For much the same reason, the Federal Reserve deflated in 1920–21 to eliminate the credit expansion based on war finance.

The volume of loans on securities by banks in New York and in the rest of the country did not increase disproportionately during the stock market

151. Senator Carter Glass held this view firmly. In hearings before his subcommittee, he attributed the financial collapse to neglect of the real bills principles (Senate Committee on Banking and Currency 1931).

Table 5.31 Bank Loans and Stock Market Lending, 1927–29 (billions of dollars)

DATE	LOANS ON SECURITIES ^a		TOTAL LOANS	
	NEW YORK	IOI BANKS	NEW YORK	IOI BANKS
December 1927	2.6	6.7	5.1	15.4
December 1928	2.7	7.2	5.3	16.2
August 1929	2.8	7.7	5.7	17.0
October 1929	3.2	8.1	6.1	17.7
LOANS TO BROKERS AND DEALERS BY NEW YORK BANKS ^b				
December 28, 1927		3.7		
December 26, 1928		5.1		
October 2, 1929		6.8		

^aWeekly reporting banks from Board of Governors of the Federal Reserve System 1943, tables 48 and 49.

^bIbid., table 141.

boom. The main evidence of expanding stock market lending is the relatively large increase in loans to brokers and dealers, not to the public. At its peak, in the week ending October 2, 1929, total lending of this kind was \$6.8 billion; the volume had nearly doubled since the end of 1927. Table 5.31 shows these data.

Eichengreen and Bernanke correctly emphasize the transmission of deflationary impulses by the gold exchange standard. Falling gold stocks in many countries reduced the monetary base in countries that lost gold. Appendix B recognizes the importance of the decline in the real stock of base money as a factor reducing real income, but it also recognizes that the gold did not disappear. Some countries, including the United States and several members of the gold bloc, acquired gold reserves.

The United States experienced a gold inflow in the first year of the decline. Under gold standard rules, the increase in gold should have increased the monetary base. If the Federal Reserve had followed the rules, the money stock would have expanded by 14.6 percent from August 1929 to June 1930. This, of course, overstates the amount of gold inflow that would have occurred. However, an expansive monetary policy would have prevented at least some of the deflation and recession, so falling prices and fears of collapse would have been absent. The world would have been spared much of what followed.

The principles of the Federal Reserve Act called for passive policies. The founders intended the System mainly to respond to gold movements and offers of real bills. No one discussed what the System should do if the two signals gave conflicting commands, as in 1930 when gold flowed in and real bills declined. The Federal Reserve had abandoned strict adherence to the gold standard in World War I and in the 1920s. It followed the real bills

guide. Policy was deflationary in 1930 when adherence to gold standard rules called for expansion.¹⁵²

Eichengreen (1992, table 8.6) compared the behavior of surplus and deficit countries from 1929 to 1931. He showed that in 1929 and 1930 the twenty-six countries losing gold contracted reserves as they paid out gold. Surplus countries like the United States contracted also, so the well-known stabilizing process did not work. We can only speculate on why deficit countries followed deflationary policies instead of leaving the gold standard. One reason is that most policymakers, economists, and businessmen in these countries also believed that deflation was an inevitable consequence of the previous speculative boom in the United States. The world economic system could not return to stability until these “excesses” had been purged. Also, many countries attempted to protect their gold reserves by deflating, contrary to the advice of Bagehot and Thornton.

The data suggest that the United States economy and its monetary system experienced not one but a series of monetary and nonmonetary shocks in the forty-two months following the August 1929 peak in economic activity. Seasonally adjusted industrial production declined more than 50 percent, and the money supply declined by over 25 percent. Of the banks operating at the time of the peak, more than 25 percent—6,704 banks—failed or were merged into other banks.¹⁵³

One long-popular belief is that the fall in output and the financial collapse were caused by a prior decline in stock prices. The decline in money and the waves of bank failures are attributed to the decline in loan demand. To be more than an example of the post hoc, ergo propter hoc fallacy, there must be some connection between the initial decline in stock prices and the series of shocks to the United States economy.

Prices of industrial shares had declined by percentages similar to the

152. Fremling (1985) notes that the United States was not the only country that did not follow gold standard rules. As noted above, France sterilized much of its inflow. Fremling's conclusion that the rest of the world increased its holdings of foreign reserves and gold does not separate France from other countries, many of which were forced to deflate.

153. During the entire period 1864 to 1896, there were 1,562 bank failures—328 national and 1,234 state banks. In the worst year, 1893, 326 banks—approximately 4 percent of the total—failed. During the banking panic of 1907–8 there were 172 failures; fewer than 1 percent of the banks in existence on June 30, 1907, closed in the next two years. The number of active banks increased from 16,266 in 1906 to 17,891 in 1907 and 19,620 in 1908.

The number of suspensions per one hundred active banks during the early thirties was: 5.61 in 1930; 10.48 in 1931; 7.75 in 1932; and 12.86 in 1933. Banks that suspended operations between December 1929 and March 1933 had gross deposits of \$5.5 billion, approximately one-third of the decline in total deposits for the period. All data are from Upham and Lamke 1934, 245, 247, and 250.

Table 5.32 Net Demand Deposits, 1929–33 (millions of dollars)

DATE	WEEKLY REPORTING BANKS IN NEW YORK	WEEKLY REPORTING BANKS IN 101 CITIES
August 1929	5,154	13,120
August 1930	5,595	13,651
August 1931	5,674	13,290
August 1932	4,996	10,842
March 1933	4,690	9927

Source: Board of Governors of the Federal Reserve System 1943.

1929 decline in the recessions of 1906–7 and 1919–20 without producing depressions of the same length and magnitude, although the earlier declines in the stock prices had been spread over a longer time. Following the October–November decline, stock prices rose in winter 1930 and summer 1932. By April 1930 the Standard and Poor's index was only 3 percent below April 1929. It had recovered almost 40 percent of the decline from the September 1929 peak. Stock prices rose again in the summer of 1932 following the expansive monetary policy and despite an increase in tax rates during the spring.

Banking data show little evidence of a prolonged effect of the October decline in stock prices. The data in table 5.32, and similar data on bank loans or loans and investments, show that in the first two years of the contraction, demand deposits in the larger New York banks rose approximately 10 percent, while deposits in all other banks rose about 1 percent. For the decline in money to result from the fall in stock prices, New York banks would have to have experienced a large loss of deposits. In fact, New York banks increased loans and deposits absolutely and relative to other banks for more than a year following the stock market break.

The data in the table support an alternative explanation. During the first two years of the contraction, gold flows and currency movements dominated the behavior of the monetary system. Deflation in the United States and risks abroad brought gold to the United States, as in 1920–21. The gold flows supplied relatively more reserves to the New York banks than to the small or regional banks in the interior. In part for this reason, the internal currency drains and rates of bank failures were much larger in the mid-western Federal Reserve districts than in others. Approximating the regional impact of the currency drains by the changes in the note issue of the various reserve banks shows that between December 1930 and December 1931 the total note issue of the reserve banks increased approximately 60 percent while the note issue of the Federal Reserve Bank of Chicago increased 275 percent and the note issue of the Federal Reserve Bank of

Atlanta declined (Board of Governors of the Federal Reserve System 1943, 338).¹⁵⁴

On the alternative explanation, the absolute and relative increase in deposits at large New York banks was mainly the result of the Federal Reserve's contractive policy and the gold and currency movements of the period. When the gold flow reversed and the currency drains resumed after August 1931, deposits at New York banks declined, and the experience of the New York banks was more like the experience of banks in the interior.

Stock prices are one among many measures of asset prices. Since shares are traded on open securities markets, share prices respond promptly to changes in anticipated future earnings and dividends. Suitably deflated by current output prices, share prices offer an approximate measure of the cost of available assets relative to the production cost of new assets.

Standard and Poor's index of stock prices deflated by the GNP deflator reached a peak in third quarter 1929. The deflated stock price index was only 23 percent below its peak in second quarter 1930. If the decline had stopped there, deflated stock prices would have been more than twice their level four years earlier. Three quarters after the cyclical peak, stock prices showed no evidence that asset owners believed a further decline was inevitable, to use the term central bankers overworked so much at the time.

The decline in deflated stock prices is not a uniform or even a unidirectional movement that would characterize transmission of a single shock. Like the data on money and GNP, the movement of stock prices suggests a sequence of shocks. In addition to the initial 24.3 percent decline in fourth quarter 1929, three other quarters show declines of 20 percent or more—fourth quarter 1930, fourth quarter 1931, and a decline of nearly 38 percent in second quarter 1932, when bank failures reached a temporary peak. The last of these shocks brought the deflated index to its lowest point of the depression, three calendar quarters before the bank holiday. The earlier chronology identifies these quarters as periods of financial stress.

A second explanation attributes the decline in money to the operation of the gold standard, to the desire to maintain the gold reserve, or to the desire to maintain convertibility of foreign currencies. This argument takes various forms. One claim is that under the conditions of the period, gold and international reserves flowed toward the countries with surpluses on current account of the balance of payments, principally the United States

154. For the four years December 1929 to December 1933, the total note issue increased \$1.17 billion. Currency held by the public increased \$1.04 billion. The Chicago district had by far the largest absolute and percentage increase.

and France. This forced contraction in the deficit countries without producing expansion in the surplus countries.

Eichengreen (1992) makes this argument forcefully. His descriptive statement is correct, but it does not explain why both deficit and surplus countries behaved as they did. Temporary or long-lasting suspension of gold convertibility had occurred under the gold standard many times and in many countries. Great Britain had suspended convertibility several times in the nineteenth century. Yet most deficit countries chose to deflate and protect their gold reserves rather than suspend convertibility. One reason is that policymakers in many of these countries also believed that contraction and deflation were the inevitable consequences of the speculative excesses that had gone before.

The French government was not immune to this view. Far more important, it disliked the gold exchange standard. The French preferred to hold gold rather than foreign exchange as an international reserve, an attitude and policy that reappeared under the Bretton Woods system in the late 1960s. Eichengreen and others point out that the Bank of France was prohibited from undertaking open market operations. This claim fails to recognize that the bank engaged in open market sales of foreign exchange as part of its policy of holding only gold reserves. Under this policy, France sterilized a large part of its gold inflows.

The Federal Reserve did not depend on foreign central banks and governments and did not follow gold standard rules. The large inflow of gold in spring and summer 1930 did not expand bank reserves or the monetary base. With a few exceptions, such as the British suspension, gold flows received little attention in the minutes for the period.¹⁵⁵

Concern about the size of the gold reserve relative to the reserve requirements for currency and bank reserves—the problem of “free gold”—has limited applicability. Goldenweiser (1951) argued that the Federal Reserve “could not proceed to buy securities in the market because member banks were likely to use the proceeds to reduce their indebtedness to the Federal Reserve Banks. These banks would then have to put up more gold as collateral against notes and there would soon not be enough gold to meet

155. Much the same can be said about the failure of international cooperation. Earlier in the chapter, Oliver M. W. Sprague, an adviser to the Bank of England, is quoted as saying that when cooperation was desirable, central banks could agree (Board of Governors of the Federal Reserve System, *Weekly Review of Periodicals*, June 2, 1931, 1–2). Clarke (1967, 42) makes a more accurate statement. “Monetary policy could be brought into play [for international cooperation] only when the central bank’s international aims happened to coincide, or at least not conflict, with its domestic ones.” Eichengreen (1992, 247 ff.) also uses “deflationist” views as an explanation of Federal Reserve actions in 1929–31. As discussed earlier, “deflationist” views arose because the Federal Reserve permitted an expansion based on speculative credit.

the requirements against deposits.”¹⁵⁶ Harrison and others mentioned free gold at times during summer and fall 1931, but after the fact Harrison recognized that free gold had not constrained action. Nevertheless, the Open Market Policy Conference waited for the passage of the Glass-Steagall Act in 1932, permitting government securities to serve as collateral for notes, before beginning large-scale purchases. However, the argument is not credible as an explanation of the System’s inaction between January 1930 and October 1931. During these months the System’s reserve ratio never fell below 75 percent, was always above the average for the decade of the twenties, and generally was more than twice the required ratio. Open market purchases had been made in 1924 and again in 1927 when the reserve ratio was similar to or lower than that in 1930 and most of 1931.

The greater puzzle about the reserve ratio or alleged “free gold” problem is that traditionally countries suspended the reserve ratio whenever a fall in the ratio would have prevented a central bank from acting against an internal drain. Bagehot’s dictum, “lend freely at a high rate,” had been the unstated policy of the Bank of England through most of the nineteenth century. The bank had suspended its gold reserve requirement rather than force contraction. The Federal Reserve followed a similar policy in 1920, suspending reserve requirements for the New York bank rather than forcing the System into a more contractive policy. Other reserve banks had avoided suspension during and after the war only by selling acceptances and rediscounting commercial paper with other reserve banks.¹⁵⁷ This option remained open throughout the period. Although Boston and Chicago refused to participate in open market purchases, Boston had offered to rediscount for New York during the summer of 1932 if New York continued the purchase policy of the previous spring.

Even if “free gold” had prevented purchases of government securities, it did not prevent monetary expansion. An aggressive policy of acquiring some of the outstanding commercial paper and acceptances would have provided eligible paper and freed up gold for use as a reserve against currency issues. Nor does the free gold argument account for the failure to redefine eligible paper to include notes secured by high-grade corporate bonds or even the bonds themselves or to press for a change in legal requirements.¹⁵⁸

156. Emanuel Goldenweiser was director of research at the Board of Governors. Anderson (1965, 67–69) repeats this argument.

157. Chandler (1958, 184–85) shows that in October 1920 eight of the Reserve banks remained below the required reserve ratio, some by more than twenty percentage points.

158. In spring 1930, W. P. G. Harding, governor of the Boston bank until April 1930, proposed redefinition of eligible paper to permit discounts secured by high-grade bonds. See Harris 1933, 1:304. There is no record of a System response.

The most that can be said for the “free gold” argument is that it was one of a number of reasons Harrison and others used to delay the start of the purchase program in January and February 1932. The “free gold” position cannot explain the System’s failures to pursue expansive policies during 1930 and most of 1931 or during the fall of 1932. To explain these we must look elsewhere.

The third explanation of Federal Reserve inaction is lack of knowledge. Bach (1967, 346–56) and Stein (1969, 15) suggest that the System either lacked information about contemporary movements or acquired information too slowly to act in time to prevent a catastrophe. The discussion and tables in the chapter give only a few of many examples showing that the members knew about gold movements, currency changes, interest rate movements, changes in bank earning assets, industrial production, and employment. The minutes and memos of the time frequently contain accurate estimates of current gold flows, the volume of currency “hoarded” by the public, changes in industrial production, and commodity prices. The severity of the crisis would have been lessened if the governors had allowed the monetary base to rise by the full amount of their estimate of the increased demand for currency. Information on output, employment, prices, and lending is available in the minutes, in the *Federal Reserve Bulletin*, in the Board’s annual reports, and in speeches by officials at the time. Intelligence gathered within the System and available at the time was entirely adequate for the improvement in policy that would have substantially reduced the severity of the contraction or eliminated it entirely. Much the same can be said for the available theories. Indeed, if the System had done no more than follow the principles established in the nineteenth century, it would have prevented the internal drain and the greater part of the monetary crisis.

There can be no doubt that most of these principles were known at the time. Some of the governors refer to Bagehot’s work. Keynes (1930, 2:225–26) describes as the “first necessity of a Central Bank” the control of the deposits created by the member banks. The way to control the deposits, he said, was to control the total stock of money, currency and deposits, by controlling the monetary base. Within the system, several of the New York directors, W. Randolph Burgess, and Eugene Meyer often favored purchases, opposed sales, and at times pointed out the consequences of the System’s policies for employment, prices, and production. Outside the System, Seymour Harris (1933, 2:175–92) criticized the central relation of the Riefler-Burgess analysis—that the Federal Reserve controlled member bank borrowing by open market operations—and pointed out that the analysis neglected changes in currency, Treasury operations, and gold movements.

From his detailed examination of various periods during the twenties, Harris concluded that the inverse relation between borrowing and open market operations was much weaker than Riefler, Burgess, and Strong claimed.¹⁵⁹

A fourth explanation is that the monetary system collapsed because the Federal Reserve lacked leadership. With the death of Benjamin Strong, leadership of the Federal Reserve Bank of New York passed to George Harrison. According to Friedman and Schwartz (1963, 411–19), Harrison lacked Strong's ability to lead and was unable to get other members of the Open Market Policy Conference to follow his suggestions.¹⁶⁰

There is ample reason to believe that Strong would have regarded the policy action from August 1929 to the summer of 1931 as an "easy policy."¹⁶¹ His statements on open market operations repeatedly emphasized the importance of the volume of member bank borrowing as the most important indicator of the desirability of purchases and sales. His March 1926 statement, quoted earlier, uses \$500 million to \$600 million as a tight policy at the start of a recession.

Strong approved of the policy of selling securities during the winter of 1928 and the increases in the discount rate during the spring, despite the very slow rate of increase in money and the slow decline in the monetary base during the recovery from the 1927 recession. We know that Strong approved of the deflationary policy of 1920–21, but this decision antedates his understanding of the role of open market operations.

Burgess changed his views after 1930, arguing for expansion. Burgess

159. Harris comes close to recognizing that the Federal Reserve must control the monetary base. His criticism of Keynes (Harris 1933, 2:192–95) for insisting that a central bank must control the stock of money, however, shows that he did not fully understand this point. Instead, he reached a conclusion that the System was only too willing to adopt later; the Board members and governors had less control than they claimed. Harris had access to the Board's files and internal memorandums, and his discussion gives an excellent account of the changing views of the Board members.

160. Wheelock (1992) notes that this view goes back at least to Irving Fisher. He quotes Fisher's testimony in hearings on the Banking Act of 1935 that if Strong had lived, "we would have had a different situation"—stable prices (12). Fisher (1946) repeated his view in a letter to Clark Warburton, dated July 23, 1946, 3. I am grateful to Wayne Angell for providing a copy of the letter.

161. We know that Strong used the Riefler-Burgess framework and paid no attention to monetary aggregates in conducting policy during the 1923–24 and 1926–27 recessions. See table 5.30 above. In his 1926 testimony to the House Committee on Banking and Currency, reprinted in Strong 1930, 257–58, Strong described the elimination of indebtedness of the New York banks as the main objective of the 1924 purchase policy. He listed six aims of monetary actions including, as number five, assisting when possible "the recovery of sterling and the resumption of gold payment by Great Britain." Then he added, "I think the guide, looking back now, was whether the New York banks were completely out of debt or not, or whether they still owed us a small amount as a regulator."

was a main proponent of continued expansion in summer and fall 1932. Clearly, Burgess put aside the Riefler-Burgess framework. It seems probable that Strong would have done the same. On this point, Fisher and Friedman and Schwartz seem correct. Strong was by far the most knowledgeable and thoughtful of the governors or Board members.

Would Strong have succeeded in persuading a majority of the committee? After April 1930, the five-member executive committee included a majority—McDougal, Norris, and Young—who insisted that deflation was an inevitable consequence of the speculative boom that had gone before. These governors, and others, blamed Strong for the expansive purchases in the fall of 1927 when member banks were only \$400 million in debt. And they repeatedly cited the real bills interpretation of the tenth annual report to support their position. Some of them had opposed Strong's policies in 1927. McDougal in particular was hostile to Strong's policy of reducing the discount rate and acted only after the Board forced the reduction.

The recalcitrant governors made an internally consistent argument. Moreover, they could appeal to the intent of the Federal Reserve Act. Carter Glass, who never tired of pointing out that he had written the act, shared their view. Even Eugene Meyer believed that "the New York bank had built up its power entirely out of proportion with the intent of the Act" (CHFRS, Meyer, February 16, 1954, 4).¹⁶²

Even when the OMPG voted to purchase, Boston and Chicago did not always participate in purchase programs. One reason New York stopped purchases in 1932 was that it lost gold reserves to other banks. Unless Strong could have persuaded McDougal and Young to participate, or convinced the Board it should force other banks to sell gold to New York, Strong would have faced a loss of gold and a fall in the gold reserve ratio. Although Meyer at times favored continuing purchases, he was unable to get the Board to insist on a System program. Miller, often joined by Hamlin, opposed purchases. Strong would have faced the same resistance.

Many of the other governors and Board members blamed Strong's policies in 1924 and 1927 for starting the speculative expansion. The contraction was an "inevitable consequence" of the expansion. When speculative credit expansion produced a boom, a collapse must follow. Despite a falling price level before the collapse and an accelerating price decline after, there is far more concern about potential inflation than about deflation. Strong would have had to convince his colleagues that another round of speculative credit expansion could succeed.

162. Meyer refers to "ill feeling between the Board, New York and Chicago," no doubt a contributing factor in the inability to reach agreement (CHFRS, Meyer, February 16, 1954, 4).

Quite independent of the role Strong might have played, there is little evidence that Harrison generally favored an expansive policy. The two strongest pieces of evidence Friedman and Schwartz present to suggest that Harrison favored such a policy fail to support that interpretation when examined more closely. Although Harrison received little support for his proposal to purchase, sent to all the governors in July 1930, there is no evidence that he intended to steadily expand the portfolio or the stock of money. In a reply written to the governors of the other reserve banks in mid-July, Harrison noted that there had been an unanticipated increase of \$100 million in the bill portfolio and that the money market banks had reduced their borrowing from the reserve banks. This, he said, removed the necessity for purchases. In summer 1931 Harrison, urged on by Meyer and his directors, again tried to persuade the other governors to expand the executive committee's authority to purchase \$300 million. Other members of the Open Market Policy Conference opposed and authorized purchases of \$120 million. Another improvement in money market conditions occurred shortly after the meeting, and Harrison failed to use the more limited authority given to the executive committee.

In September 1930 W. Randolph Burgess, Carl Snyder, and several members of the Board supported purchases; Harrison opposed.¹⁶³ In January 1931 Harrison favored a policy of sales. In January and February 1932 he talked about the need for delay and the danger of wasting ammunition. On these and other occasions, Harrison's views do not differ from the views of the other governors. The minutes provide some evidence that the majority of the committee would not have opposed Harrison if he had encouraged them to continue the purchase program during summer and fall 1932, as Burgess wished. But those who opposed strongly would not have taken their share of the securities. The sample of his views, quoted throughout the chapter, does not show Harrison as repeatedly rebuffed. More often, Governor Meyer of the Board, or some of the New York directors, urged a cautious Harrison to expand.

Harrison's behavior, and the behavior of most of the other governors, is consistent with their understanding of the Riefler-Burgess framework. If, on the Federal Reserve interpretation, the market was "easy," purchases were not authorized or made. Because the governors believed monetary policy was best judged by money market variables, most of them believed they had done all that could be done to prevent a collapse of the monetary

163. In a revised edition of his book, published in 1946, Burgess comments that during the depression borrowing, interest rates, and bank lending responded to Federal Reserve actions but the economy didn't respond. See Wheelock 1990, 415.

system. They did not regard the declines in money and bank credit as consequences of their actions. On their interpretation, the demand for credit had fallen as a “natural” result of the previous speculative boom. This reduced the demand for reserve bank credit. In 1932 they tried a policy that many of them described as credit inflation, and it failed to revive the economy, as several of them expected it would.

Later statements of the reasons for the failure of the 1932 purchase policy differ little from the reasons given in fall 1932 to justify ending the program of open market purchases: “The success of the enlarged open market program (in 1932) depended on the use of excess reserves by member banks” (Anderson 1965, 71). “In October [1933], there was a full-scale review of policy. Excess reserves were about \$760 million, member bank indebtedness to the Reserve banks was at the lowest level since August, 1917, and short-term interest rates were at an all-time low. There was general agreement that additional purchases were not needed for monetary reasons” (73).

Federal Reserve officials were not alone in their acceptance of the real bills doctrine. Seymour Harris (1933, 1:365) describes “the heroic efforts made by the Reserve banks in the years 1929–32 to stimulate the expansion of bank credit and (later) to stop the decline.” Mints (1945, 264) quotes a 1935 statement by sixty-nine members of the Economists’ National Committee on Monetary Policy opposing liberalization of the rediscount provisions of the Federal Reserve Act. The statement expresses concern about illiquidity and inelasticity if the Federal Reserve issues “notes against frozen or illiquid assets.” The committee argued that “the supply of non-commercial paper eligible for rediscount should be further restricted, not enlarged.”

Looking back on the experience at the end of the 1930s, a *Federal Reserve Bulletin* described the 1929–33 collapse as caused by the speculative situation that developed between 1921 and 1929. The experience also showed that the price level does not respond to the cost of money: “When the cost of money was so drastically cut, prices went down by about one-fourth” (quoted in Mints 1945, 273–74, from the 1939 *Federal Reserve Bulletin*, 363–64).

Wicker (1966) concluded that Federal Reserve officials were ignorant of the proper role of a central bank. This is correct but incomplete. A more complete statement is that most of the governors accepted the real bills doctrine, failed to function as lender of last resort, and failed to distinguish between nominal and real rates of interest.

Ex post real interest rates rose in 1930 and 1931 and remained at histor-



Chart 5.4 Real M_1 growth and real interest rate, August 1929 to March 1933.

ically high levels in 1932. Chart 5.4 compares real interest rates to growth of the real money stock.¹⁶⁴ In the previous deflation, 1920–21, falling prices raised real balances and stimulated spending despite relatively high real interest rates. Falling prices also attracted gold, increasing money balances. (See chart 3.1.)¹⁶⁵

The principal difference in 1929–33 is that the falling money stock more than offset the expansive effect of falling prices on real balances. If the Federal Reserve had prevented the decline in money, falling prices would have raised real balances, created an excess supply of money, stimulated spending, and limited or ended the decline when the economy began to recover in spring 1930; rising real balances and an excess supply of money would have increased aggregate spending. Or if the Federal Reserve had followed gold standard rules, the gold inflow would have increased nominal and real money balances from 1927 to 1929 and from 1929 to the British devaluation in the fall of 1931.

The minutes of the period, statements by Federal Reserve officials, and outside commentary by economists and others do not distinguish between

164. The rate of inflation is common to both series. Ex post real rates are computed using long-term bond yield minus four-quarter moving average inflation. Growth of real money balance is a four-quarter moving average using M_1 as the measure of money. The large currency drain makes the monetary base misleading for this period.

165. The same mechanism, deflation, worked subsequently in the deflation of 1937–38 and 1947–48 to raise real balances.

real and nominal interest rates. Surprisingly, even Irving Fisher did not insist on this distinction. Although Fisher pointed to the decline in demand deposits in conversation with Meyer, his preferred explanation of the prolonged decline was the asymmetric effect of deflation on debtors.

Not every official of the Federal Reserve slavishly followed the real bills doctrine or the Riefler-Burgess version of that doctrine. Nor did they all interpret the doctrine in precisely the same way. Some would have preferred a more deflationary policy. Some believed the time for expansion would come in the future, when credit increased and banks offered discounts to the reserve banks. All could agree, much of the time, that purchases should not be made.

In his memoirs many years later, President Hoover expressed his frustration and anger. The Federal Reserve, he wrote, "was indeed a weak reed for a nation to lean on in time of trouble" (Hoover 1952, 212). This was not the accepted view at the time. So certain was the System about the correctness of its actions and its lack of responsibility for the collapse that I have found no evidence the Board undertook an official study of the reasons for the policy failure. Legislative action expanded and centralized the Board's authority. The Riefler-Burgess framework continued as a general guide to policy action and interpretation for many years, and return to the gold standard remained the accepted goal of governments everywhere.

APPENDIX A: DEMAND FOR MONEY

The equations for $\ln M/p$ and $\Delta \ln M/p$ are from Meltzer and Rasche 1994.

	LOG LEVELS M/p 1902-58		FIRST DIFFERENCES $\Delta \ln M/p$ 1903-58	
Constant	-0.28	(0.91)		
$\ln i$	-0.49	(5.61)	$\Delta \ln i$	-0.52 (4.68)
$\ln w$	0.20	(1.28)	$\Delta \ln w$	-0.55 (1.53)
$\ln y_p$	0.39	(2.52)	$\Delta \ln y_p$	0.28 (1.23)
$\ln M/p_{-1}$	0.42	(3.95)	$\Delta \ln M/p_{-1}$	0.12 (0.74)
AR(1)	0.22	(1.44)	AR(1)	-0.30 (1.56)
R^2	0.99		R^2	0.38
DW	2.01		DW	2.05

Note: *t*-statistics are in parentheses.

The variables are defined as:

i = long-term government bond rate

w = real wealth

y_p = expected income from first-order autoregressive equation

APPENDIX B: CROSS-SECTION RESPONSE OF REAL INCOME GROWTH TO GROWTH OF REAL BASE, BASE VELOCITY, AND CURRENCY-DEPOSIT RATIO, 1929-32

The twenty countries are Austria, France, Germany, Italy, Netherlands, Norway, Sweden, United Kingdom, United States, Bulgaria, Czechoslovakia, Denmark, Finland, Greece, Hungary, Spain, Yugoslavia, Mexico, Brazil, Canada. Data are from Mitchell 1992, 1993. Canada appears to be an outlier in the sample, so estimates were made with and without Canadian data. All data are percentage changes for the period. The wholesale price index is the available deflator. Standard errors are in parentheses.

CONSTANT	REAL BASE	BASE VELOCITY	CURRENCY	RATIO R^2 AND SEE
		Twenty countries		
	0.61	0.78	-0.02	0.43
0.05	(0.19)	(0.24)	(0.15)	0.14
		Omitting Canada		
	0.46	0.51	0.01	0.45
0.02	(0.13)	(0.17)	(0.11)	0.09

A simple regression of the growth of the currency-deposit ratio on the growth of income (excluding Canada) has an $R^2 = 0.003$ and a statistically insignificant coefficient = 0.04.

In the Backseat, 1933 to 1941

The Federal Reserve took few policy actions from 1933 to 1941. The open market portfolio and the discount rate rarely changed. Changes in the monetary base during these years reflect principally changes in the gold stock and the devaluation of the dollar against gold; after the gold standard broke down the United States more closely followed gold standard rules for the money stock.

Congress and the Treasury made the important decisions about gold, silver, and banking legislation. Early in the administration, President Roosevelt took an active part in setting gold policy and making decisions about gold and silver purchases and exchange rates. The Federal Reserve had a subsidiary role—the backseat. New York transacted for the Treasury, as fiscal agent, but the Board had little influence on the decisions and was often uninformed about Treasury actions and plans.

The Banking Act of 1935 permanently changed the Federal Reserve's structure and laid the foundation for the postwar Federal Reserve System. Out went the legal basis for semiautonomous, regional banks, each controlling its own portfolio. Reorganization shifted power and authority over the reserve banks to the Federal Reserve Board in Washington, where it remained. Although the Treasury controlled most decisions until after World War II, the 1935 act made possible the centralized system that developed once the Federal Reserve became free to pursue an independent policy.

Reorganization was mainly the work of Marriner S. Eccles, a Utah banker, aided by Lauchlin Currie, a young economist at the Treasury and later at the Board and in the White House as a presidential adviser. Eccles became governor of the Federal Reserve Board in November 1934 and, after re-

organization, the first chairman of the Board of Governors in 1936. He was a strong proponent of government investment spending as a countercyclical policy and believed that the Federal Reserve should keep market rates low to facilitate private spending and government finance during a depression. He called his program "controlled inflation."

Despite these strongly held views, Eccles and the Board became convinced after 1935 that the growing volume of reserves at member banks posed the threat of future inflation. The Board's principal policy action in these years increased reserve requirement ratios as a preemptive act against inflation. Between August 1936 and May 1937, the Board doubled these ratios, thereby contributing to a steep recession in 1937–38.

Until 1937, recovery from the depression proceeded rapidly. In the four years following the trough in March 1933, using Balke and Gordon's (1986) data, real GNP rose at a compound annual rate of almost 12 percent. After a sharp decline in the 1937–38 recession, growth resumed in mid-1938. Real GDP did not reach its 1929 value until 1941, however, and per capita consumption did not regain its 1929 peak until 1942.¹

Prices rose during the recovery, in part a result of deliberate policy to devalue the dollar so as to raise agricultural and commodity prices. The GNP deflator and the consumer price index remained below their 1929 levels, however, when the United States entered World War II.

Despite the strong recovery, many contemporary observers, including prominent administration officials, regarded President Roosevelt's New Deal as unsuccessful. The principal reason is that 8 million people, more than 14 percent of the labor force, were unemployed in 1940. In fact, the number employed in 1940 was the same as in 1929, and hours worked were lower. Viewed one way, there was a substantial increase in productivity, but part of the measured increase was a substitution of capital for labor to avoid costly New Deal legislation. These measures sought to raise wages, reduce hours of work, and encourage the growth of trade unions. Militant unionism, particularly in manufacturing industries such as autos, steel, and rubber, reduced current and expected profits in those industries and deterred investment.

Labor legislation was one part of President Roosevelt's New Deal. The period 1933–41, particularly the early years, was a time of intense legislative activity. The New Deal restructured society, permanently changing the role of government and the public's attitude toward the responsibilities of

1. GNP came very close to the 1929 peak in 1937, before the recession. Balke and Gordon's (1986) quarterly data (in billions) have a peak of \$329.7 in third quarter 1929 and \$329.3 in first quarter 1937. Annual data (in 1958 prices) show \$203.6 billion for 1929 and \$203.2 for 1937. The annual data in 1958 dollars pass the 1929 peak in 1939.

government. Lasting changes were made in the financial system and the Federal Reserve.

Much of the period's financial legislation reflected the judgments reached by the authors of the new legislation, often shared by much of society at the time, that speculation was responsible for financial collapse and the Great Depression. Taken as a whole or separately, much of the new financial legislation sought to prevent or limit speculation in common stocks, restrict banks from financing securities, and centralize authority and responsibility for monetary policy.² The Securities Exchange Act (1934) gave the Federal Reserve Board authority to set margin requirements in the belief that general monetary powers, such as open market operations or discount rate changes, cannot prevent a speculative boom in stock prices without harming the so-called legitimate needs of trade.³ Parts of the Banking Act of 1933, generally referred to as the Glass-Steagall Act, separated commercial banking from investment banking. This section of the Banking Act was mainly the work of Senator Carter Glass. A leading proponent of the real bills doctrine, Glass was convinced that the boom and bust had been caused by commercial bankers' financing investment banking activities and other nonreal bills.⁴

In retrospect, the period marks the beginning of the decline in the importance of the real bills doctrine at the Federal Reserve. The 1932 Glass-Steagall Act permitted government securities to serve as backing for the note issue. Conceived as a temporary step, lack of discounts during the depression required renewal of temporary authority, later made permanent. At the end of the period, the beginning of wartime expansion restructured the Federal Reserve's balance sheet. Government securities became the principal source of reserve bank credit. Growth in the size of the balance sheet and wartime inflation made it less costly to reduce, and later elimi-

2. President Hoover partly shared this belief. In 1930 he asked the officers of the New York Stock Exchange to reform their rules to eliminate excessive speculation. He did not believe there was constitutional authority for legislation (Fusfeld 1956, 224).

3. Several studies, beginning with Moore 1966, find that margin requirements are ineffective and have little effect on stock prices or trading. Although not recognized by the financial community at the time, some of the legislation contributed to the development of financial markets. The 1933 Securities Act improved both the quantity and the quality of information about companies, thereby encouraging widespread ownership of common stocks after growth resumed in the postwar years.

4. Benston (1990) documents the charges made against bankers, including claims of criminal activity and disregard for the public. In a superb book, he shows that the claims were either false or unsupported by evidence. At the time, each citation of evidence of wrongdoing referred to previous citations, so a reader could believe that the changes had been thoroughly researched and documented. After World War II, the United States imposed a similar system on Japan. Congress repealed these provisions in 1999 after a major bank merged with an investment bank and an insurance company.

nate, reserve requirements behind the note issue and the monetary base than to shrink the base and force postwar deflation.

Other legislative changes reshaped the Federal Reserve by reducing the power of the New York Federal Reserve bank domestically and internationally. Glass and others believed that Benjamin Strong's assistance to Britain in 1924 and, even more, in 1927 initiated the speculative boom that ended in the collapse. A widely shared view held that the collapse was an inevitable consequence of previous speculative excesses and departures from real bills principles. Unorthodox policies, such as the Hoover budget deficits and Britain's departure from gold, sustained and deepened the collapse. Hence the remedy was to reduce the influence of those like Strong whose ideas, they believed, had failed.

None of this was lost on Adolph Miller. Miller, a friend of both Glass and Roosevelt, saw the Banking Acts of 1933 and 1935 as a vindication of his views (Miller 1935). He believed that by centralizing power in the Board, and eventually restoring the gold standard, the Federal Reserve would return to its original conception. In this he was mistaken.

A contemporary reader finds it difficult to reconstruct the prevailing orthodoxies of the past or to see events as they were seen at the time. Bernard Baruch, a financier who advised many presidents, perhaps typifies the views of the more articulate and influential bankers and financiers of the period. In testimony before the Senate Finance Committee in February 1933, Baruch blamed the depression on four factors, all the effects of war: inflation, debt and taxes, national self-containment, and excess productive capacity (Baruch 1933, 1). The "chief barrier" was wartime inflation. Only in 1933 could prices be said to have fallen to the 1913 level. Reflation by monetary means to restore prices to the 1929 level was the wrong policy. Prices could not be raised by increasing money: "If there is no confidence, no amount of tinkering with the currency can raise the price level. . . . Deficits and the finance of them by 'bank money' inflation . . . impair confidence and drive money deeper into hiding" (9). A main task of government was to reduce public spending. Although he favored relief of human suffering, he believed that "reduction in public expense is indispensable for recovery" (2). Reductions in spending and the budget deficit instill confidence and "the working of natural processes" (4). Baruch's views are similar to the views of the Economists' National Committee on Monetary Policy, a group that included prominent academic economists.

Views like these were not just wrong, they were influential. They appealed to beliefs that were widely shared. They called for more deflation and contraction in the mistaken belief that the 1913 price level (or some

other) was correct. Restoration of that price level would somehow right whatever was wrong, but the proponents could not say how or why that would happen.

Not all financial legislation and action corrected past mistakes and alleged misdeeds. Roosevelt had campaigned as a financial conservative, critical of the Hoover administration's deficit spending, but he also wanted to end the depression and stop the fall in prices. He promised to balance the budget, except for emergency relief, but he offered few specific proposals during the 1932 campaign and had no coherent plan for the economy when he took office.⁵ During the campaign, Roosevelt described himself as an advocate of experimentation: "The country needs and, unless I mistake its temper, the country demands bold, persistent experimentation. It is common sense to take a method and try it. If it fails, admit it frankly and try another. But above all, try something" (quoted in Sumner 1995, 1).

Between 1933 and the beginning of defense and war mobilization in 1940, the Roosevelt administration experimented with five main types of economic policy. The Supreme Court declared some of these actions unconstitutional. Some conflicted with others, for example, establishing cartels to fix prices and later strengthening antitrust action against price fixing. Roosevelt encouraged some advisers to advocate policies that others opposed so that he could gauge public reaction. He chose between them, tired of the policies when they did not work or were unpopular, and went to something different.

One group led by Agriculture Secretary Henry Wallace and two of Roosevelt's campaign advisers, Rexford Tugwell and Raymond Moley, wanted national planning.⁶ In the administration's first months, Congress passed

5. Much of his campaign was an attack on Hoover's policies. His main charges were that the Hoover administration had encouraged speculation and overproduction, misled the public about the gravity of the collapse, blamed other countries for our problems, and delayed relief and forgotten reform (Fusfeld 1956, 223). During the campaign Roosevelt favored a larger measure of "social planning" but did not elaborate (204).

6. Tugwell was an economist and Moley a political scientist at Columbia University. Along with Adolf Berle, a lawyer, they were the principals of Roosevelt's campaign "brain trust." Moley coordinated campaign policy statements. His specialty was crime and the administration of justice, but he worked on all domestic policy issues during the campaign (Fusfeld 1956, 210–15). Tugwell was the main advocate of planning and a tax on undistributed corporate profits that the administration later tried. Berle was a student of economic concentration. He believed that corporations must serve not just stockholders but the community, a view that appears periodically in the literature critical of the modern corporation. Although he shared some of Tugwell's views, he was more favorable to antitrust as a solution to the economy's problem. Instead of forming cartels under government supervision, Berle favored breaking up large firms.

the National Industrial Recovery Act (NIRA) and the Agricultural Adjustment Act. Both were declared unconstitutional within three years.⁷

A second group wanted reductions in government spending and a balanced budget. During the campaign Roosevelt had promised a balanced budget, except for emergency relief, in a campaign speech in Pittsburgh, and he had criticized Hoover repeatedly for running deficits. In the first one hundred days Congress passed the Economy Act, reducing government employees' salaries by 15 percent and reducing veterans' pensions. Balancing the budget remained an unrealized goal of the administration until the 1938 recession, when the goal changed. Prominent advocates of balanced budgets, as a means of restoring confidence, included many economists and businessmen. Within the administration, the leaders of this group were Henry Morgenthau, who followed William Woodin as secretary of the treasury, serving from late 1933 to 1946, and Lewis Douglas, the first budget director.

A third group took the opposite position. This group included Marriner Eccles, Lauchlin Currie, Harold Ickes, and Harry Hopkins. Eccles and Currie, separately, developed the idea of countercyclical fiscal policy that later became identified with Keynes's *General Theory*.⁸ Eccles, like Keynes, wanted not just spending but government investment to replace private investment during recessions. Roosevelt took this approach in 1938, but his change of view was partly, possibly mainly, a political decision about the 1938 election.

The fourth group wanted antitrust policy to break monopolies. Adolph Berle, an early adviser, was the leading proponent for many years, but he was supported in 1938 by the staff of the antitrust division of the Justice Department led by Thurman Arnold. As part of this policy, the Temporary National Economic Committee conducted a massive study of monopolies, trusts, and business practices beginning in 1938.

Fifth was the concerted effort to supplement NIRA codes of fair pricing by increasing the gold price and buying silver. These monetary operations to raise the price level are discussed more fully below.

Both the Democratic and Republican platforms, prepared for the 1932

7. Weinstein 1981 is a careful study of the macroeffects of NIRA. The act, signed by the president in June 1933, gave the administration power to regulate production in cooperation with business and labor unions. These groups adopted "codes" of conduct that had the force of law. In total, 557 codes were adopted (plus 188 supplementary codes), covering 95 percent of industry. The codes increased wages, reduced hours of work, and set "fair" prices (Arndt 1966, 42).

8. Keynes first advocated the plan (with Hubert Henderson) during the 1929 British election. Eccles and Currie did not seem to know that Keynes's advocacy predated their own. As Laidler (1999) shows, deficit finance had many advocates before Keynes, Currie, or Eccles.

campaign, called for an international conference to consider monetary questions. Both platforms mentioned silver explicitly, in deference to political pressures from western states. Both urged reform of bank supervision and action to prevent the use of credit for speculation (Krooss 1969, 4:2692–93). Both are short on specific recommendations.

The depression years were the beginning of the end of the international gold standard. Increasingly, domestic concerns dominated international concerns. Roosevelt had not committed to maintaining the gold standard during the campaign or after. He had not decided to devalue, either. In retrospect, July 1933 is the turning point, the time when the administration chose domestic recovery and an end to deflation over commitment to a fixed gold price. The Federal Reserve had sterilized gold flows in the past to achieve domestic objectives, but sterilization did not alter the commitment to a fixed exchange rate. Although the Roosevelt administration attempted to stabilize exchange rates by international agreement in 1936 and again in 1944, neither agreement required the Federal Reserve to subordinate domestic to international monetary objectives.

REOPENING THE BANKS

Most of the banks in the country had been closed before the national banking holiday in March 1933 as a defense against further bank runs. Federal Reserve staff had considered how to restore banking services. The administration, however, had no plan for reopening banks, and no program for what would come next. It had not planned whether the United States would leave the gold standard or reopen the reserve banks and pay out gold as necessary. On March 9 the Emergency Banking Act resolved the administrative issue by authorizing the secretary of the treasury and the state banking authorities to license banks. Implementing the program proved time consuming.⁹

The Federal Reserve had been indecisive and incompetent as the banking problem became a crisis. The Board now took a backseat.¹⁰ The Treas-

9. Case describes procedures at New York (interviews with J. Herbert Case, CHFRS, February 26, 1954, 3–4). The New York district had 1,200 banks, of which 30 percent had problems. Leslie Rounds, a vice president, and his staff screened each bank. The directors met all day, every day, during the bank holiday to consider his recommendations. In some cases, the RFC purchased preferred stock to restore capital and permit reopening.

10. One active participant blames Meyer for the lack of leadership. Meyer did not get along with Roosevelt and resigned in May 1933 (CHFRS, interview with Edward Smead, June 14, 1954). Smead was head of Reports and Statistics at the Board. Smead claims that Ogden Mills took control of the banks' reopening. Awalt (1969, 361–63) also credits Mills with a leading role even though his term had ended. He reports that Meyer insisted on a stenographic record of all his conversations (and his staff's) with Secretary Woodin. Woodin refused to speak to him or the staff. Awalt (368) attributes this behavior to concern about future embarrassment.

sury and the new president made the policy decisions. Ogden Mills stayed on to assist the new secretary, William Woodin. The Board's senior staff took a leading role in drafting proposals to reopen the banks in stages. It also drafted legislation that became the Emergency Banking Act, based on earlier work. George Harrison came to Washington on March 5 to work with Mills, Woodin, Senator Carter Glass, Congressman Henry Steagall, the acting comptroller, Francis Awalt, Adolph Berle, one of the Columbia professors advising Roosevelt, Treasury staff, and others. Later, Adolph Miller joined the group.

The group could not reach a conclusion. Some wanted to guarantee all bank deposits. Others wanted to print currency and pay it out to all depositors. Glass shifted from favoring an end to gold payments to a proposal that they pay gold on demand without regard to the statutory reserve. The proposal to issue currency is the only mention of a readily available Bagehotian solution to the currency drain. Harrison opposed the proposal as inflationary, and it did not get much consideration (Harrison Papers, Memo to the Files, file 2010.2, March 12, 1933).

The discussion went on most of Sunday without reaching a conclusion. Woodin appointed a small subset to work out a plan. On Monday, this smaller group proposed to guarantee bank deposits either up to 50 percent or on a sliding scale depending on the bank's assets, but the administration, especially the president, opposed a guarantee.¹¹ They agreed to open the strongest banks first but could not agree on how to open the weaker banks without renewing bank runs or offering guarantees.¹² Finally Roosevelt decided to make all government bonds, \$21 billion, convertible into currency on demand at par. Full conversion would have doubled the money stock, currency, and demand deposits. Mills and Harrison were aghast. Harrison regarded it as "completely destructive of government credit, such an inflation of the currency as to destroy the currency and offer no means of contraction" (*ibid.*, 7).

The crisis got the Federal Reserve to do what it had failed to do earlier—relax its rules governing currency issues and credit expansion. To head off the president's proposal, Mills and Harrison proposed that the administration reopen the sound banks, reorganize those that could survive and

11. Harrison describes Adolph Miller at these meetings as "impossible . . . making long harangues—many of them quite academic and not pertinent." Miller refused to take a position because he was there unofficially (Harrison Papers, Memo to the Files, file 2010.2, March 12, 1933, 5).

12. Harrison proposed that individuals, corporations, and others that held government bonds be allowed to borrow currency against this collateral at Federal Reserve banks. This was a major departure from precedent, but it did not solve the larger problem of reopening banks.

support many of them in exchange for preferred stock held by the Reconstruction Finance Corporation (RFC), and close the rest. The Federal Reserve (1) would lend to any member bank that opened based on its sound assets and weaken the links between gold and note issue by (2) issuing Federal Reserve bank notes backed only by portfolio assets (not gold), and (3) would broaden the definition of eligible paper backing the new notes to include direct obligations of individuals and firms that borrowed from Federal Reserve banks against government securities. The president accepted the proposal, and it became part of the Emergency Banking Act (Harrison Papers, file 2010.2, March 12, 1933).¹³

Federal Reserve banks reopened on March 10 and 11 to provide cash for payrolls and to lend on government securities. Harrison told his directors that the new law “greatly extends the powers of the Reserve banks, and adds to their responsibilities and the risks, which they may incur” (Minutes, New York Directors, March 9, 1933, 172). They could now lend more freely and greatly expand the note issue. Since the objective was to prevent reopened banks from failing, “the Federal Reserve banks become in effect guarantors of the deposits of reopened banks” (172).¹⁴

In his first “fireside chat” to the public on March 12, the president explained the plan for reopening banks. Licensed banks in Federal Reserve cities reopened on Monday, March 13. On Tuesday, licensed banks reopened in 250 cities with clearinghouses. Reopening continued for months. The Federal Reserve banks sent the Treasury lists of banks recommended for reopening, and the Treasury licensed those it approved.¹⁵ As late as October, bankers wrote to complain about the slow pace of reopenings (Board of Governors File, box 2185, October 2, 1933).

13. Joseph Dreibilbis gives principal credit to Walter Wyatt, the Board’s counsel, and to various ideas that “had been thought up previously.” He does not mention Harrison by name (CHFRS, Dreibilbis, March 9, 1954, 2). Awalt (1969) also credits Wyatt and Mills. Roosevelt’s refusal to consider deposit guarantees may have been motivated by unwillingness to endorse Hoover’s main proposal or by his belief that guarantees would increase risk.

14. A liberal reopening policy meant the reserve banks would have to lend to relatively weak banks but deflation would end. A conservative policy would leave many areas without banks; the shrinkage of money and credit would pose a risk. The directors chose a liberal reopening policy but wanted to restrict the public’s access at first to 50 percent of its deposits, gradually increasing the percentage. The Treasury wanted 100 percent of the deposits available and agreed to indemnify the reserve banks against losses (Minutes, New York Directors, March 11, 1933, 179). Out of 5,938 national banks, 5,300 reopened on March 9 (Awalt 1969, 360–61, 367).

15. Authority for the secretary to license banks continued until April 1947, and some banks continued to operate under Treasury license in the 1940s. Government intermediaries such as the Reconstruction Finance Corporation, the Home Loan Banks, Intermediate Credit Banks, and Land Banks reopened on March 13. Some states permitted all banks to open at once, so there were wide differences in availability of banking facilities in the country.

Approximately 4,000 banks did not reopen.¹⁶ This was nearly 40 percent of the banks that closed between June 1929 and June 1933. The Midwest was hit particularly hard, losing 2,500 of the 4,000 banks. The Cleveland Federal Reserve bank sent a telegram to the Board expressing concern about “many banking institutions the present condition of which precludes their reopening with governmental support . . . or otherwise” (telegram, Decamp to Meyer, Board of Governors File, box 2158, March 11, 1933). Other reserve banks wired concern about too few or too many banks being opened.

The president’s announcement had assured the public that only sound banks would be reopened. Recognizing that the public would not distinguish between member and nonmember banks, Congress allowed state nonmember banks to borrow from Federal Reserve banks on acceptable collateral. This power expired after one year.¹⁷

Many of the banks that did not immediately reopen had borrowed from the Federal Reserve. Nearly nine hundred unlicensed and closed banks owed \$125 million, almost 30 percent of outstanding borrowing in early April. Chicago had the largest number of such banks, 13 percent of the total, but Philadelphia, New York, and Cleveland each held about 20 percent of the now illiquid loans (Board of Governors File, box 1297, April 8, 1933).

The April meeting of the Governors Conference considered the many problems encountered in reopening and licensing banks. A week after the meeting, a committee of governors drafted a statement reporting the unanimous opinion that “if any member bank which had been licensed to reopen, is permitted to fail, it will prove a serious shock to the confidence

16. Data from Board of Governors of the Federal Reserve System (1943, 16) show a decline of 3,871 in the number of banks (including mutual savings banks) between December 1932 and June 1933. Friedman and Schwartz (1963, 423–27) give a detailed accounting. They report only 2,132 banks closed, suspended, or liquidated between March 15, 1933, and December 31, 1936. An additional 500 banks terminated during the bank holiday to March 15. Part of the discrepancy results from differences in the definition of a bank, but the main difference arises from the difference in dates; 1,334 banks reopened between June 1933 and December 1936.

17. The banks had to meet reserve requirements and other Federal Reserve regulations while in debt to a reserve bank. The history of this bill gives insight into the way government functioned during the crisis. The Federal Reserve learned about the bill by chance, when one of its senior staff overheard a conversation between the budget director and a treasury undersecretary. The Board believed the legislation unnecessary because the Reconstruction Finance Corporation could make the necessary loans or could purchase preferred stock under the Emergency Banking Act. Senator Huey Long (Louisiana) wanted to admit all banks to the Federal Reserve System, so the Board proposed to amend the pending bill by making state banks meet the reserve and other requirements of member banks. The Board notified Senator Glass, however, that it continued to oppose the legislation.

of the public, . . . and may well precipitate a banking crisis even more critical than the recent one" (Governors Conference, April 19, 1933, memo dated April 26, 1933).¹⁸ The governors accepted a share of the responsibility for avoiding failures, but they were concerned that their efforts would reduce the capital and surplus of the Federal Reserve banks if banks failed while in debt to the reserve banks. The governors' subcommittee recommended that the Federal Reserve banks "adopt a liberal loan policy and be prepared to make loans on sound assets with little or no margin in cases where it is necessary to keep a bank open." To reduce risk to the reserve banks, the subcommittee urged that the Reconstruction Finance Corporation take over loans after an agreed period (*ibid.*, 2-3).¹⁹

The subcommittee also suggested an alternative. The Federal Reserve could lend to the RFC, and the RFC could lend to the banks. The RFC's debentures carried a government guarantee, so the Federal Reserve would be protected against losses. The subcommittee wanted authorization to negotiate an agreement to this effect with the Treasury.

The remarkable feature of the memo is that, except for the guarantee, it recalls a proposal made by Secretary Mellon in 1931. At that time President Hoover and Secretary Mellon sought a nongovernment solution to prevent bank failures. Large banks were asked to underwrite a new intermediary, the National Credit Commission, that would buy up some of the assets of failing banks. The effort failed in part because the Federal Reserve refused to accept obligations of the proposed intermediary as eligible paper if the subscribing banks faced insolvency or illiquidity. If the earlier proposal had been implemented, many of the bank failures and the resulting financial crisis could have been avoided.

No less remarkable is that the subcommittee recommending the financial safety net had three members, George W. Norris, George Seay, and George L. Harrison, who had served throughout the decline. Norris was an especially strong proponent of real bills and an opponent of credit expansion by the Federal Reserve. It is hard to avoid the conclusion that the governors were not just chastened by their experience but were also fearful of the legislation that the new Congress and administration would support if they failed to cooperate with the recovery program.

The proclamations and orders closing and reopening banks also changed the role of gold in the monetary system. On March 6 banks were

18. The minutes of the April 19 Governors Conference also considered matters "of such a confidential nature that a written record seems to be undesirable."

19. Calomiris and White (1994) point out the importance of an agreement between Roosevelt and the RFC regarding deposit insurance as one of the key steps in the reopening process by reducing concerns of the reserve banks.

ordered not to pay out gold or gold certificates in connection with the few transactions authorized with foreigners during the bank holiday. After March 10, reopened banks or financial institutions could not pay out gold or gold certificates without authorization by the secretary of the treasury. The Board ordered the reserve banks to compile lists of all persons who purchased gold from the reserve banks after February 1 and had not redeposited the gold in a bank before March 13 (later extended to March 27).

The administration had not formulated a gold policy. Among those whose advice the president sought, Professors Irving Fisher, George Warren, and John R. Commons were the main proponents of devaluation or abandoning the gold standard. Roosevelt made no decision at the time, so it was not known whether the restrictions on gold payments would remain or prove temporary (Barber 1996, 24–25).

The banking position was a decisive factor in the decision to leave the gold standard. On April 5, the president forbade domestic gold holding. All gold coin, certificates, and bullion were ordered sold to the Federal Reserve banks by May 1.²⁰ On April 18 the president announced that the Treasury would cease issuing licenses to export gold (except to settle claims of foreign governments made before the moratorium).

The April 18 order took the country off the gold standard and ended any deflationary threat from adherence to gold standard rules. The president's announcement did not explain what would happen next. The president was no less obscure the next day, when he explained that he wanted to raise commodity prices and get the world back on the gold standard. This was followed on June 5 by a joint resolution abrogating the gold clause in all public and private contracts. Payments could be made only in legal tender.

The gold drain did not require a ban on domestic gold holding or repudiation of the gold clauses in private and public contracts. The president's April 18 decision would have stopped the gold outflow by making the dollar inconvertible into gold, a decision President Nixon made in 1971. This would have permanently removed the deflationary pressure that the embargo had ended temporarily. Banning private gold holdings and abrogating the gold clauses transferred the profit on the devaluation to the federal

20. Awalt (1969, n. 6) reports that Miller considered leaving the gold standard in the fall of 1932. Also, he notes that Adolph Miller discussed a gold embargo in June 1932. The discussion never went further. The Treasury agreed to repay the Federal Reserve for the expenses incurred in reopening the banks. Roosevelt had insisted on frugality, so the Treasury would not pay for the costs of shipping gold and for losses from abrasion. Some commercial banks refused to ship gold to the reserve banks unless the reserve banks paid for freight, insurance, and abrasion (memo to Morrill, Board of Governors File, box 745, October 10, 1933). The following April, the Treasury agreed to reimburse the reserve banks.

government. These steps seem unnecessary interventions into private contracts and asset decisions. Their purposes were mainly political, to show that bankers and wealthy individuals would not gain from the policy.

Since the United States held about one-third of the gold in all central banks, these moves puzzled Europeans and generated suspicion and distrust of United States policy in the negotiations leading up to the London economic summit scheduled to be held that summer. The suspicions remained when the administration later changed course and sought cooperation to stabilize the dollar exchange rate against the pound and the franc.

MONETARY AND OTHER LEGISLATION, 1933

The Hoover administration had done little to correct the perceived flaws in financial regulation. The Glass-Steagall Act granted authority to use government securities as collateral for the note issue as a temporary measure, later made permanent. Likewise the Reconstruction Finance Corporation started as a rescue operation for banks, insurance companies, and railroads, but initially loans had to have full collateral backing. The RFC had very limited resources. After Congress required release of the names of banks it helped, banks hesitated to ask the RFC for assistance. Mason (1994) notes that the RFC's constructive role in reorganization began in 1933, when it gained the power to acquire preferred stock in weak or failing banks.

Congress held hearings on reform proposals during 1931 and 1932 without reaching agreement or passing legislation.²¹ The information collected proved useful, however. In 1933 the banking committees could proceed without new hearings. Their major problem was to avoid some of the more populist measures such as those calling for issuing greenbacks, coining silver, devaluing the dollar, and compensating depositors for part of their losses from bank failures.²² Some of these proposals had considerable public support and support in Congress.

21. The 1931 hearings focused on branch, group, and chain banking. Congress could not agree on what regulation was needed. National banks were permitted to follow state rules on branching in 1927.

22. One bill (S. 806) abolished the Federal Reserve System. All deposits would be placed in a bank (with branches) authorized to issue \$2 billion of new credit (approximately 25 percent of the monetary base at the time). The bank would be charged with restoring the price level to the 1915–25 range, a range that included wartime inflation (Woodin to Fletcher, Board of Governors File, box 136, May 3, 1933). The Home Loan Bank Act passed on July 16, 1932, permitted issuance of \$917 million in national banknotes. Only \$120 million was issued in the next year. On the same date legislation authorized Federal Reserve loans directly to individuals and businesses.

The Thomas Amendment

The wholesale price index, as recorded at the time, reached a low of 59.6 (base 100 in 1926) in early February and again in March. By early April the index had increased only one point. This was far too slow for many farmers and ranchers, hence for their representatives. They wanted prices for crops and livestock increased in time for the harvest.

Senator Burton Wheeler (Montana) offered an amendment requiring the Treasury to coin silver in the ratio of sixteen to one to gold. When Roosevelt threatened to veto the bill, Senator Elmer Thomas (Oklahoma) offered a substitute amendment to the Agricultural Adjustment Act (AAA) that permitted the Federal Reserve to purchase up to \$3 billion of securities directly from the Treasury upon authorization by the president; gave the president discretionary authority to issue \$3 billion in currency (United States notes or greenbacks) if the Federal Reserve refused to make direct purchases of Treasury securities; and permitted the president to devalue the dollar against gold and silver up to 50 percent of its value.²³ The amendment also permitted the Federal Reserve Board to raise or lower required reserve ratios by declaring an emergency, on a vote of five members and with the approval of the president, and it authorized silver purchases of up to \$200 million (Krooss 1969, 4:2719–22).²⁴

Roosevelt and his advisers did not agree about the amendment. Opponents believed it was inflationary and likely to raise concerns about the administration's direction. Roosevelt saw the issue in political terms. The amendment authorized action but did not require it. If he opposed the Thomas amendment, Congress could pass mandatory legislation to inflate. The hesitation suggests that the administration had not decided whether to return to the gold standard at the old parity, devalue, or inflate. When Roosevelt announced on April 18 that he would accept the amendment, his budget director, Lewis Douglas (a gold standard advocate), is reported to have said, "This is the end of western civilization" (Kindleberger 1986, 200).

The Federal Reserve did not participate in discussions with the president about the Thomas amendment (Todd 1995, 26). Nor did it raise objections or point out that prices of most agricultural products were set in

23. Originally the bill had no time limit. In January 1934 the Gold Reserve Act limited the authority to two years.

24. The legislation became part of the Agricultural Adjustment Act because the act sought to raise farm prices by restricting output. The Thomas amendment added a demand side policy to raise farm prices. The amendment passed the House 307 to 86 and the Senate 64 to 21, more than enough to override a veto.

world markets, so that any benefit to farmers resulting from inflation would be temporary, reversed by devaluation of the dollar and a rise in the prices farmers paid.

Meyer did not approve of the administration's direction and had limited contact with its officials. On May 10, he resigned. His replacement as governor was Eugene R. Black, governor of the Federal Reserve Bank of Atlanta since early 1928. Black had the shortest tenure as governor of the Board to date; he served only fifteen months before returning to the Atlanta bank. He died in December 1934, four months after his return.²⁵ Roosevelt also appointed J. F. T. O'Connor as comptroller and, *ex officio*, a member of the Board.

The Banking Act of 1933

As a senior member of Congress, Carter Glass had his choice of the chairmanship of two Senate committees—Appropriations and Banking. If Glass chose Banking, Kenneth McKellar (Tennessee) would be chairman of Appropriations. McKellar was a machine politician and, for this and other reasons, unattractive to the incoming administration as chairman of a key committee. The president prevailed on Glass to take the Appropriations post but, *de facto*, he retained control of banking legislation (Hyman 1976, 162).²⁶

The 1933 act was the first major revision of the Federal Reserve Act. Glass submitted his first bill in December 1930. Shortly after, he appointed H. Parker Willis as technical adviser to the committee.²⁷ Willis had worked with Glass in 1913 and shared his views about the real bills doctrine, speculation, and decentralization. Hearings began in January 1931. Glass and Willis used the hearings to question Harrison, Case, Miller, and others

25. Black knew Roosevelt from Roosevelt's frequent trips to Warm Springs, Georgia. He did not intend to stay in Washington and went on leave from the Atlanta bank. His salary at the Board was about half his salary at Atlanta, and though he opposed deflation, he did not favor the administration's "inflationary policies." Unlike Meyer, he favored expansion, so he resumed open market purchases, but he opposed devaluation of the dollar (Katz 1992, 14–24).

26. Duncan Fletcher (Florida) became chairman of Banking and Currency, but power and authority rested with Glass. Glass became chairman of a subcommittee with authority to formulate banking and monetary policies. All members of the committee were also members of Glass's subcommittee, and all legislation affecting banking and the Federal Reserve went through his subcommittee. In the House, Henry Steagall remained as chairman of the Banking and Currency Committee. Before the 1932 election, the Republicans controlled the Senate but not the House after 1930. Senator Peter Norbeck (South Dakota) was chairman of the banking committee, but he allowed Glass to chair the subcommittee on banking legislation (Patrick 1993, 42–43).

27. Chester Morrill, for many years the Board's secretary, reports that bankers strongly opposed Willis's draft legislation. Early in 1932, "Meyer exposed his weakness as a draftsman." Willis resigned (CHFRS, interview with Chester Morrill, May 20, 1954, 4–5).

about what had gone wrong, whether speculation and the power of the New York bank in dealings with foreign central banks had contributed to bank failures, deflation, and depression, and whether the Board should have more control of open market operations.²⁸

A second attempt to write a bill, in 1932, strengthened the Board's power over open market operations. All operations had to have the approval of the open market committee and the Board. The Board argued that that was too rigid.²⁹

The 1933 act established a deposit insurance fund that became the Federal Deposit Insurance Corporation (FDIC), separated deposit and investment banking, restricted member banks from dealing in investment securities, and placed supervision of bank holding companies under the Board.³⁰ The act also lengthened the terms of the six appointed Board members to twelve years, increased the Board's power to remove bank officers or directors who violated banking laws, prohibited interest payments on demand deposits, and gave the Board power to set ceiling rates on time deposits.³¹

The Federal Open Market Committee, with all twelve banks as members, acquired legal status. Reserve banks could engage in open market operations only under Board regulations (Krooss (1969, 4:2725–69). To retain local directors' authority, the act permitted a reserve bank to refuse to participate in an open market operation on thirty days' notice to the Board and the committee (Kennedy 1973, 210). This was a step away from the idea of semiautonomous reserve banks, but it did not abandon local option.

Glass believed the New York bank and the secretary of the treasury had

28. The reference to "foreign central banks" referred mainly to Strong's assistance to the Bank of England, which Glass regarded as violating the principles of the Federal Reserve Act. Parts of the colloquy are summarized in chapter 4. Miller supported Glass's argument for greater Board supervision and responsibility for open market operations but did not argue for the Board's taking responsibility for relations with foreign central banks (Senate Committee on Banking and Currency 1931, 159).

29. In his letter to Congress about the proposed bill, Meyer offered a strange proposal suggesting that reserve requirements be based on deposits and deposit turnover—debits to deposit accounts. The intention was to penalize speculative credit by taxing overnight or short-term borrowing and repayments (Board of Governors File, box 142, March 29, 1932). The proposal penalized a bank for its customers' decisions.

30. One-bank holding companies were inadvertently omitted. This omission was corrected in 1956.

31. Restrictions on interest payments reflected the belief that banks had made speculative and unsound loans to increase earnings and pay interest. Benston (1964) shows there is no evidence for this belief. The Board opposed the prohibition of interest payments as a major change whose consequences could not be foreseen. Glass told them he did not need their views, since he knew them (Board Minutes, April 10, 1933, 24; April 13, 1933, 16).

too much power. He blamed New York, particularly Strong, for the expansion of speculative credit after 1927. He was suspicious of the relation between the New York bank and the Bank of England and determined to prevent relations of this kind from affecting the growth of credit. The act reduced New York's role in foreign transactions by shifting control to the Board. Glass also wanted to remove the treasury secretary from the Board, but the secretary objected strongly, and Glass did not prevail.

The act also eliminated the double liability of directors of national banks, specified in the National Banking Act.³² Despite much testimony arguing that reserve banks could not control the use of credit, Glass inserted a provision that the banks must keep informed about "whether undue use is being made of bank credit for the speculative carrying or trading in securities, real estate or commodities" (Krooss 1969, 4:2726). The intent was to limit discounting and prevent financial speculation. Since discounts remained low in the 1930s, the provision had no effect. Glass also included a provision making the System's goal the accommodation of commerce, industry, and agriculture.

Writing at the time, Westerfield (1933, 727) reports that Glass believed the Federal Reserve had been dominated by the Treasury and had permitted securities speculation. The Board had been timid and vacillating. Power had shifted to New York. The Board, on its side, considered most of the legislation unnecessary. It wanted only an amendment clarifying its power of supervision over open market operations and relations with foreign banks (732).

Glass had larger plans. He wanted most of all to strengthen commercial lending by separating commercial and investment banking. Some bankers supported this change, among them Winthrop Aldrich, chairman of the Chase National Bank (Harrison Papers, Conversations, file 2500.1, March 8, 1933).³³ He wanted banks to retain powers to underwrite only municipal, state, and federal government bonds. After the Pecora investigation of investment banking exposed the alleged misdeeds of banks' investment affiliates, other bankers wrote to Roosevelt or Glass supporting separation (Kennedy 1973, 222–23).³⁴

32. Kane and Wilson (1998) show that elimination of double liability helped shareholders of large banks during the recovery.

33. Winthrop Aldrich was the son of Senator Nelson Aldrich, who played a leading role in establishing the Federal Reserve. He had become chairman of Chase by opposing financing through an affiliate and favoring conservative banking. At Chase, he replaced Albert Wiggins, a longtime director of the New York reserve bank.

34. As noted above, Benston (1990) shows that there was little if any evidence to support the charges. Calomiris (1997, 11) summarizes research as showing "that securities underwriting by banks prior to 1933 was at least as honest as securities underwriting outside of

Section 20 of the Banking Act, known as the Glass-Steagall Act, gave banks one year to choose between commercial and investment banking, prohibited investment banks from taking deposits, and banned interlocking directorates for commercial and investment banks. Glass regarded this as the most important feature of the 1933 act. It took more than sixty years to reverse the mistake.

Henry Steagall (Alabama) had proposed some type of deposit insurance or guarantee for several years. The insurance provisions were his main contribution to the Banking Act.³⁵ Public pressure to get partial recompense for banking losses helped to move the legislation toward passage.

Opposition to deposit insurance came from two sources. First, past attempts by states had produced mixed results, in part because of problems of moral hazard, in part because local banks were not diversified. Second, many small banks wanted insurance, but large banks believed they would be forced to pay most of the cost and thus subsidize small, weak banks. The history of failures before the depression supported this argument. Opponents favored liberalized branching to produce more diversified financial institutions (White 1997, 3).

The 1933 provision started as a proposal to deal with the liquidation of failed member banks. The Federal Advisory Council argued that the government should pay the liquidation costs for member banks just as the RFC paid for nonmember banks. The compromise proposal took \$150 million from the RFC and half the surplus of the reserve banks on January 1, 1933—\$138 million—to establish the Temporary Deposit Insurance Fund, which opened in January 1934 (Todd 1995, 28). Insurance was limited to \$2,500 of deposits. Large bankers wanted any fund restricted to member banks, but the legislation admitted nonmembers if they undertook to join the System within two years. This provision was unpopular with small banks, and it was removed in the Banking Act of 1935.³⁶ The latter act changed the fund's name to the Federal Deposit Insurance Corporation (FDIC), made it a permanent agency, and raised maximum insurance to

banks." Securities operations diversified bank risks, hence lowering risk. See also Rajan (1992), who points out that banks realize informational economies by combining lending and underwriting securities. If there is conflict of interest, this gain could be a loss to customers.

35. In 1932, with the help of Speaker John Nance Garner, later vice president, a deposit insurance bill passed the House. Glass was opposed, so the bill died (Kennedy 1973, 214). See Calomiris and White 1994 for a thorough discussion of Steagall's role.

36. The Banking Act of 1933 made the fund permanent beginning July 1934, but later amendments postponed the start of permanent operations. The fund had independent directors, one of whom was the comptroller of the currency. Hence, until 1936 the comptroller served as a member of the Federal Reserve Board and as a director of the FDIC.

\$5,000 (White 1997, 4–5). By 1980 the government insured deposits up to \$100,000, the equivalent of \$16,000 at 1934 prices.

The Federal Reserve's failure to serve as lender of last resort, principally from 1931 to 1933, is the main reason for deposit insurance. Deposit insurance, however, is not a substitute for the lender of last resort; the insurance fund cannot protect against systemic or widespread failure. For that, the financial system required improvements in monetary policy that the 1930s legislation did not address. Without the many bank failures, the many depositors who lost money in failed banks, and others who feared such losses in the future, political pressure for deposit insurance most likely would have remained weak. Glass and Roosevelt would most likely have prevailed.

There is no record of the Federal Reserve's opinion about deposit insurance, but there is some evidence in the minutes of the executive committee of the New York directors for April 10, which Secretary Woodin attended. The dominant view was opposition, but some directors accepted insurance for national banks. Harrison opposed the plan and criticized the proposal to use the Federal Reserve banks' surplus to finance the insurance fund.³⁷

Roosevelt had opposed guarantees and insurance in discussions about the bank holiday, and he did not quickly change his position. Glass opposed insurance, as he had earlier. The Senate bill provided only for a sinking fund limited to member banks. Change began after Senator Arthur Vandenberg (a Michigan Republican) offered a substitute amendment authorizing \$2,500 of insurance. Most midwestern senators voted for the bill, urged on by thousands of telegrams and letters from citizens with deposits in failed banks.³⁸ At its start, on January 1, 1934, 13,201 institutions joined the new system. Only 1 percent of state banks that applied did not qualify at the opening (Patrick 1993, 179–81).

Deposit insurance seemed a great success until the banking failures of the 1980s once again highlighted the problems of moral hazard and ad-

37. Earlier, there is a Board staff memo that recognizes the need for a new policy because of failure to stop bank runs. The memo discusses a guarantee of deposits and a policy of marking deposits to the market value of bank assets. The memo also considers the use of clearinghouse certificates in a crisis (memo Riefler to Goldenweiser, Board of Governors File, box 2222, February 23, 1933). The memo, written during the crisis, is concerned mainly with current problems.

38. There are several histories of deposit insurance and the legislative battle. A main conclusion is that the proponents were mainly small rural banks and their representatives, who expected to gain; the opponents were led by large city banks who expected to subsidize the small banks. After the bank holiday, the public overwhelmingly supported insurance, partly in the hope of repayment of losses, partly because many blamed Wall Street and big bankers for the depression. With Vandenberg's intervention, the issue was likely to be a major issue in the 1934 campaign. Glass, who had opposed deposit insurance for years, urged Roosevelt to accept it. See Calomiris and White 1994 and Golembe 1960.

verse selection that were recognized at the time of passage.³⁹ Almost all banks have chosen to be insured, and insurance of savings and loans, credit unions, and stock market accounts followed. Most mutual savings banks stayed out of the federal system.

White (1997, 35) concludes that the FDIC did not reduce costs of bank failures from 1945 to 1994 and may have raised them. He places the cost of resolving bank failures in these years at \$39 billion, with a present value of \$7.8 billion. His estimates exclude the much larger costs of savings and loan failures in the 1980s and do not include the benefit of avoiding bank runs. Bank runs almost disappeared under the FDIC, in part because the FDIC absorbed part of the losses and encouraged mergers of failing banks into stronger banks. Instead of a run to currency, depositors in banks and savings and loans, with very few exceptions, held their insured deposits or moved them to another insured bank.

Although deposit insurance appears less successful now than before the 1980s, it retains broad public support. The failures of the 1980s convinced Congress that moral hazard was a real problem. Legislation strengthened capital requirements and required banks with less than minimum capital to close. After 1980, national and regional banking, proposed in the 1930s as an alternative to insurance, increased diversification of portfolios and the banks' average size.

Contemporary beliefs that speculation had caused financial collapse, and Senator Glass's powerful role in the Banking Act of 1933, greatly enhanced the Federal Reserve's ability to respond to speculation. The new legislation included the power to fix the percentage of a bank's capital and surplus invested in loans secured by stocks or bonds, restrict discount privileges by banks ordered to stop lending to customers using stock as collateral, warn banks not to lend to stock exchanges or loans from the Federal Reserve would come due immediately, and suspend a bank using its facilities for purposes not related to sound credit ("Power of the Federal Reserve System to Restrain Speculation in Stocks and Bonds," Board of Governors File, box 1297, July 6, 1933). Most of these powers were rarely, if ever, used. Their presence after 1933 shows that Congress accepted Glass's explanation of the financial collapse.⁴⁰

39. Friedman and Schwartz (1963, 442) call deposit insurance far more important than reform of the Federal Reserve, but they recognize that some of the reduction in bank failures resulted from FDIC actions to merge failing banks rather than permit failures (440).

40. Glass's view was widely held. One of the Board's senior economists, Woodlief Thomas, claimed: "More effective control of stock-market credit is necessary for business stability. Adequate control may be exercised over the supply of funds only by making stock-market activity the principal guide of credit policy" (Thomas 1935, 21).

Operations of the Reconstruction Finance Corporation

Nonmember banks that failed or required capital infusion to survive became the responsibility of the RFC. After the Emergency Banking Act authorized banks to issue preferred stock, the RFC assisted banks by buying their preferred stock or debentures. During its twenty-five years of operation, the RFC made 15,400 loans, totaling more than \$2 billion, to more than 7,300 banks and trust companies. It ended operations in 1957 (Beckhart 1972, 273).

Beginning in June 1934, Congress authorized the RFC to lend to business enterprises. The same statute added section 13b to the Federal Reserve Act authorizing commercial and industrial loans in cooperation with financial institutions or on its own. The volume of such loans outstanding and authorized was never large. It varied between \$35 million and \$60 million. The number of applications ranged from eight thousand to ten thousand a year (Board of Governors of the Federal Reserve System (1943, 345). Discussion of section 13b loans absorbed a considerable amount of time at directors' meetings.

OPEN MARKET POLICY IN 1933-34

The New York reserve bank closed with its gold reserve ratio about 25 percent, far below requirements. Although the Board had been unwilling to require Boston and Chicago to participate in open market operations, it now instructed five reserve banks to rediscount \$245 million for New York at 3.5 percent. This was the first use of interdistrict lending since 1922 and the last use to date.⁴¹ New York repaid its borrowings in mid-April.

The monetary base and the money stock continued to fall in March and April as banks repaid discounts made during the emergency. The Federal Reserve was busy reopening banks and preparing legislative proposals, so the Open Market Policy Conference did not meet. Early in April, New York lowered its discount rate by 0.5 percent to 3 percent. Late in May, it reduced the rate again to 2.5 percent, where it remained until October. Other banks followed, but Richmond, Minneapolis, and Dallas kept their rates at 3.5 percent until February 1934.

The Open Market Policy Conference met on April 21 and 22 and voted to purchase up to \$1 billion in securities over time "to meet Treasury requirements." Harrison told his directors that the Governors Conference

41. Chicago supplied \$150 million, Cleveland \$50 million, Boston \$20 million, St. Louis \$15 million, and Richmond \$10 million. Boston also bought \$15 million from Philadelphia. New York paid a fine of \$10,200 for violating the reserve requirement.

was not in favor of purchases, but referring to the Thomas bill, he was afraid of “undesirable legislation coming out of Congress” (Harrison Papers, Directors’ Meeting, April 27, 1933). The Board deferred action and made no purchases. This was Meyer’s last meeting. On May 12, with Meyer gone, the Board approved purchases of up to \$1 billion. The amount was 60 percent of the portfolio held at the time.⁴²

Governor Black first met with the executive committee on May 23. Under pressure from the administration, Black urged the members to purchase \$100 million to \$200 million. The OMPC favored \$25 million. Before Black agreed to the lower amount, he obtained agreement that the committee would make heavy purchases if business activity and prices fell off. The committee agreed, subject to approval by a majority of the OMPC. Fears of a renewed decline did not materialize, but the purchases continued. In the next two months, the Federal Reserve purchased \$200 million, at the rate of \$20 million to \$25 million per week.⁴³

Most of the purchases were Treasury notes with up to five years maturity. Between May and December, note holdings increased by \$700 million. The System sold shorter-term securities, mainly certificates (under one year), lengthening the portfolio’s maturity. The increased risk alarmed some of the governors, who pointed out that a rise in interest rates could wipe out the reserve banks’ capital.⁴⁴

With the passage of the Banking Act of 1933, the Open Market Policy Conference became the Federal Open Market Committee (FOMC). At its first meeting on July 20, the FOMC chose an executive committee consisting of the same five members as before to carry out its instructions—Boston, New York, Philadelphia, Cleveland, and Chicago. Harrison remained as chairman. The committee voted unanimously to continue purchases and renewed the authority to purchase up to \$1 billion.⁴⁵

42. John H. Williams joined the New York bank as assistant Federal Reserve agent on May 1. Williams taught economics at Harvard. He had considerable influence on policy throughout a long career at the Federal Reserve and was an ardent proponent of international coordination under the gold standard (Tavlas 1997, 168–70).

43. Dallas did not participate in some of these purchases.

44. Letters and telegrams from Governor Seay (Richmond) to Burgess and Black make Richmond’s reluctance to participate clear. He participated, nevertheless, because of the “inflation bill” (Thomas amendment) then in Congress. Seay wrote that he preferred to purchase securities directly from the Treasury because it would be “credit inflation pure and simple” (Seay to Burgess, Open Market, Board of Governors File, box 1437, May 8, 1933).

45. The meeting was held on the day the National Industrial Recovery Administration announced policies to raise prices and wages. The stock market broke under this news. The decision to purchase may have reflected these developments or renewed bank failures and rising demand for discounts (Minutes, New York Directors, July 20, 1933, 113–15).

As excess reserves rose, some members of the FOMC became more reluctant to continue purchases. The System continued purchases, however, to avoid displeasing the administration and from fear of new legislation. On June 8, W. Randolph Burgess used Riefler-Burgess reasoning at the New York directors' meeting to argue that there was not much reason, other than the psychological reaction, to continue purchases. On July 6 Harrison told his directors that Governor Black believed purchases should stop but that the president had said publicly that he wanted higher commodity prices, so this was a poor time to stop purchases. Oliver M. W. Sprague talked about the need to assist the Treasury in debt finance (Board Minutes, July 21, 1933, 1). On August 10 Harrison reported he had told Secretary Woodin that, with excess reserves at \$500 million, the FOMC saw no reason for additional purchases. The Treasury responded that the president wanted purchases to continue.

Oliver Sprague was again present at the August 10 meeting. Sprague was working at the Treasury and served as an intermediary with the Federal Reserve. Asked to describe the administration's monetary policy, Sprague replied that he could not because no particular policy had been adopted. Various policies had adherents in the administration. He warned that some wanted more radical approaches, so they hoped Federal Reserve policies would fail. Harrison complained again that it was difficult to know what to do, since he didn't know what the administration's policy was. One of his directors disagreed: the Federal Reserve, he said, should pursue its own correct policy.

The following week, Harrison reported that the president wanted purchases of up to \$50 million. After an initial recovery, the economy was slowing down and commodity prices had fallen. The directors were reluctant to approve large purchases. They authorized only \$25 million.⁴⁶ A week later, Governor Black and Secretary Woodin came to New York. Black told the executive committee of the New York directors that purchases of \$10 million or even \$25 million a week would achieve little. He wanted purchases of \$50 million a week. This was a relatively large rate of purchase, and Black would not say how long he thought it should continue. Much of the discussion at the meeting was not about the economy but about the risk of legislation to force inflation. The directors approved purchases of \$50 million for that week with only one director voting against. Woodin

46. Roosevelt appointed a special committee to consider monetary policy. He asked the committee to recommend issuing greenbacks under the Thomas amendment. The committee did not want to go along, so the president withdrew the request and asked, instead, to have open market purchases of \$50 million.

urged that the vote be unanimous so he could tell that to the president; the recalcitrant director reluctantly changed his vote.

The president knew how to keep the Federal Reserve under his control. He agreed not to issue greenbacks during September, but he did not offer a longer-term commitment. The New York directors' meeting of August 25 was reluctant to approve the \$50 million rate of purchase agreed to by its executive committee. Owen Young of General Electric voiced the sentiment of many. He was opposed to directives from the government. If there was to be a policy of inflation, it should be a consistent policy, not one that changed every week.

Late in August, Governor John U. Calkins (San Francisco) wrote to Black suggesting larger purchases, up to \$100 million a week. But he added that he did not expect them to be effective: "It is my view that the Federal Reserve System should do its full part [to encourage expansion], even at the risk of subsequently having to realize that its efforts were ineffective." Black replied that he agreed "with the expressions in your letter" (Calkins to Black and Black to Calkins, Board of Governors File, box 1449, August 23 and 31, 1933).

The FOMC continued to authorize purchases in September and October. Member bank borrowing declined to about \$125 million, and excess reserves rose to between \$700 million and \$800 million. By Federal Reserve standards, policy was easy and there was no reason for further purchases. Harrison's memo for the September FOMC meeting referred to the volume of excess reserves as evidence of an easy money market position. The governors agreed that further purchases were unnecessary from a banking and credit perspective, but they feared an issue of greenbacks and for that reason wanted the Board to indicate that it favored further purchases. Governor Black gave that assurance, and the executive committee of the FOMC voted to maintain the \$36 million per week rate of purchase for another week.⁴⁷

Opposition to Purchases

Between the July and October meetings, the Federal Reserve purchased almost \$300 million, bringing total purchases to \$500 million of the \$1 bil-

47. In a memo to his files, Harrison reports Black's statement more fully. "He said that there is persistent and insistent pressure in Washington for *immediate* inflation, not for inflation in two or three weeks, but for inflation at once" (Harrison Papers, file 2210.3, September 16, 1933, 2; emphasis in the original). Black named Senator Bryan P. (Pat) Harrison, the majority leader, and Senators Elmer Thomas, Ellison D. Smith, and Duncan Fletcher as proponents of inflation. He had talked to Senator Harrison, who wanted more done than the Federal Reserve was doing. Black also wrote to Jesse Jones at the RFC and urged him to purchase \$600 million of preferred stock to reopen closed nonmember and member banks by January 1.

lion authorized in April. Prime commercial rates fell to 1.25 percent and acceptance rates to 0.25 percent, far below the discount rates at Federal Reserve banks.

Opposition to the purchase program increased. Disturbed by the decline in rates and loss of revenues and by the volume of government securities, the executive committee of the Chicago bank unanimously approved a resolution on September 29 calling for reduction in its share of open market purchases. Chicago continued to adhere to the real bills doctrine, citing not only the \$700 million of excess reserves but the need to be in position to rediscount paper for commercial, agricultural, and industrial borrowers. Further, the directors saw “no need for further purchases” (Letter C. R. McKay to Eugene Black, Board of Governors File, box 1449, October 4, 1933). Since Chicago took the largest share of new purchases, its decision threatened the purchase program.⁴⁸

The background memo for the October 10 meeting showed that “basic commodity prices” reached a peak in July, then fell back. By early October, the index was above April but substantially below mid-July. Governors Roy A. Young (Boston) and George W. Norris (Philadelphia) argued that market rates were so low that they deterred lending. Banks incurred costs with very little return. All the governors agreed that the credit and banking position gave no reason for purchases. The committee voted to continue purchases, however, to avoid political confrontation.

The minutes of the meeting give the governors’ view of how open market operations work and why they had not worked on this occasion. Open market operations force funds into the short-term market and, as short-term rates decline, into the longer-term markets. The focus is on interest rates, not on the broader interplay of relative prices of assets and output. Some governors reported that banks were reluctant to lend because of their recent experience and concerns about some (inflationary) provisions of the Securities Act and the Banking Act. Borrowers were reluctant to take on debt. The governors believed that the inflationary program deterred lending and investment. They favored an administration program to strengthen confidence. The latter is probably a reference to the budget deficit and the uncertainty surrounding the administration’s policy of buying gold to raise the price level and devalue the dollar (FOMC Minutes, Board of Governors File, box 1449, October 10, 1933).

48. In April the FOMC changed allocations of government securities to give more securities to banks with larger gold reserves. The change shifted the allotment by reducing New York, Kansas City, and Dallas. Chicago went from 12 percent to 36 percent. New York’s percentage was 15.25 percent (McKay to Black, Board of Governors File, box 1449, September 12, 1933). Hitherto New York had always taken the largest share.

Harrison described the committee's position when presenting the recommendation to the Board. The committee found "little or no reason for further purchases." A reduction in purchases should be made if it could be carried out without harming the recovery program (Board Minutes, October 12, 1933, 3-4).

Chicago's directors voted to participate in 12 percent of the purchases, based on the allocation formula in effect before May 1933, instead of 36 percent under the new formula. This was a modest concession to the Board, since the directors had voted to participate only on the written request of the Federal Reserve Board (Letter McKay to Black, Board of Governors File, box 1449, October 16, 1933). The main reason for the concession was that the Banking Act of 1933 required a month's notice by reserve banks withdrawing from the purchase program (Letter Young to the Board, Board of Governors File, box 1449, November 6, 1933).

Chicago was not the only recalcitrant bank. After the FOMC voted to reduce the rate of purchase to \$18 million on October 25, Boston voted on November 1 not to participate in the purchase. It cited the Chicago decision, the large amount (\$581 million) remaining from the \$1 billion commitment, and uncertainty about what its share would be. The formal rules required prior notification. The bank was willing to consider purchases weekly (*ibid.*, 2).

In October and November the System purchased \$55 million, then purchases stopped. The committee did not meet again until March 1934, when it voted to reduce the authorization to purchase from \$1 billion to \$100 million. Between November 1933 and April 1937, the open market portfolio remained at about \$2.43 billion. Changes represent expiring maturities not immediately replaced.

The System's discussion of interest rates and credit conditions ignored the sustained upward movement of stock prices. During the spring and early summer of 1933, the Standard and Poor's index of stock prices nearly doubled, rising from 45 in March to 85 in July. Thereafter the index declined slightly to the end of the year. By July 1933 the index of industrial production reached the highest level in three years, more than 50 percent above its trough; the Board's index, available at the time, shows a larger increase, 70 percent above its trough, back to the level last experienced in May 1930. The index declined in the fall. By December much of the increase had reversed.

Just as in 1932, open market purchases stopped as the economy began to expand. Although the circumstances differed, the reasoning was much the same. Harrison explained the prevailing view in a memo to his files on November 20. Acting Treasury Secretary Henry Morgenthau wanted the

reserve banks to purchase \$25 million a week in advance of the December Treasury financing.⁴⁹ All the governors opposed. Harrison told Morgenthau that “it would not only do no good, but it might do some harm; it would be only another factor of uncertainty, tending toward inflation” (Harrison Papers, November 20, 1933). According to Harrison, Morgenthau agreed.⁵⁰

Federal Reserve officials appear to have learned nothing from the experience of 1929–33. They continued to operate in established ways and to interpret events as they had in the past. The principal reason for large-scale purchases was fear—fear of legislation or of action by the new administration. Balancing this fear was fear of inflation, a concern more closely related to the real bills doctrine than to the fact that the price level was 25 percent below its 1929 level.

In 1920–21, gold movements and a falling price level raised real balances and ended the recession despite high real interest rates. The pattern was very different in 1933. The economy recovered strongly beginning in the second quarter, as banks reopened and the financial crisis ended. The deflator rose at an 11 percent average annual rate for the last three quarters of the year, mainly the effect of NRA codes approved in July. Growth of the monetary base remained negative throughout the spring and early summer, and real balances fell. The *ex post* real interest rate was negative. In the fourth quarter output fell, and the risk premium in interest rates rose by 0.75 percent from the low reached in May.⁵¹

Unlike Hoover, Roosevelt did not intend to be the victim of Federal Reserve inaction. He began buying gold and silver to raise their prices and the general price level. Although Federal Reserve credit declined slightly in 1934 as discounts and acceptances fell to insignificant levels, gold and silver purchases increased the monetary base. The base and the money stock resumed their increase, and recovery also resumed.

49. Woodin was ill and resigned. Morgenthau became secretary on January 1, 1934.

50. Harrison took a different attitude toward commercial bank bond purchases. In January he called on Winthrop Aldrich to discuss sales of governments by Chase National. He told Aldrich Washington believed that “New York banks were selling . . . as part of a conspiracy to depress government bonds and thus to defeat the government’s program.” Aldrich agreed to cooperate (Harrison Papers, file 2500.1, January 9, 1934).

51. The risk premium is the difference between Baa and Aaa bonds. Output data are from Balke and Gordon 1986. Monthly data for industrial production, wholesale prices, and common stocks show similar patterns. Industrial production rose 57 percent between March and July, then faltered. By November, half the initial rise was gone. Wholesale prices rose 18 percent between March and August, then remained unchanged for the rest of the year. The stock market peaked in July, 80 percent above the March average. By November the average was 16 percent below its peak. The NRA was the proximate cause of the stock market decline from its peak. Announcement of the first codes raising costs of production in mid-July, precipitated the decline (see below).

GOLD AND SILVER POLICY, 1933-34

From the banking holiday to April 11, the gold price remained within 15 cents (0.7 percent) of its par value, \$20.67 an ounce. There is no sign of anticipated devaluation in either the gold price or the forward market. The Treasury granted export licenses without hindrance. Gold returned to the Federal Reserve banks.⁵² These and other available data suggest that the markets regarded the suspension of convertibility as a temporary move. The relatively large United States gold holdings at the time gave no reason for permanent devaluation under "rules of the game."

Sentiment began to change in April. Discussions leading to the Thomas amendment and pressure for inflation or reflation increased requests for licenses to export gold. In mid-April, gold outflows increased. The liberal gold export policy ended abruptly on April 18, when Secretary Woodin refused to issue new export licenses. The following day, the president prohibited gold exports except for gold previously earmarked, and hence owned, by foreign governments.⁵³ The United States was no longer on the gold standard.⁵⁴

Business and the public supported the decision. The stock market response was euphoric. The Dow Jones index of industrial stock prices rose 14 percent in the next two days and 55 percent in the next three months (Sumner 1995, 12). A daily index of the wholesale prices of seventeen commodities rose 76 percent, and the gold price rose to \$30.18 in the next three months (Pearson, Myers, and Gans 1957, 5613).⁵⁵ J. P. Morgan praised the decision as an end to the deflationary policy (quoted in Crabbe 1989, 436).

52. Between March 4 and March 22, \$250 million in gold coin and \$310 million in gold certificates returned to Federal Reserve banks (Draft Statement of Executive Order Forbidding the Hoarding of Gold Coin, Board of Governors File, box 2160, April 2, 1933). The statement was issued on April 5.

53. The shift in policy appears to have been a sudden change, supporting the view that the Thomas amendment played a major role. Two weeks earlier, Harrison and the New York directors had discussed possible resumption of gold payments and a fixed parity. Harrison acknowledged, however, that he did not know the administration's plans (Minutes, New York Directors, April 3, 1933, 253-54).

54. April 19 is also the day Roosevelt agreed to accept the discretionary powers to print greenbacks granted by the Thomas amendment and talked about depreciating the dollar to raise the domestic price level.

55. The stock market boom ended on July 19. The Dow Jones average fell 4.8 percent that day and an additional 15.5 percent in the next two days, eliminating half the gain since April 18. On July 19 the NIRA announced an increase in wages and reductions in hours. Sumner (1995, 18-19) computes the increase in nominal and real wages as 20 percent in the two months from July to September 1933, using the wholesale price index as the deflator for average hourly earnings. Weinstein (1981, 267) estimates that the NIRA codes raised nominal wages 26 percent a year for the two years of NRA existence and raised prices by 14 percent a year.

Proponents of devaluation within the administration were delighted, as was the Committee for the Nation, a group of prominent citizens who favored reflation as a cure for depression (Pearson, Myers, and Gans 1957, 5610).⁵⁶

Suspension of the gold standard was a decision to favor domestic over international considerations in the recovery. Most observers at the time presumed this was a temporary move, not a decision to float the dollar permanently. Roosevelt had not yet made a firm decision about either gold or the dollar.

Congress took a longer view. On June 5 the president signed legislation abrogating the gold clause in all contracts. The action redistributed wealth from creditors to debtors, including the government as a principal debtor. The clause applied to about \$100 billion of public and private debt and to \$1.6 billion of currency—gold certificates. Holders of mortgages, bonds, notes, and currency calling for payment in gold at 23.22 grains per dollar could not insist that their claims be enforced by the courts. Creditors challenged the action, but the Supreme Court upheld the government's action five to four in February 1935 (Pearson, Myers, and Gans 1957, 5598).⁵⁷

The London Monetary and Economic Conference

Events soon forced President Roosevelt to choose between stabilization and devaluation. An international conference at Lausanne, Switzerland, in July 1932 agreed to call another conference to consider international capital movements, currency stabilization, tariffs, and trade policy.⁵⁸ London was chosen as the site and June 12 as the date. As the conference date approached, Roosevelt became active. Between April 22 and June 3, he met with ten prime ministers or presidents and cabled fifty-four others. His statements supported the aims of the London conference and an international solution, as pledged in the 1932 party platform (Pearson, Myers, and Gans 1957, 5617). In a fireside chat on May 7, he told the public that the conference “must succeed. The future of the world demands it” (quoted in Beckhart 1972, 306).

56. The group of three hundred included Henry Morgenthau Sr., father of one of Roosevelt's closest advisers, soon to become secretary of the treasury. Other members included the heads of Sears, Roebuck, Remington Rand, and several banks. Earlier, on April 5, an executive order prohibited domestic gold holding of more than \$100 (except for industry and the arts).

57. Gold clauses became common after the Civil War, especially after de facto stabilization in 1879 at the gold price of \$20.67 per ounce. The clause specified payment “in gold coins of present standard weight and fineness,” that is, 23.22 grains of gold to the dollar (Pearson, Myers, and Gans 1957, 5598).

58. The Lausanne conference ended German reparations payments permanently.

Roosevelt's advisers were divided. George Warren was the leading advocate of devaluation within the administration. Outside, Irving Fisher favored devaluation based on his proposal for a compensated dollar and his belief that the rise in the real value of debt was a main obstacle to recovery. Both wanted the price level restored to the 1926 level.⁵⁹ Morgenthau supported Warren's views and used his charts comparing weekly changes in agricultural prices to changes in the world price of gold to convince Roosevelt. The president "was impressed" (Blum 1959, 64).

Conservatives within the administration opposed devaluation. Dean Acheson, later secretary of state in the Truman administration, was undersecretary of the treasury under Woodin. Woodin appointed Oliver Sprague of Harvard as his adviser on international economic policy. Sprague held traditional views; he favored deflation to reduce the price level as required under gold standard rules. Government could help by reducing "sticky" prices—wages, freight rates, and telephone charges.⁶⁰

Secretary of State Cordell Hull headed the delegation to the London Monetary and Economic Conference. Hull's concern was multilateral tariff reduction, and he does not seem to have taken much interest in monetary or financial issues. Drafting the United States position on these issues was left to Sprague and James Warburg, who favored a return to a gold standard after a 15 to 25 percent devaluation of the dollar. This plan was unacceptable to the British and the French (Kindleberger 1986, 205–6).⁶¹

Harrison was the principal Federal Reserve official involved in the discussions. In May he talked to Montagu Norman about a French proposal

59. Warren was a professor of agricultural economics at Cornell, where Henry Morgenthau Jr. had been a student. Morgenthau introduced Warren to Roosevelt as an agricultural adviser in 1930. Warren kept a diary of his meetings with Roosevelt and others in 1933–34. The diary is the basis for large parts of the paper by Pearson, Myers, and Gans (1957) on which I draw heavily. Warren served as a consultant and did not hold any position in the administration. Fisher wrote to Roosevelt, sometimes by request, but he did not participate in the principal policy discussions within the administration, as Warren did, and he was not an adviser.

60. Sprague also favored increased government spending, especially on construction (Pearson, Myers, and Gans 1957, 5649). In the 1920s he testified in Congress against bills to make price stability a goal of the Federal Reserve. He was always skeptical of linkage between money and prices and opposed Fisher's compensated dollar. Other prominent opponents of devaluation included James Warburg, son of Paul Warburg, a member of the original Federal Reserve Board, Herbert Feis, economic adviser to the secretary of state, and the budget director, Lewis Douglas.

61. Kindleberger (1986) summarizes many of the proposals for tariffs, public works, and currency stabilization. The discussion shows disagreements on major issues that were unlikely to be resolved by a multinational conference. War debts were ruled out of the discussion, but they were important to Congress and to the United States public, so the United States delegation was unwilling to consider any of the proposals calling for additional international lending.

to stabilize the dollar, franc, and pound. Norman suggested that the franc and the dollar could remain at their current values but said the pound was likely to depreciate. He proposed that France and the United States accumulate sterling balances in London, to be paid in gold when the stabilization agreement ended. He doubted that the plan would work or would be helpful to Britain, but he promised to send a member of his staff to Paris to discuss the proposal (Harrison Papers, Memo, file 3115.4, May 18, 1933).

Four days later, Norman told Harrison that the Bank of England and the Bank of France had agreed on a joint reply to the United States. They favored a return to gold. In an indirect reference to uncertainty about United States monetary policy, he urged that the three governments “should make each other aware as to what policy they intended to follow in monetary matters” before agreement could be reached (Harrison Papers, Memo, Crane to Files, file 3115.4, May 22, 1933, 1). Norman insisted there was no point discussing Warburg’s proposal or any other technical details until the three countries agreed on a policy.⁶²

The problem for the United States delegation was that Roosevelt had not yet decided what to do. Devaluation and rising prices were politically popular. By June 2 the Board’s weekly wholesale price index was five points higher (8.5 percent) than when the administration took office. The weekly price memo referred to “substantial increases” in several prices and no large declines.⁶³ Wallace, Tugwell, and the planners claimed credit for the price increases, as did the proponents of devaluation. Under the Agricultural Adjustment Act, approved on May 12, the Agriculture Department paid farmers to reduce supply by plowing under cotton and wheat and slaughtering pigs. Slaughtering little pigs proved politically unpopular, strengthening the proponents of devaluation as a means of raising prices (Pearson, Myers, and Gans 1957, 5623).

Roosevelt is often accused of scuttling the London conference and ending monetary cooperation working toward currency stabilization (Kindleberger 1986, 220–21; Beckhart 1972, 306). The truth to this charge is that Roosevelt’s message to the conference, on July 3, rejected an agreement to return to an international gold standard. The agreement specified neither the time nor the parity at which countries would rejoin because the conference could not agree on exchange rates. Chart 6.1 suggests the principal

62. Warburg’s proposal probably refers to the proposal drafted by James Warburg and Oliver Sprague, calling for a return to a gold standard with different rules. Gold would not circulate but would be held only by central banks and governments. Gold reserve ratios supporting currency would be adjustable, not fixed. Silver would supplement gold as a reserve metal.

63. Cotton and wheat prices were back to levels not seen since 1930 or 1931 (Kindleberger 1986, table 16).

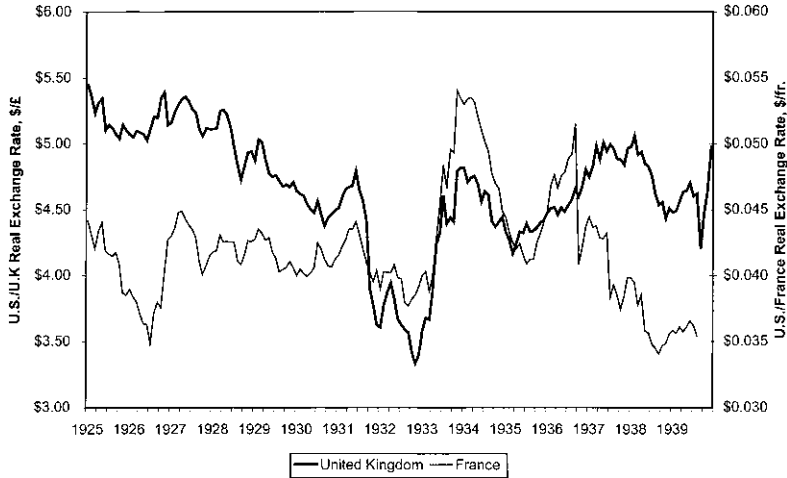


Chart 6.1 Real exchange rates, dollar-pound and dollar-franc.

difficulty—the depreciation of the real dollar exchange rates for the pound and the French franc in 1933. France and Britain would not accept the 1933 rate; Roosevelt would not restore the earlier nominal rate and accept the implied deflation that would follow.⁶⁴

In April, after floating the dollar, Roosevelt had offered to stabilize at a 15 percent devaluation against gold provided Britain and France would agree to a stabilization fund to keep exchange rates at the proposed levels. They refused. The British and French had been favorable to stabilization in the winter of 1933, before devaluation of the dollar brought the franc to a peak and the pound back to its traditional range, \$4.86 per pound. By the time of the conference, the principal concern for Britain and France was that the dollar would continue to depreciate against the pound and the franc.

Harrison's notes record the jockeying for relative advantage of the British, French, and United States delegations to a conference called from June 9 to June 16 at the Bank of England to resolve trilateral issues outside the main London conference. James Warburg, representing the State Department, Oliver Sprague, representing the Treasury, and Harrison were members of the United States delegation. All three favored a return to the gold standard, and two of them resigned later in the year when Roosevelt

64. Real exchange rates are obtained using relative wholesale price indexes to adjust for differences in inflation. Eichengreen (1992, 318) agrees that Roosevelt was not wholly to blame for the failure. He blames differences in analysis of the problem and domestic political considerations. The latter have a role, but I believe there was a common view about the gold standard and fixed exchange rates. The hard issues were where new exchange rates would be set and whether prosperity could best be restored by reflation or further deflation.

forced further dollar devaluation. This agreement aside, the United States delegation did not have a common viewpoint. Harrison favored “de facto stabilization as soon as possible” but does not mention an exchange rate (Harrison Papers, Diary of Trip to London, file 3010.2, June 1933, 1). He reports Sprague as not favoring any definite arrangement until exchange rates stabilized, perhaps in three months, but willing to consider an interim agreement. Warburg worried about the domestic political consequences of stabilization, almost certainly a reference to congressional and agricultural interests and perhaps to Warren and Morgenthau also. By June 10 Warburg had changed his mind, at least to the extent of tactically favoring stabilization. He cabled the president that he would support gold exports to make stabilization effective, but he did not expect the British to agree. The onus for failure would then be on them (*ibid.*, 2).

Norman refused to negotiate any agreements until Treasury and government officials agreed on the policies of the respective governments.⁶⁵ The governments agreed on the desirability of fixed exchange rates, but they could not agree on a policy. The French wanted a permanent agreement, based on gold. They considered an interim agreement useless or worse. Speculators would bet on the next step. Sprague said that “a permanent stabilization commitment was now entirely out of the question so far as the United States is concerned” (*ibid.*, 3). The question to be considered was whether there should be a temporary agreement. He offered to forgo use of the Thomas amendment during the period of the agreement if the United States recovery continued. He favored stabilization but argued that it was impossible as long as unstable economic conditions persisted. Norman agreed with Sprague, but he viewed the pound as the weak currency. The United States and France had large stocks of gold; Britain did not: “He foresaw great difficulties and many quarrels” in a tripartite agreement (*ibid.*, 7).

At the central bankers’ meeting, Norman suggested an interim program under which the pound and dollar would be fixed to gold with settlement in gold. The commitment would be limited to the specific amount of gold committed. If a country paid out its entire commitment, a new agreement could be reached at adjusted gold parities. This process could continue until the countries reached stable parities.⁶⁶ Émile Moret preferred

65. The French Treasury delegation included Émile Moret, governor of the Bank of France, and Jacques Rueff, a strong proponent of the gold standard. In the 1960s, Rueff, as an adviser to President Charles de Gaulle, took positions similar to those he had taken in the 1930s. At London, government officials met separately to work out a government position, then met with the central bankers.

66. The working assumption was that they would. Chart 6.1 suggests that starting in 1933 might have required large changes in the relative price levels of the three countries.

this plan to Harrison's proposal to stabilize exchange rates, because the franc remained convertible into gold and the Bank of France was not allowed to buy foreign exchange. Harrison was skeptical because Washington favored stabilizing exchange rates, not the gold price. He considered daily or weekly announcements of gold movements a source of instability, so he wanted to avoid them. Exchange rate stabilization with gold settlement would show only net movements over a period. Further, he explained, the United States Treasury was unwilling to promise not to devalue after the London conference ended.

Moret rejected Harrison's proposal. Central banks could stabilize exchange rates without an agreement. What was needed was a statement about monetary policy, current and future. Announcing and maintaining a gold price would provide the information.

On June 15 the central bankers' meeting reached a modest, partial agreement to fix the dollar-pound rate within a 3 percent (12 cent) band around \$4 per pound for a two-week period. The British government reserved the right to change the rate after two weeks, and the United States reserved the right to reject any British devaluation. Otherwise the contract would remain in force. The French would continue pegging to gold at a rate that equaled \$0.04662 per franc. The United States promised not to invoke the Thomas amendment.

Financial markets greeted the announcements as a halt to reflation and recovery. Stock and commodity prices began to fall on June 12 as rumors of an agreement spread. Between June 12 and June 17 commodity and stock prices fell 3.5 and 8 percent, and the dollar appreciated against gold. Burgess told Harrison that even temporary stabilization was unacceptable. The delegation to the main London conference announced that "measures of temporary stabilization now would be untimely" (State Department files, quoted in Eichengreen 1992, 333). Roosevelt went on a sailing trip. The dollar fell, and commodity and stock prices resumed their rise.

That seemed to put an end to the main business of the London conference, but the conference continued. Roosevelt seems not yet to have made a final decision. Instead he sent one of his principal advisers, Raymond Moley, to London with instructions calling for a return to "stability in the international monetary field . . . as quickly as practicable," with gold "re-established as the international measure of exchange values" (Moley 1939, app. F). Gold would not circulate but would be held by central banks or governments. Currencies would be subject to a uniform minimum gold reserve ratio. Silver could substitute partially for gold as a central bank reserve.

Based on these instructions, Moley negotiated a new agreement with

Britain and France to limit speculation and restore the gold standard, but the agreement did not specify either the date or the gold price at which countries would return to gold. This was left to the future.

The June experience helped to convince Roosevelt about the difficulty of reaching a meaningful agreement. The market response to the June 15 agreement seemed to confirm Warren's view that stabilization would bring back deflation. Morgenthau, who joined the president on his vacation, reinforced the latter view by showing Roosevelt Warren's charts of weekly changes in gold and commodity prices.⁶⁷

On July 3 Roosevelt reversed direction, threw out the instructions given to Moley, and rejected Moley's agreement. In a strongly worded message to the conference favoring domestic over international action, the president said:

The world will not long be lulled by a specious fallacy of achieving a temporary and probably an artificial stability in foreign exchange on the part of a few countries only. The sound internal economic system of a nation is a greater factor in its well-being than the price of its currency in terms of the currencies of other nations. . . . Our broad purpose is permanent stabilization of every nation's currency. Gold or gold and silver can well continue to be a metallic reserve behind currencies, but this is not the time to dissipate gold reserves. When the world works out concerted policies in the majority of nations to produce balanced budgets and living within their means, then we can properly discuss a better distribution of the world's gold and silver supply to act as a reserve base of national currencies. (Quoted in Crabbe 1989, 437–38)

Roosevelt had at last made up his mind to emphasize domestic over international considerations as many in Congress wanted. Reflation of the domestic commodity price level became a key element in a policy of domestic recovery.

The world, Roosevelt said, faced catastrophe if the conference limited its concerns to exchange rate stabilization. There was no visible prospect of successful international cooperation to restore prosperity. The British hesitated to enter more than a temporary agreement that gave them a temporary advantage. The Harrison diaries make clear that agreement with the French was possible only on their terms. By law France could not engage in expansive open market operations. By choice they would not do so, because French officials continued to believe that the only proper solution was for each country to force its prices down to the level implied by its gold

67. Morgenthau gives credit to Louis Howe and Eleanor Roosevelt (Blum 1959, 65).

holdings. If this policy forced deflation on other countries, they must restrict money growth and deflate also. Harrison, Black, Miller, and others at the Federal Reserve, and Acheson, Warburg, and Sprague at the Treasury, favored a gold standard policy for the United States. The Federal Reserve made open market purchases at the time, but mainly out of fear of the administration and congressional “inflationists.” A commitment to restore the gold standard would soon end these purchases and restore deflationary policy.

By rejecting the London agreement, Roosevelt freed policy from the gold standard and kept the Federal Reserve in the backseat. He had moved, hesitantly, toward the policy of reflation advocated by Warren, Fisher, and Morgenthau. He did not decide to forever abandon the gold standard, as Fisher and Warren proposed. Long-term commitments had no special attraction and surely were not his concern at the time. The decision was to raise agricultural and commodity prices, to experiment, and to see where the experiment led.

Roosevelt’s decision to choose domestic expansion over stabilization of the gold price was correct in the circumstances. Starting from the low levels of 1933, the income effect of domestic United States expansion would more than offset any effect on foreigners of a United States devaluation. Further, a return to the gold standard would have brought back deflation in those countries that lost gold. Even if the technicians could have adjusted exchange rates appropriately—an unlikely event—fixed exchange rates would again be misaligned as countries moved toward full employment at different rates and with different price changes. The London meetings show that policymakers could not agree on exchange rate changes. They were unlikely to pay the costs of maintaining fixed rates during the long period of adjustment that lay ahead.

Unilateral Action

Markets greeted Roosevelt’s “bombshell,” as it is often called, enthusiastically. They anticipated reflation, rising output, and a vigorous policy of domestic expansion. On July 3 the daily indexes of commodity and stock prices rose 2 and 3 percent respectively, and the dollar depreciated against the pound. The daily price indexes continued to rise until July 18, when the NIRA announced its first codes. The following day, the Dow Jones industrial average fell almost 5 percent. The cumulative decline in the next few days reached 18 percent for stocks and 10 percent for Moody’s daily index of commodity prices. The dollar appreciated.

The president did not want the dollar to go above \$4.86 per pound, the nominal rate prevailing before the 1931 British devaluation. On July 11 he

asked the Federal Reserve to earmark \$20 million in gold for the Bank of England, to be released two weeks later. Harrison explained to Norman that the intervention was intended to slow the dollar's appreciation; it was not an attempt to fix the dollar at the old rate. As chart 6.1 above suggests, the dollar had appreciated strongly in real terms since April; it reached a peak in July, then declined (Board Minutes, July 13, 1933, 1–3; Harrison Papers, file 2210.3, July 14, 1933).⁶⁸

A week after his July 3 message to London, Roosevelt asked Morgenthau to invite Warren, Fisher, and Professor James Rogers of Yale for tea. Warren and Fisher met with Roosevelt at his home in Hyde Park, New York, on August 8. Roosevelt asked whether he should increase the price of gold to \$29 an ounce. Warren urged at least \$32 to \$37. He showed Roosevelt charts showing the recent increases in prices of commodities, stocks, and gold and the level of employment (Pearson, Myers, and Gans 1957, 5626–27). Fisher, of course, agreed with Warren that buying gold would raise the price level (Barber 1996, 47, paraphrasing a letter from Fisher to his wife). Roosevelt was convinced and apparently pleased. He called a news conference the next day to show the press some of Warren's charts.

Warren divided the determinants of commodity prices into national and international factors. World supply and demand for gold determined a world price level. Domestic price levels depended on the world price level and the domestic price of gold. By changing the latter, the domestic price level could be made to rise or fall (Pearson, Myers, and Gans 1957, 5601).

Warren's conclusion was attractive to Roosevelt, since the charts showed that the effects occurred quickly (*ibid.*, 5664). Farm prices had declined 64 percent from February 1929 to February 1933, while prices paid by farmers declined 36 percent. Devaluation, Warren concluded, would reverse this change in the price level and the relative price of farm products (5670–71). This was what Roosevelt wanted to accomplish for political as well as economic benefits.⁶⁹

Roosevelt did not want the higher gold price to reward gold speculators and foreigners. On August 28 he used the emergency powers in the Trading with the Enemy Act and the Emergency Banking Act to extend the embargo on gold exports and call all outstanding gold into the Federal Reserve banks. The resolution abolished the domestic market for gold, hampering efforts to raise the gold price without making foreign purchases, contrary to Roo-

68. The authorization to intervene was for two weeks, ending July 28. By that time the dollar had fallen, so the authorization ended.

69. Warren recorded Viner as favoring a return to the gold standard following an international conference to fix the price of gold. Strangely, Warren did not believe that central banks could fix the price of gold by joint action (Pearson, Myers, and Gans 1957, 5628–29).

sevelt's intention. The next day the president authorized the Treasury to purchase all newly mined gold at a price set by the secretary. Ten days later, the Treasury set the price for newly mined gold at \$29.62 an ounce. This decision formally abandoned the \$20.67 price of gold.⁷⁰ By late October, the gold price had increased only to \$29.80 (Pearson, Myers, and Gans 1957, 5632).

Farm prices continued to fall. As the harvest approached, political pressure from the farm states and memos from Warren pushed Roosevelt to be less concerned about profits to foreigners. By mid-August, he decided to buy gold in the open market above the open market price. The attorney general ruled that he did not have that power, but as usual Roosevelt was determined. He decided to set up a corporation within the Reconstruction Finance Corporation to buy gold, silver, cotton, and other commodities. The attorney general, the Treasury, and RFC lawyers discussed the legality for several weeks before reaching a conclusion (Blum 1959, 65–67). Acheson opposed the decision and soon after resigned.⁷¹

The plan called for the RFC to sell short-term notes and use the proceeds to buy domestic and foreign gold above the going market price. Roosevelt personally drafted the fireside chat he gave on October 22, highlighting the importance of restoring the price level nearer to the level at which debts had been incurred and reversing the relative decline in farm prices. Higher prices would restore employment, Roosevelt said, but the increase was to be a one-time change, achieved over two or three years, not the start of permanent inflation. Once the price level rose, his policy was to maintain the dollar's "purchasing and debt-paying power during the succeeding generation" (Krooss 1969, 4:2780). The option was not a temporary expedient, Roosevelt said. His policy moved toward a managed currency that "would not be influenced by the accidents of international trade, by the internal policies of other nations and by political disturbances in other continents" (4:2780).⁷²

Roosevelt's speech notwithstanding, the immediate objective was more

70. The Treasury had established a committee on monetary policy under James Warburg. The committee included among its members Black and Harrison from the Federal Reserve and Walter Stewart. They opposed the devaluation policy but did not propose an alternative.

71. Pearson, Myers, and Gans (1957, 5633–34) report from Warren's diary that Roosevelt continued to talk about greenbacks and silver as well as gold. Warren warned against other methods as ineffective. The reason for Roosevelt's strong interest is the fall in commodity prices. Wheat at 75 cents a bushel was 50 cents below the summer peak, corn was back to the April price, and cotton, at 9 cents a pound, was 25 percent below its summer peak. The pressure from farm organizations and Congress for inflation rose as farm prices fell. Woodin objected, and the monetary committee including Sprague, Rogers, and Harrison tried to stop the planned devaluation.

72. Roosevelt bypassed the legal issue by citing "the clearly defined authority of existing law." Roosevelt seems to have accepted some part of Fisher's debt-deflation theory.

circumscribed. On October 29 he told Harrison that it was “imperative to get agricultural prices up before Congress meets and that if we did not, he was fearful of what Senator Thomas [Oklahoma] and the other inflationists might do” (Harrison Papers, file 2010.2, October 30, 1933, 3). He anticipated spending \$100 million to get the dollar gold price to \$33 or \$34 before Congress met, and he again warned about the dangers of serious social disorder in the West.⁷³

Markets and the public received Roosevelt’s speech enthusiastically. Between the beginning and the end of the broadcast, wheat future prices rose 38 percent to more than 93 cents a bushel (Pearson, Myers, and Gans 1957, 5641). Telegrams gave overwhelming support. With a few exceptions, leading economists of that period opposed the plan, usually because they favored the gold standard at the traditional gold price and opposed devaluation.

Purchases began on October 25. Roosevelt personally decided on the daily price.⁷⁴ The initial objective was to have cotton at 10 cents a pound, corn at 50 cents a bushel, and wheat at 90 to 95 cents a bushel by January 1, 1934. (These prices were 10 to 20 percent above June 1933.) Originally the RFC made all gold purchases in the United States. Since gold exports had to be licensed, the United States gold price soon rose above the world price, so the policy changed by November 1 to include purchases abroad. Still, the purchases were limited to about \$5 million a week, divided equally between London and Paris. A two-tier market developed, with the higher price set by United States purchases. After its initial successes in raising the domestic and international gold price to \$34 an ounce, the program faltered. World gold prices fell, and commodity prices (in dollars) followed.

The gold buying program rewarded sellers able to sell to the RFC with little effect on its target, the prices of wheat, cotton, and corn. If the United States had been willing to buy in unlimited quantities, it would have eliminated the difference between domestic and international gold prices. Under the program, the difference persisted and widened. By mid-December, the

73. Governor Black, who was at the meeting, told the president that small purchases would not be effective and large purchases would have serious repercussions abroad. He offered to cooperate, however, if the president decided to proceed. Harrison seconded his statements. Neither man said what he would do (Harrison Papers, file 2010.2, October 30, 1933, 4–5).

74. Each morning Morgenthau, Warren, and Jesse Jones, head of the RFC, met in Roosevelt’s bedroom. Morgenthau reported the previous day’s prices of gold and commodities. Roosevelt chose a new gold price for the day. The aim was to keep the gold price rising. On Roosevelt’s announcement the price in London rose from \$29.01 to \$31.02. Roosevelt set the first buying price at \$31.36. The daily price changes were always positive, but the increments varied to fool the speculators (Blum 1959, 69). In fact, it made little sense to fool the speculators. One day he raised the price by 21 cents because that was a lucky number, three times seven (*ibid.*, 70). Pearson, Myers, and Gans (1957, 5643) quote a slip Roosevelt gave to Warren with the words “Oct. 30. I think 31.96 is right for today. FDR.”

United States gold price was 7 percent above the world price, but commodity prices were set in international markets. They fell from mid-November to mid-December. The Board's wholesale price index was 11 percent above the previous year but back to the level of early September.

Falling commodity prices weakened the program's support and strengthened opponents. Opposition intensified. Acheson, budget director Douglas, and Sprague resigned, the last after complaining that the "present policy threatens a complete breakdown of the credit of the government" (quoted in Pearson, Myers, and Gans 1957, 5649). Other prominent economists stressed the risk of inflation and damage to the government's credit.⁷⁵ These claims seemed to be validated by a small temporary, seasonal increase in short-term interest rates in December.⁷⁶ The American Federation of Labor (AFL), the Chamber of Commerce, the American Legion, and the Economists' National Committee on Monetary Policy opposed the policy. Farm groups and the Committee for the Nation approved.

Foreign central bankers vigorously opposed the policy also. Harrison described Norman as having "hit the ceiling" when first informed about RFC purchases. United States gold purchases might "undermine confidence in all currencies . . . [a]nd bring about currency and exchange chaos in Europe" (Harrison Papers, file 3115.4, November 2, 1933, 1). Harrison assured Norman repeatedly that Roosevelt acted for domestic reasons only.⁷⁷ With the dollar depreciated in mid-November, he offered to discuss stabilization of the pound at \$5.25 to \$5.35, even if it meant selling up to \$25 million in gold. Nothing came of the discussion. The usual reason given was that French political problems made it difficult to discuss stabilization of the franc,⁷⁸ but Morgenthau told Harrison his main concern was that, even if the agreement lasted only a week, prices might fall.⁷⁹

75. Six young Harvard instructors, led by Lauchlin Currie, sent a letter to Roosevelt supporting devaluation of the dollar as essential for Roosevelt's expansionist policies, but they dismissed Warren's argument closely linking the price of gold to commodity prices (Pearson, Myers, and Gans 1957, 5653; Sandilands 1990, 56–57).

76. On November 16, Roosevelt accepted Acheson's undated letter of resignation and appointed Morgenthau as his successor. Since Woodin was ill, Morgenthau became acting secretary and, after Woodin's resignation, secretary on January 1, 1934.

77. Norman recognized, as Harrison apparently did not, that, if successful, the "domestic operation" would raise the gold price and lead to increased United States exports, fewer imports, and a flow of gold to the United States. This would initially force appreciation and deflation on all gold standard countries.

78. Roosevelt blamed the French problems on their failure to balance their budget for three years. He told Harrison that he did not expect them to remain on the gold standard. Harrison urged him to stop gold purchases temporarily to help the French, and Roosevelt agreed (Harrison Papers, file 2012.4, November 22 and 23, 1933).

79. Harrison made several proposals, on his own initiative, to stabilize exchange rates (Harrison Papers, file 3115.4, November 15, 18, December 1). At one point (December 1) Nor-

Between September and December, the dollar depreciated against the pound and French franc by 9.6 and 5.3 percent, respectively, in nominal terms and by 8.6 and 7.8 percent in real terms. Harrison described Roosevelt in mid-November as “pleased with the gold experiment up to date” and “working up to around \$34 at the end of the week when he will survey the situation and decide on the next move” (Harrison Papers, file 2012.4, November 13, 1933, 5). Harrison also described the president as uncertain what to do next. He was opposed to legal devaluation but might consider temporary *de facto* stabilization if the British would agree. But the president was also concerned that Congress would want wheat and cotton prices to reach \$1.25 a bushel and 15 cents a pound (5).⁸⁰

Depreciation awakened British interest in concerted action to stabilize currencies temporarily. As commodity prices fell, Roosevelt’s interest in a joint agreement increased, and his interest in buying gold waned.⁸¹ By December, RFC gold purchases slowed. Morgenthau asked Harrison to reopen discussions with Norman about a possible agreement to devalue jointly against gold, then stabilize. Agreement had to be reached before Congress reconvened.

The British would not consider joint devaluation against gold (Harrison Papers, file 2012.4, December 4, 1933, 4). Roosevelt blamed them for the dollar’s failure to depreciate against gold in foreign markets (Blum 1959, 121).⁸² Many bankers shared this view and claimed that the British used their Exchange Equalization Fund, set up after the 1931 devaluation, to prevent dollar devaluation. The bankers wanted a United States stabilization fund to counter the British fund (12).

man was willing to approach the British Treasury with a proposal to stabilize the exchange rate at the former rate, \$4.86. Norman and Harrison also discussed the possibility of exchange controls. Harrison’s concern was with inflationists in Congress when Congress returned in January.

80. The memo also reports that Roosevelt and Morgenthau were concerned about capital flight as rumors of an impending devaluation spread.

81. Morgenthau’s evaluation was that success had been partial, but the changes “did not restore the balance between agricultural and industrial prices that Warren had hoped to redress” (Blum 1959, 75). Morgenthau’s views are consistent with Harrison’s reports suggesting that Roosevelt had achieved most of his objective. Warren cites criticism of the program at home and abroad by the AFL, the Chamber of Commerce, bankers, numerous economists including J. M. Keynes, and many members of Congress (Pearson, Myers, and Gans 1957, 5649–55).

82. Jacob Viner, on Morgenthau’s staff, explained the differences between domestic and foreign gold prices in the same way Warren did (Blum 1959, 120). The United States gold purchases abroad were not large enough. Roosevelt and Morgenthau did not seem to understand that devaluation and a fixed gold price would bring the domestic and world gold prices together at the fixed price, and raise the dollar prices of commodities commensurately, if the United States maintained the higher gold price by buying all gold offered at the price. The United States gold price would become the world gold price, so dollar prices of commodities would rise.

Devaluation

Discussion of a formal devaluation started in late September.⁸³ The Federal Reserve's main concern, at first, was whether the profit on the gold stock belonged to the Federal Reserve or could be taken by the Treasury under existing legislation. The attorney general's staff considered the Thomas amendment possibly invalid because it delegated to the president congressional power "to coin money and regulate the value thereof." Further, even if the courts upheld the Thomas amendment, that amendment did not give the president the right to take the Federal Reserve's profit from the devaluation. When Congress discussed the Thomas amendment, it considered profits from devaluation, but it did not reach a conclusion (Memo on Taking Gold Profit, Board of Governors File, box 164, October 5, 1933).

The Board's staff repeated the arguments about legality and added others. The takings clause of the Fifth Amendment provided some protection. The staff argued also that the Federal Reserve could not maintain gold reserve requirements against Federal Reserve notes, and member bank reserve balances could not be maintained, if the Treasury took the gold in Federal Reserve banks.

In addition to legal concerns, the Board had policy concerns. A devaluation by 40 percent of the gold content would increase the value of monetary gold by almost \$2.9 billion. If the profit accrued to the Treasury, the Treasury could retire all the debt held by Federal Reserve banks, depriving them of earnings and removing their ability to sell securities to contract credit. Further, the profit to the Treasury could be used to finance government spending (Memo Smead to Black, Board of Governors File, box 164, November 23, 1933).⁸⁴ The System's relations with the Treasury, and Morgenthau's attitude toward "bankers," did not permit the System to dismiss this possibility.

Early in December, Roosevelt appointed a committee consisting of the acting secretary of the treasury, the attorney general, and the governor of the

83. There was not much precedent. Congress had reduced the weight of the gold dollar by 6 percent and fixed its value in 1834. The dollar had floated during and after the Civil War, but the gold parity did not change.

84. The reserve banks, as legal owners of the gold, hired Newton Baker, a longtime outside counsel, to negotiate a compromise with the administration. The banks accepted that the profit belonged to the Treasury. They proposed that, at the time of devaluation, the Treasury should exchange gold for gold certificates. The profit would go to the Treasury, but the gold would be returned in exchange for the gold certificates once the devaluation was completed. Congress would pass legislation approving the devaluation and the exchange. Otherwise several banks would not surrender their gold and others would do so under protest unless the banks' directors approved the transfer. The banks' directors were concerned about their fiduciary responsibility as representatives of the shareholding banks.

Federal Reserve Board to consider how to resolve differences. The committee did not meet. Instead, the attorney general proposed that the Treasury take the System's gold, using the powers of the Board authorized in section 11 of the Federal Reserve Act, without public announcement or prior notice to the officers of the reserve banks. The reserve banks would receive a letter stating that they were entitled to gold certificates. Black objected that the proposal was probably illegal, unwarranted, unworkable, and unnecessary. The Thomas amendment was probably unconstitutional. It should be left to Congress to legislate the disposition of the Federal Reserve's gold holdings (Board of Governors File, box 164, December 22, 1933).

The directors of some of the reserve banks reinforced Black's position. Chicago's directors unanimously approved a resolution opposing the transfer. Citing the opinions of Newton Baker and their own counsel as the basis for doubts about their legal authority to surrender the gold, they declined to voluntarily comply with a request to turn over the gold (Letter Stevens to Black, Board of Governors File, box 164, December 27, 1933).

After much additional discussion by the reserve banks, by the Board, and within the administration, on December 28 the secretary ordered all gold delivered to the Treasury at \$20.67 per ounce. The next day the Board agreed that the profit on revaluation belonged to the government, not the reserve banks. It urged the president to get congressional approval of the decision to take the gold and allocate the profit (Board Minutes, December 29, 1933; Letter Black to Roosevelt, same date).

Roosevelt yielded. On December 29 he offered Black a compromise. If the reserve banks would transfer their gold, he would propose legislation ratifying the transfer. If Congress did not approve the transfer in the next session, the Treasury would return the gold, excluding the profit on revaluation. He reserved the right to take over the gold at a later date (Letter Roosevelt to Black, Board of Governors File, box 164, December 29, 1933).

Two weeks later the president asked Congress for authority to acquire the gold held by the Federal Reserve banks, substitute gold certificates, permit devaluation up to 60 percent of the gold content, and use \$2 billion of the profit of any revaluation to establish a fund for foreign exchange operations, later called the Exchange Stabilization Fund (Krooss 1969, 4:2789–92). The proposed fund was about the size of the Federal Reserve's open market portfolio. It operated secretly, under the control of the treasury secretary with the president's approval (Schwartz 1997). Moreover, the proposal gave the secretary "authority to assume complete control of general credit conditions and to negate any credit policies that the Federal Reserve System might adopt" (Memo, Smead to Black, Board of Governors File, box 164, January 17, 1934). The Exchange Stabilization Fund gave the Trea-

surely the means to conduct monetary operations without getting approval for spending from Congress.

The Federal Reserve did not oppose the bill. Black testified against the transfer of gold.⁸⁵ Burgess and Young (Boston) urged Congress to limit the secretary's use of the Exchange Stabilization Fund to an emergency. Both pointed to the potential conflict between Treasury and System policy actions. Burgess also warned about the potential increase in excess reserves if the administration used the profits on devaluation to expand credit.

Several economists testified against passage. H. Parker Willis is representative. He opposed abandoning the gold standard and devaluation, but he recognized that the administration intended to devalue. He opposed transferring the gold to the Treasury, but he argued that if it was done, the dollar should be stabilized at some depreciated level by returning to the gold standard. Always an opponent of the quantity theory, Willis showed how little he knew about economics when he rejected the argument that devaluation would raise the domestic price level: "I refuse to accept the idea at all that a change in the theoretical weight of the dollar would have any effect whatever on prices" (Senate Committee on Banking and Currency 1934, 230).⁸⁶

Congress passed the Gold Reserve Act on January 30, by votes of 370 to 40 in the House and 66 to 23 in the Senate.⁸⁷ The following day the president fixed the price of gold at \$35 an ounce, a 59.06 percent devaluation against gold. Secretary Morgenthau announced that the New York Federal Reserve bank would buy gold for the Treasury at \$34.75 and sell at \$35.25, but purchases and sales were restricted to transactions with central banks and governments.⁸⁸ The nominal gold price remained fixed for more than thirty-seven years, until President Richard Nixon stopped gold sales and purchases on August 15, 1971.⁸⁹

85. Black testified in executive session, so his criticisms are not part of the hearings on the bill. He read his testimony to the Board before presenting it. His statement outlines the dispute with the administration before the bill (Board Minutes, January 20, 1934, 280–81).

86. Other opponents believed there would be serious inflation if the dollar was devalued. Edwin W. Kemmerer of Princeton feared that insurance and endowments would be wiped out (Senate Committee on Banking and Currency 1934, 213). Walter Stewart said the bill would "scrap the Federal Reserve System" (358).

87. As the vote suggests, many Republicans voted for the bill on final passage. Robert A. Taft, son of a former president and a leading Republican member of Congress, was more active in defending the gold clause than opposing the devaluation (Patterson 1972, 152).

88. The official price of gold rose from \$20.67 to \$35, an increase of 69.3 percent. In terms of grains of gold, however, the devaluation is from 23.22 to 13.71 grains, or 59 percent of 23.22. This is the equivalent of a devaluation from 25.8 to 15.238 ounces, nine-tenths fine.

89. By the end of December 1933, gold coin in circulation had fallen to \$24 million from \$181 million a year earlier.

Devaluation raised the relative gold price and stimulated world gold production. Schwartz (1982, table SC2) reports that world gold production did not exceed 25.4 million fine ounces a year until 1934. World production rose each year of the 1930s, reaching a local peak of 41.8 million fine ounces in 1941. United States production rose from 2.28 to 4.86 million fine ounces in the same period. The United States share of world production rose from 9 percent to 11.6 percent, but the largest part of the production subsidy went to foreign producers (Schwartz 1982, tables SC2 and SC5).

The Treasury used \$2 billion of the profit from devaluation to establish the Exchange Stabilization Fund, \$650 million to retire national banknotes, and \$27 million to finance industrial loans by reserve banks. The Federal Reserve received gold certificates for its gold. The initial effect was a one-time increase in the gold price and ultimately in the prices of goods and services.⁹⁰

United States devaluation made life difficult for the countries remaining on the gold standard, France among them. Gold flowed toward the United States. Once the act passed, the Treasury started buying gold immediately and in relatively large quantities. It purchased \$454 million in February, of which \$239 million came from London and \$124 million from France (Crabbe 1989, 439). In the three years 1934–36, before the Treasury began to sterilize inflows, the United States purchased more than \$4 billion of gold, a 57 percent increase in the stock held on January 1934. By the end of 1936, the Treasury held more than half of all gold at central banks (Schwartz 1982, table SC8). Purchases were made directly, not through the Exchange Stabilization Fund. The latter did not begin operations until April 27, 1934, when the Treasury transferred \$250 million from the capital of the fund for use in market transactions.

The Federal Reserve paid for its inactivity by losing control of monetary policy. The fund gave the Treasury a strong hand in setting policy toward interest rates, money, and debt, and it used its power. The Treasury remained the dominant partner for the next fifteen years, until the March 1951 accord released the Federal Reserve from Treasury control.

90. In addition, the Treasury issued \$180 million in gold certificates to the Federal Reserve for gold that the Federal Reserve purchased in January. The Board's counsel ruled that the reserve banks could "safely comply" with the requirement to transfer their gold to the Treasury (Wyatt to Black, Board of Governors File, box 164, January 30, 1934). The transfers were made the same day, so that all domestic gold was held by the Treasury when the dollar price of gold changed. Devaluation did not change the monetary base. The increase of \$2.8 billion in the value of gold certificates offset an increase in the liability "general fund in gold" included as part of the liability "Treasury cash."

Silver Policy

The Gold Reserve Act did not end either the agitation for reflation in Congress and the farm states or Roosevelt's interest in raising the price level. The focus shifted to silver, where the combined influence of senators from the silver mining states and the reflationists constituted a sizable bloc of votes.

Their first action, part of the Thomas amendment, authorized the president to accept silver in payment of foreign debts, coin silver, and issue silver certificates. Like other parts of the amendment, these actions were permissive, not mandated.

The silver interests wanted more. To accommodate some of their demands, Roosevelt appointed Key Pittman, a Nevada senator and chairman of the Foreign Relations Committee, as a delegate to the London Monetary and Economic Conference. Pittman was able to get an agreement to stop countries from melting silver coins, replace paper money with silver coins, and purchase an agreed minimum of 35 million ounces of silver a year for four years. The United States agreed to purchase about two-thirds of the total. In advance of the new congressional session, on December 21, Roosevelt committed the United States Treasury to buy silver produced in the United States at 64.5 cents an ounce and to coin silver dollars (Krooss 1969, 4:2782–85). The price was about 20 cents above the world market price.

The president's action did not appease the silver advocates. They failed by two votes to attach an amendment to the Gold Reserve Act requiring the government to buy 50 million ounces of silver a month to add 1 billion ounces to monetary reserves. The narrow defeat encouraged new approaches. By May, Roosevelt conceded and began work on the Pittman Silver Purchase Act of 1934, committing the Treasury to purchase silver until the silver reserve reached one-fourth of the gold reserve. The act became law on June 19. Unlike its predecessor, the act committed the Treasury to purchase silver from foreign as well as domestic sources at prices up to \$1.29 an ounce.⁹¹

Since the Treasury purchased large volumes of gold, the required vol-

91. The price at which the Treasury coined silver, \$1.29, was the equivalent at a sixteen-to-one ratio to \$20.67 per ounce of gold. Warren claims that Morgenthau and Roosevelt believed silver purchases would raise commodity prices (Pearson, Myers, and Gans 1957, 5663). Seigniorage on silver (arising from the difference in the prices at which the Treasury purchased silver and issued coins and certificates) rose from \$80 million in 1934 to \$181 million in 1935. For the years 1934 to 1940, seigniorage on silver was \$600 million (Board of Governors of the Federal Reserve System 1943, 515).

Table 6.1 Silver Prices, 1925–40 (cents per fine ounce)

YEAR	PRICE	YEAR	PRICE
1925	69.06	1934	47.97
1929	52.99	1935	64.27
1932	27.89	1938	43.22
1933	34.73	1940	34.77

Source: Bureau of the Census 1960, 371.

Table 6.2 Silver and Gold Production, 1925–39 (thousands of fine troy ounces)

PERIOD	GOLD	SILVER
1925–29	2,171	63,343
1930–34	1,941	31,251
1935–39	4,015	61,432

Source: Bureau of the Census 1960, 371.

ume of silver purchases rose substantially. The Treasury purchased silver and issued silver certificates up to the purchase price of the silver. The demand for currency did not increase as rapidly as the supply, so most of the new currency substituted for Federal Reserve and national banknotes (Blum 1959, 188–89). In July, Morgenthau used the Exchange Stabilization Fund to buy silver in London. Table 6.1 shows the price of silver in selected years. The price rose after the purchase program started but reached a peak in 1935 and subsequently declined. The price was high enough, however, to increase domestic silver production.⁹²

There were two prices for silver, just as there had been for gold. Domestic producers received 64.5 cents an ounce. Foreign purchases by the New York Federal Reserve Bank were at the world market price. Treasury purchases were far in excess of domestic production in 1934 and 1935, so the world market price rose toward the domestic price. As the price rose, silver activists offered new legislation to raise the price. Table 6.2 shows production of gold and silver on five-year averages.

A new complication entered. China and Mexico were on a silver standard.⁹³ At 72 cents an ounce, it paid to melt Mexican pesos and sell the silver to the Treasury. Morgenthau fixed the domestic price at 71.11 cents. This did not satisfy the silver activists, and the price went to 77.57 cents. Pressure mounted for a \$1.29 domestic price, but Roosevelt refused because he had the votes to prevent legislation that term (Blum 1959, 190–92). Spec-

92. On August 9, 1934, by proclamation, President Roosevelt ordered all silver not used as coins or in arts and manufacture to be sold to the Treasury (Krooss 1969, 4:2833–35).

93. The problem for China is discussed as early as December 1934 (Minutes, New York Directors, December 6, 1934, 29).

ulators acted on the presumption that the price would continue to rise, but Morgenthau sold silver from the Exchange Stabilization Fund to stop the rise at 81 cents in April 1935. By August the price was back to 65 cents. Prices did not reach this level again until after the World War II inflation.⁹⁴

Silver activists argued that raising the silver price would help China and Mexico by raising commodity prices in countries on the silver standard. This was backward. The policy drew silver from these countries, forcing monetary contraction. In November 1935, China abandoned the silver standard and offered to sell the United States most of its remaining silver, 200 million ounces, for approximately \$130 million at the Treasury's buying price, \$50 million above the market price (Friedman 1992, 171–78).

That was too much for Morgenthau.⁹⁵ Silver sold in China for about 40 cents an ounce. He allowed the world price to fall toward 40 cents after an understanding with the silver state senators that he would continue to buy newly mined domestic silver at 64.5 cents.

The silver purchase policy hurt China more than Mexico, because Mexico had large silver mines and was able, for a time, to increase its exports to the United States. China was less fortunate. Forced off the silver standard and soon afterward attacked by Japan, China experienced a major inflation that a more rational silver policy would have avoided.

Domestically, the program was a waste of money. It subsidized a relatively small number of miners and companies at large cost. Like several of the experiments during these years, the program achieved very little. It continued until November 1961.

SUMMARY: INFLATIONARY POLICY IN 1933

Roosevelt was right to be concerned about congressional and public reaction to his policies. At the end of 1933, his experiments with the NRA, the AAA, gold, and silver had not succeeded. Prices were 20 percent or more below the 1929 or 1926 level. After a robust recovery in the second and third quarters, Balke and Gordon's (1986) quarterly real GNP growth declined at a 24 percent annual rate in the fourth quarter. Despite the low levels of employment and output, the GNP deflator continued to rise in the fourth quarter, although at a much lower rate than in the summer.⁹⁶

94. On August 14, to hold the price near 65 cents, the Treasury purchased more silver in one day than the entire production in the United States in 1934 (Blum 1959, 195).

95. In his diary he called the policy "stupid." He was particularly incensed by the encouragement to smuggling of silver from China to Japan for sale to the United States (Blum 1959, 196).

96. Perhaps for reasons such as this, economists who associate inflation with low unemployment typically ignore the 1930s.

Market indicators showed continued anxiety and fear of inflation. The risk spread between Aaa and Baa bonds remained above 3 percent, not much lower than at the end of 1932. The term spread between long- and short-term securities was above 4 percent and had increased over the course of the year.

One reason for the aborted recovery was the change in the thrust of monetary policy. Annual growth of the monetary base remained low in the spring and summer. Growth in the money supply, M_1 , had a similar pattern.

The Federal Reserve committed to an expansive policy, mainly for political reasons during the congressional session, but it failed to follow through. If it had made substantial open market purchases, the administration's gold (and silver) purchase policy would have been unnecessary. The 1926 price level could have been restored by domestic monetary expansion, particularly after April when the president suspended the gold standard. Instead, the administration bought gold at a fixed (but adjustable) price. The policy drained gold from countries in the gold bloc, forcing further deflation there without much domestic benefit until purchases became large enough to change the world gold price.

Early in 1934, devaluation brought an increase in money growth. The Gold Reserve Act devalued the dollar against gold and fixed the United States buying price above the world market price. Instead of limited purchases of 1933, the United States announced its willingness to buy all gold offered at the \$35 price. Thus, disappointment at what appeared to be a failed policy produced a change that achieved the desired end of higher commodity prices and economic expansion that the administration sought.

ECCLES AND MORGENTHAU

The new year brought in a new economic team. Early in January 1934, Henry Morgenthau became secretary of the treasury. In June, Eugene Black resigned as governor of the Federal Reserve Board to return to the Atlanta bank.⁹⁷ The vice governor, J. J. Thomas, served as acting governor until November, when the president nominated Marriner S. Eccles to be governor of the Board.

97. He left in August. Hyman (1976, 154) attributes his resignation to the much lower salary at the Board. His lasting contribution to the Federal Reserve was to start planning for the Board's own building. The Board and its staff were scattered in offices at the Treasury Department and in buildings around Washington. In July 1934 the Board approved an assessment on the reserve banks to build the Board's building (Minutes, New York Directors, July 5, 1934, 11). Black died in December 1934, a few months after his return to Atlanta.

Eccles was a Utah banker and businessman whose father and grandfather had emigrated from Scotland in 1863. Though impoverished when he arrived, Eccles's father built a successful timber and sugar business. Like many self-made men, he was a strong believer in hard work, personal effort, and responsibility and an opponent of government involvement in the economy. His son, Marriner, inherited responsibility for the family business. With his brothers, he expanded the business and added banking. His banking corporation, the First Security Corporation, had branches throughout the region. Until the depression, he held many of the same political and social views that he learned from his father and mother.

Eccles first came to national prominence during the banking crises from 1931 to 1933. By pluck, boldness, and careful planning, all his banks remained open until ordered to close in March 1933. None of his depositors suffered a loss.

The experience had a lasting effect on Eccles's beliefs. The prevailing belief was that the depression was purgative.⁹⁸ Business leaders argued that "a depression was a scientific operation of economic laws" and could not be interfered with (Eccles 1951, 73). The 1920s had been a profligate era. The price of profligacy was (eventual) depression—the inevitable consequence of prior events.

Experience caused Eccles to reject these views. He recognized that many of the same people who had declared in the 1920s that depression could not occur again now found the seeds of depression in the excesses of that decade. Eccles recognized this argument as fallacious; in the 1920s the economy had produced in the aggregate more than it had consumed. There was no evidence of national overconsumption or indulgence (*ibid.*, 74). Further, he convinced himself that there was nothing "natural" or preordained about what was happening. He believed the depression was caused by an overexpansion of debt and investment; the maldistribution of wealth—too much wealth concentrated in too few hands; and underconsumption by low-income earners (76–77). His solution was government spending for investment, timed countercyclically to take up the shortfall resulting from the depression. He accepted an unbalanced budget as a means of paying for public works—a result of the depression, not a cause. He favored redistribution to aid the poor and unemployed (78–81).

His views soon attracted national attention. In February 1933 he testified at hearings before the Senate Finance Committee that the economic system's failure was "due to the failure of our political and financial lead-

98. "As I looked to the business and financial leaders . . . their stock reply was that a deflation in values, and a scaling down of the debt structure to meet existing price levels, would in time create a self-corrective force" (Eccles 1951, 71).

ership." The problem was "purely of distribution." The cure was more purchasing power, to be achieved by deficit spending until prices and employment rose (Eccles 1933, 705, 708).

His views help to explain his decisions and his passivity as head of the Federal Reserve. Eccles did not blame the Federal Reserve for the depression or urge credit expansion. The Reconstruction Finance Corporation and the Federal Reserve banks had expanded credit without result.⁹⁹ The "extension of credit alone is not the solution" (*ibid.*, 709). Nor was the solution a continued or deeper deflation, as many bankers and businessmen insisted.

Eccles opposed devaluation, silver purchases, or increases in money unless they increased consumers' purchasing power. He believed the money stock, though 22 percent below 1929, was adequate to support higher spending; the problem was low velocity of circulation resulting from hoarding currency. His program, calling for \$2.5 billion of government spending on public works (more than 4 percent of depressed GNP), financed by debt, and cancellation of Allied war debts, did not appeal to most senators (*ibid.*, 712).¹⁰⁰ He also favored "a more equitable distribution of wealth" (730) to increase purchasing power, unification of the banking system under Federal Reserve supervision, high income and inheritance taxes, a minimum wage, unemployment insurance, old age pensions, government supervision of security issues, transport, and communications, and a national planning board to coordinate public and private activities (730–31).¹⁰¹

Eccles's views on budgets and deficits differed from Roosevelt's or Morgenthau's. Roosevelt advocated a balanced budget and reduced expenditure as "the most direct and effective contribution that Government can make to business" (Eccles 1951, 97, quoting Roosevelt's campaign speech of October 19, 1932).¹⁰² Morgenthau was a strong advocate of a balanced budget, and the difference became a source of friction between the two men.¹⁰³

99. Eccles in 1935 accepted the much-used phrase "pushing on a string" to describe his belief about expanding credit and money in deep recessions.

100. Gross investment had fallen \$26 billion from the 1929 peak.

101. Although Eccles advocated a national planning board, he opposed the NRA price- and wage-raising schemes. He was glad when the Supreme Court declared the NRA unconstitutional (Hyman 1976, 153).

102. As noted earlier, Roosevelt categorically rejected deficits but then added that he would tolerate a deficit to relieve "starvation and dire need." Eccles (1951, 98) claims that Samuel Rosenman, who edited Roosevelt's papers, tried to reconcile Roosevelt's deficits with his 1932 speech by claiming that Roosevelt meant only the administrative costs. Eccles viewed Roosevelt as a "budget-balancer" who regarded a balanced budget as "a self-contained good" (98).

103. Eccles was highly critical of wartime deficits. He favored deficits only to make up for a shortfall of private investment. Although his proposals for deficit finance are similar to Keynes's views after 1928, Eccles claimed never to have read Keynes's main work.

Eccles's first job in the Roosevelt administration was as an assistant to Morgenthau for banking and monetary problems. He came to Washington early in February 1934 with the stated intention of staying sixteen months. He remained for seventeen years, most of the time as head of the Federal Reserve System.¹⁰⁴

His initial meetings with Morgenthau were a prelude to their later relationship. The two men were very different in background, personality, and beliefs. Eccles described himself as blunt, and his biographer adds that his relationship with Morgenthau was "deeply troubled" (Eccles 1951, vii; Hyman 1976, 207). Morgenthau saw Eccles as talented and energetic but also as confident, assertive, and ambitious, with "an insatiable drive to gain personal power" (Hyman 1976, 207; Blum 1959, 279). Morgenthau was a country gentleman who had been drawn into government by the long-standing family friendship of the Roosevelt and Morgenthau families. His biography shows him to be cautious, rarely willing to make a decision without the president's approval. He distrusted bankers and opposed "bigness" and government deficits. Eccles attributed many of his disputes to the "quirks of Morgenthau's personality" (Hyman 1976, 207).¹⁰⁵ Both men tended to see substantive issues as personal, a fact that Eccles realized after Morgenthau resigned and his disputes and differences continued, and intensified, with Secretaries Fred M. Vinson and John W. Snyder, who followed.

Eccles's self-image was that he defended principles against expediency (Eccles 1951, 394). The role of government was to run deficits in depression to finance investment and to run surpluses during prosperity, even in wartime, to reduce debt. This view of government spending and deficits clashed with Morgenthau's belief that spending financed by deficits during

104. His service as head of the Federal Reserve ran from November 15, 1934, to January 31, 1948, when President Truman replaced him as chairman. He remained as a member of the Board until July 14, 1951. Eccles believed that his pursuit of antitrust charges against Transamerica Corporation angered powerful political and banking interests in California during the 1948 election year. This, combined with his antagonistic relationship with Treasury Secretary John W. Snyder, a friend of the owners of Transamerica, may have led to his dismissal (Eccles 1951, 450–53). The dismissal was the subject of a congressional hearing, but the reason was not firmly established.

105. A contemporary describes Morgenthau as "suspicious" and irritable, Eccles as a person of "contradictory enthusiasms." "He loved the freedom . . . which allowed him to get very rich, and at the same time, a born centralizer" (CHFRS, interview with Casimir Sienkiewicz, March 18, 1954, 3). Sienkiewicz worked in the Federal Reserve System from 1920 to 1947. Jacob Viner describes Eccles as a "voluble talker" who "talked for hours at a time." Morgenthau "had no patience with Eccles. The two men grated on each other." Viner, like Sienkiewicz, described Morgenthau as a "suspicious man" but also as decisive in the early days (CHFRS, interview with Jacob Viner, March 17, 1954, 3–5). Currie (1971, 2) adds that "Morgenthau disliked Eccles intensely."

depressions was a cause for alarm and hesitancy by business, leading to lower investment. Wartime deficits were, for Morgenthau and many others, a very different matter—a necessity. Eccles saw the inconsistency in this position and attributed it to the self-interest of those who benefited most from the spending.¹⁰⁶

Appointment to the Federal Reserve

Despite their early differences, Morgenthau proposed Eccles to replace Eugene Black as governor of the Board. In September, when President Roosevelt interviewed him, Eccles told him that he would accept appointment only if the president agreed to change the System. He wanted a commitment to end President Wilson's compromise by centralizing power and authority in the Board and its chairman. The regional banks, particularly New York, representing "private interests," controlled the System. Their power had to be broken, or the job was not worth having (Hyman 1976, 155).

Eccles agreed to prepare a memo describing the changes he regarded as necessary. He presented it to Roosevelt shortly after the 1934 congressional election. The memo, prepared with the assistance of Lauchlin Currie, combined Eccles's and Currie's ideas of what went wrong at the Federal Reserve. Currie claimed to have drafted the memo (Sandilands 1990, 63); his views were well represented.¹⁰⁷ It seems highly likely that it was how Eccles learned about the role of the real bills doctrine as a cause of the depression. Currie had written extensively on that issue; Eccles never mentioned it in his testimony and speeches, before meeting Currie or after. The memo to Roosevelt, however, began with an explicit statement of the need to eliminate procyclicality of the money supply. Money supply should be used as "an instrument for the promotion of business stability" (Eccles

106. Clashes were not limited to spending and budgets. Eccles was often involved in government policy. One of the principal clashes with lasting effect arose in 1936 over the undistributed profits tax. Eccles proposed his own version and actively worked against the Treasury's proposals.

107. Currie (1968, 39) concluded that "there is no valid theoretical justification for the Commercial Loan Theory of Banking" (real bills). He found that the Federal Reserve had never defined "productive credit" or distinguished productive from nonproductive credit except by casual inference (39). Currie also favored 100 percent reserve requirements against demand deposits and zero against time and savings deposits (151). He favored control by a three- or four-person board, in Washington, with reserve banks reduced to branches of the central bank and with all banks required to be members of the System. He recognized that expanding the Board's control was useless (or worse) unless it gave up quality of credit (real bills) as a guiding principle. Its goal should be control of spending by controlling money—currency and demand deposits (157). He repeated some of these points in different form in a long memo to Secretary Morgenthau written in September 1934 (197–226). The memo contains many of the same points but differs from his book, notably by calling for government ownership of the reserve banks. Morgenthau's diary does not mention the memo.

1957, 173). The notion of eligible paper, a keystone of real bills, would be replaced by “sound assets.”

The memo departed from the more extreme position on nationalization of the reserve banks that Currie took in his September memo to Morgenthau (Currie 1968). But he proposed to vest control of open market operations in the Board, with “banker interest” removed. Bank directors would no longer have power to refuse to participate in open market operations. Also, the Board would have the power to approve or disapprove appointment of governors of the reserve banks.¹⁰⁸ The memo met the usual complaint head-on. The Federal Reserve would become a central bank, centrally controlled: “Private ownership and local autonomy are preserved, but on really important questions of policy, authority and responsibility are concentrated in the Board” (quoted in Hyman 1976, 158).

In the two-hour meeting at which Eccles presented and discussed the memo, Eccles records that Roosevelt paid close attention, recognized the serious political obstacles, rejected the idea of national branch banking, and accepted the proposal as a blueprint for reform. Six days later, on November 10, Roosevelt nominated Eccles as governor of the Board.¹⁰⁹ The announcement emphasized Eccles’s business and banking background and reported the capital value of each Eccles enterprise, its volume of business, and the fact that all his enterprises had survived the depression. In this way the administration hoped to defuse criticism of Eccles’s radical ideas about budgets and show that not all the new appointees lacked business experience.

Perhaps because Carter Glass had not been notified of his appointment, Eccles served in a recess appointment for five months. He was not confirmed until the following April, by a four to three vote in Glass’s banking subcommittee with Glass opposed, and by a unanimous vote in the full banking committee with Glass absent.

Much of the opposition to Eccles focused on the banking bill prepared by Eccles and Currie. Many bankers opposed the legislation, particularly the sections that shifted power from the New York bank to the Board. Har-

108. Until 1936, each bank’s directors appointed the bank’s governor without approval by the Board. The Board approved salaries, however.

109. Roosevelt failed to clear the appointment with Carter Glass, increasing the animosity that Glass held toward Eccles. Up to this time Eccles had not had to resign from any of his business activities. After the appointment, Eccles resigned as president of First Security Corporation and First Security Bank and sold his stock. But he was legally permitted to retain positions as chairman on leave of the Utah Construction Company, vice president and treasurer of the Amalgamated Sugar Company, and president of the Eccles Investment Company. He attended directors’ meetings of the latter companies throughout his Washington career (Hyman 1976, 160).

rierson was among them, firmly opposed to the legislation. Always ready to put an issue in personal terms, Eccles viewed this opposition as acting “on behalf of the private banking interests of New York” or out of personal pique (Eccles 1951, 178–79). He never mentions, and seems unaware, that the proposed move toward a central bank and the weakening of the System’s regional structure was seen as a substantive issue of great importance in many sections of the country and by many groups.¹¹⁰ Even bankers who favored a central bank did not want the bank controlled from Washington.

Further, Eccles irritated Glass by his brash manner, failing to pay a courtesy call until two months after the president announced his appointment and failing to keep his promise to give Glass an advance copy of the legislative proposal that became the Banking Act of 1935. Eccles, uncharacteristically, recognized the second failure as a mistake (*ibid.*, 196).

Eccles’s recess appointment did not deter him from taking charge. Three days after taking office, he met with the Federal Advisory Council, a group of twelve bankers legally constituted under the Federal Reserve Act to confer and advise the Board. The council had adopted the practice of issuing statements without submitting them to the Board.¹¹¹ Eccles threatened to ignore the council and deny them access to the staff unless they agreed to submit their statements to the Board before their release. This would allow the Board to reject the statements privately and, if it chose, publicly. The council reluctantly accepted the new arrangement.

Even before he was sworn in, Eccles clashed with Harrison. The immediate issue was the System Committee for Legislative Suggestions, established in spring 1934 at the request of the Federal Reserve bank chairmen. The Board approved the committee in June (Board Minutes, June 23, 1934, 4–5). Harrison was elected chairman. All but one of the members came from the reserve banks; Vice Governor J. J. Thomas represented the Board. To Eccles, control by the reserve banks was control by private interests, especially the reserve bank directors. Eccles determined to shift control to himself, representing the public interest.

When Harrison came to congratulate Eccles on his appointment and invite him to replace Thomas on the committee, Eccles replied: “I don’t intend to be a member of your committee. And, moreover, one of my first acts after I’m sworn in as Governor will be to move the abolition of your

110. Eccles several times charged Glass with changing sides, from fighting the “interests” in 1913 to defending them in 1936 (Eccles 1951, 179, and elsewhere).

111. The statement that irritated Eccles was issued in September just before the 1934 congressional elections. The statement demanded a balanced budget. Eccles regarded the statement as a political document issued to embarrass the administration.

committee. . . . I have accepted the post of Governor primarily for the purpose of carrying out an important legislative program, which you in all probability are going to oppose" (Eccles 1951, 192). Thus Eccles began his tenure at the Board.¹¹²

THE BANKING ACT OF 1935

Planning for changes to the Federal Reserve Act started before Eccles became governor. A Treasury committee headed by Jacob Viner began work on banking and currency legislation early in 1934. The Board's research director, Emanuel A. Goldenweiser, and the Federal Reserve agents (chairmen), recommended that a System committee work with the Treasury. On June 25 the Board approved the recommendation and established the legislative committee, chaired by Harrison, that Eccles abolished on taking office. Also, Eccles and Currie had prepared recommendations for Eccles's November meeting with Roosevelt.¹¹³

Eccles did not want the modest reforms and compromises expected from a System committee. With Currie, he challenged two of the main tenets underlying the Federal Reserve Act. First was the almost ritual re-statement that the Federal Reserve was not a central bank. Eccles wanted a central bank with authority concentrated in Washington, specifically in his hands. Second, although he did not seem to share Currie's strong beliefs about the need to abandon the real bills doctrine, he did not defend it. Eccles disliked rules such as the real bills doctrine. He preferred to rely on judgment and wanted a large measure of authority to do what he believed was in the public interest.

Glass held exactly the opposite view from Eccles on both main issues. Financial collapse reinforced his commitment to the real bills doctrine. In his view the collapse was the inevitable consequence of violating the doctrine, and he continued to favor a decentralized system. The fault was that New York had acquired too much power. Centralization had gone far beyond original intent.

112. Relations were rarely good. In September, before Eccles's appointment, Harrison discussed relations with the Board "and the possibility of their improvement" (Minutes, New York Directors, September 17, 1934, 171).

113. There were many other proposals for change. One bill by Senator Elmer Thomas (Oklahoma) established a government-controlled system by purchasing all stock of the reserve banks. The System's objective would be to "control the price of commodities through control of the purchasing power of money" (Board of Governors File, box 141, S. 433, undated). A bill offered by Senator Gerald P. Nye (North Dakota) created a central bank with representatives elected from each state for twelve-year terms. The bill also imposed 100 percent reserves against demand deposits and 5 percent against time deposits (*ibid.*, S. 2162, March 4, 1935).

Even if Eccles and Glass had had good personal relations, they would have clashed over substance. In the event, substance and personal feeling set up a clash between two strong-willed men.

Harrison and the System Committee

The work of Harrison's committee shows the internal view of what went wrong and the desirable changes.¹¹⁴ There were, of course, differences of opinion and pressures to avoid contentious issues.¹¹⁵

The committee began to consider an ambitious agenda of reform of the banking system and Federal Reserve controls. A comparison of failure rates in the United States, Canada, and Britain led to a proposal for branch banking. The background paper for the meeting recognized that "England, with a central bank, and Canada, without a central bank, entirely escaped bank failures" and that United States banking failures explain "both the greater severity of the depression in this country, particularly from 1931 on, and the greater difficulty experienced in achieving recovery" (Memo on Banking Reform, Goldenweiser to Committee, Board of Governors File, box 142, September 6 and 7, 1934, 2). But the memo shifted away from this promising start by blaming the "soundness of bank assets" for the higher failure rate (3). Thus it missed the opportunity to rid the banking system of its greatest weakness—restricted portfolios and limited diversification.

The rest of the memo was defensive, aimed at preventing reorganization and a shift of power to the Board. The memo claims that the Federal Reserve had shown its effectiveness in financing World War I and in acting promptly in the recessions of 1924 and 1927. None of the existing central banks used credit or monetary control to stabilize prices, prevent booms or depressions, or hasten recovery; therefore the System should be credited for its successes and could not be blamed for the depression. Further, the Federal Reserve Act limited the Federal Reserve's mandate to "accommodat[e] the needs of industry, commerce and agriculture" (*ibid.*, 4).

114. In addition to Harrison, the committee included two former governors of the Reserve Board, Black and Young, Norris (Philadelphia), two representatives of the Cleveland bank, and G. J. Schaller, who had replaced James McDougal at Chicago. The only Board member was J. J. Thomas, recently arrived as vice governor of the Board. Its advisers, Emanuel Goldenweiser and John H. Williams, were responsible for the drafting. Most members of the committee had participated actively in policymaking during the depression, so the committee was almost certain to find lack of power, not errors, as the reason for the System's failures.

115. An early draft drew a strong response from George James, a member of the Board (1923–36), who was not a committee member. Describing the drift as "one man's offhand opinion," James criticized most severely neglect of "investment speculation on the part of member banks. In my humble opinion this very factor was one of the major causes of the recent banking difficulties" (memo James to Board, Board of Governors File, box 142, October 2, 1934).

The Thomas amendment removed that restriction, so there is “no lack of power or of central banking machinery for carrying out whatever monetary and credit policies the *Government may deem desirable* for the promotion of recovery” (6; emphasis added).

The principal conclusion: System reorganization would not solve the problem of how to manage credit control policy. The memo proposed a broad study of banking, monetary, credit, and organizational changes. In October the committee reduced the scope of possible changes. The defensive tone and substance remained until the final report.

The preliminary report (October) located the “basic problem” in the quality of bank credit extended: “This lack of quality has been due to conflicting jurisdiction, to laxity of laws, to lack of uniformity . . . in supervision, and . . . to lack of skill and vision in [bank] management” (Preliminary Report of the Committee on Legislative Program, Board of Governors File, box 142, October 16, 1934, 1). There is not a word about Federal Reserve failures or inaction: “The depression which began in 1929 continued to develop notwithstanding the great volume of credit made available to the banks through open market operations by the Federal Reserve banks” (2).¹¹⁶

Perhaps reflecting the realities of the time, the final report made a brief reference to a new theme: the Federal Reserve banks have a responsibility to adjust their policies to “the need for expansion or restraint as conditions dictate” (Report, System Committee on the Legislative Program, Board of Governors File, box 142, December 17, 1934, 2). The report immediately shifted away, locating the main defects not in System failures to respond to economic conditions or bank failures, but in the “quality of bank assets and the soundness of banks” (*ibid.*). It failed to recognize that “quality” and “soundness” depend to a considerable extent on what happens to the economy.

The report proposed improved supervision and regulation, to be achieved by unifying examinations and supervision under the reserve banks and by subjecting all banks to unified standards.¹¹⁷ The deposit insurance law required all insured banks to join the Federal Reserve System by July 1937. The report wanted this provision retained, but it was dropped.

The most important change proposed in the report called for increased authority to raise and lower reserve requirement ratios. Under the exist-

116. The section on credit control concludes: “The record of the System shows that it has always functioned in the spirit of its constitution as an institution vested with the public interest” (Preliminary Report of the Committee on Legislative Program, Board of Governors File, box 142, October 16, 1934, 5).

117. Unification of examination standards was not achieved until 1938. The report showed awareness of moral hazard. It recommended that liquidation of failed banks take place “before the equity has been absorbed,” but it made no proposal about how this could be done or how to avoid dissipation of the assets of failed or failing banks.

ing power, in section 19 of the act, changes required approval of the president and declaration of an emergency. The committee proposed giving that authority to the Board. It also endorsed a staff proposal to make reserve requirements depend on both deposit turnover (velocity) and volume (*ibid.*, 18).

The final report removed from the earlier draft the Board's defense of its policy from 1929 to 1933: "The Federal Reserve System has undertaken bolder and more extensive experiments in credit control than have ever been carried out by any other banking or Governmental authority" (Preliminary Report, Board of Governors File, box 142, October 16, 1934, 9). Failures and depression had occurred, of course, but not because of Federal Reserve failures. The problem was expansion of speculative credit, over which the Federal Reserve had more control after 1933. However, "sound banking is possible only under sound economic conditions. In the presence of profound national and international maladjustments that developed during the decade after the war, no banking system could function effectively" (10).¹¹⁸ The report does not mention that some reserve banks refused to participate or that the Board did not force recalcitrant reserve banks to pool the gold stock by discounting for participating banks.

Currie's Treasury Proposal

Most of the work of Viner's committee at the Treasury reflected Currie's views.¹¹⁹ Currie expanded the recommendations in his book (Currie 1968). The responsibility of the Federal Reserve, Currie wrote, is to control the quantity of money, not the quality of credit. The Federal Reserve Act took the opposite approach through its reliance on the real bills (commercial loan) doctrine.¹²⁰

118. The preliminary report ignores the dispute between New York and Washington in October 1929, when New York acted independently, and the subsequent criticism by Young and the Board. See chapter 4. "The Federal Reserve promptly cushioned the decline [in stock prices] by promptly . . . buying securities on a large scale. During the depression it purchased . . . in unparalleled volume and thereby enabled the member banks not only to meet the drain of currency. . . . [but] to reduce their indebtedness to the Reserve banks to negligible proportions" (Preliminary Report, Board of Governors File, box 142, October 16, 1934, 8). The last statement shows the continuing influence of Riefler-Burgess views.

119. Currie had studied at the London School of Economics before receiving a Ph.D. at Harvard. At Harvard, he met Ralph Hawtrey, a visiting professor who had done pathbreaking work in monetary economics, emphasizing the role of money in cyclical fluctuations. Currie's work (1968) blamed the Federal Reserve for the depth and severity of the depression, anticipating the later critiques by Warburton (1948) and Friedman and Schwartz (1963). See Sandilands 1990, Laidler 1993, and Brunner 1968.

120. "By and large the concern of the banking authorities in this country has been with the composition of bank assets" (Currie 1968, 35). Currie pointed out that, probably because it was difficult to do, the Federal Reserve had never defined "productive credit" (39).

Currie concluded that “there exists no valid theoretical justification for the Commercial Loan Theory of Banking” (*ibid.*, 39). “The drastic contraction of money from 1929 to 1932 can in large part be attributed to the failure of the reserve administration to appreciate the significance of changes in the supply of money” (44). And he added: “It is generally held that the reserve administration strove energetically to bring about expansion throughout the depression but that the contraction continued despite its efforts. Actually the reserve administration’s policy was one of almost complete passivity and quiescence” (147).

To remedy these failures and control the money stock, Currie proposed 100 percent reserves against demand deposits and no reserve requirements for other deposits. The gold standard and open market operations would control the volume of reserves and deposits. Banks could expand or contract lending relative to money by bidding for time deposits.

Control of money was vested in a five-person board appointed by the president and confirmed by the Senate. Its charge was to maintain business stability, not to “accommodate commerce and business.” It would have discretionary authority to alter gold reserves, within limits consistent with maintenance of the gold standard.

Currie expanded these proposals in his recommendations to Morgenthau mainly by adding detail and working out the transition to 100 percent reserves against demand deposits. One issue discussed at length was whether the Federal Reserve Board (called the Federal Monetary Authority) should be responsible to the administration. Currie recognized the possible inflationary consequences of this arrangement, but he chose political control under a general congressional mandate that set objectives. He suggested removing the secretary of the treasury from the Board.¹²¹ Eccles took Currie onto the Board’s staff as assistant director of research. Currie’s main task initially was staff work leading to the 1935 act.

The Banking Act in Congress

The bill that was sent to Congress in February 1935 contained three sections. Roosevelt recognized that the proposed changes in the Federal Reserve Act calling for creation of a central bank, with headquarters in

121. The Board would consist of experts who would publish quarterly reports containing diagnosis of current conditions, expectations about future trends, “an account of its current policy which not only explains why it is being pursued but also what it hopes to accomplish thereby” (Currie 1968, 215). This proposal anticipated the decisions in New Zealand, Sweden, Britain, and elsewhere in the 1990s when central banks in these countries adopted inflation targets. It took many years before central banks surrendered enough secrecy to provide information about their current and prospective activities.

Washington, would not be popular with most bankers, many populists, and those who wanted to nationalize banking. He joined the Eccles-Currie proposals (title 2) to two other pieces of legislation. Title 1 liberalized FDIC assessments and required all member banks to join the deposit insurance fund.¹²² Title 3 changed a section of the Banking Act of 1933 that required bank officers to resign if they had not repaid all loans to their banks by July 1. Title 3 extended the time limit for repayment, made technical adjustments to the Federal Reserve Act, and made permanent the use of government securities as collateral for the note issue. Thus Roosevelt put together a provision that many bankers wanted for personal reasons, and permanent deposit insurance, popular with Congress and the public, with a proposal that many disliked very much (Hyman 1976, 171).¹²³

The House passed the bill almost as it had been submitted. The vote was 271 to 110. Eccles testified on ten days, presenting the proposal and responding to questions. Unlike Currie, he described the 1928–29 experience as a “speculative orgy,” perhaps to appeal to Congress. The aim of the proposed legislation was both to control speculation and to “promote stability of employment and business.” The latter was a decisive shift in goals, certain to be unpopular with Glass (House Committee on Banking and Currency 1935, 180).

To meet this new goal the Federal Reserve needed reorganization and new powers. Eccles emphasized four changes proposed in the bill: (1) subject the head of each reserve bank to approval by the Board, make the Board’s governor the head, and eliminate the office of reserve bank chairman;¹²⁴ (2) vest control of open market operations in a five-person committee consisting of three Board members and two reserve bank governors; (3) transfer authority to specify eligible paper from the reserve banks to the Board; and (4) further liberalize provisions relating to real estate

122. The 1934 FDIC law provided permanent deposit insurance on July 1, 1935, up to \$10,000, 75 percent insurance for accounts between \$10,000 and \$50,000, and 50 percent above \$50,000. Title 1 limited insurance to \$5,000. Title 1 also gave the FDIC power to restrict entry. Warburton (1966, xiii) explains that the premium for deposit insurance, 0.083 percent, was set to cover depositors’ losses from bank failures except in deep depression of the 1870s, 1890s, and early 1930s.

123. Morgenthau saw the bill as a means of wresting control of monetary policy from bankers. Roosevelt shared this view. In October 1933 he said: “Some members of the banking fraternity . . . do not want to make loans to industry. They are in a sullen frame of mind hoping by remaining sullen to . . . force our hands” (quoted in Blum 1959, 343). See the earlier reference to Chase National Bank and Harrison’s discussion with Winthrop Aldrich, its chairman. Morgenthau and Roosevelt saw this opposition of New York banks and large insurance companies as the dominant influence on the open market committee and the New York reserve bank (343).

124. The title of governor is not written into the Federal Reserve Act. The reserve bank directors created the position and gave the title to the banks’ top officials.

lending. The last provision was included to attract bankers' support by increasing their opportunities at a time of relatively small loan demand.¹²⁵

The proposed control of open market operations did not fully satisfy Eccles. In his testimony he went beyond his bill, asking the committee to remove the two reserve bank governors, eliminate the committee, and make the Board alone responsible for open market operations. A committee of five reserve bank governors would have a consultative or advisory role only.¹²⁶

In the course of more than two hundred pages of testimony, Eccles both explained and defended sections of the proposed bill and offered his explanation of the causes of the depression and the path to recovery. The questions show the principal concerns of opponents and supporters, and Eccles's arguments give a preview of the policies he followed and advocated during the rest of the decade. The committee members expressed their fears of deficits and debt burdens that return again and again in the next sixty years. Many of the comments about debt and deficits would be repeated unchanged in the 1980s and 1990s.

CONGRESSIONAL CONCERNS Eccles chaired a committee, consisting mainly of Board staff, that prepared the bill without consultation or discussion with the reserve banks. The proposal then went to an Interdepartmental Loan Committee, chaired by Morgenthau, with representatives of other government agencies: "The Board was not asked to approve it. The Board was kept advised of the legislation" (Blum 1959, 352–53).

This method of drafting raised concern about the shift in power that the bill proposed. Repeatedly Eccles was asked about the dangers of consolidating power over discount rates, reserve requirements, and open market operations in a single agency, appointed by the president and subject to political control. Congressmen expressed concern about the potential for

125. Other provisions of title 2 reduced terms for reserve bank directors to six years, raised salaries and provided pensions for future members of the Board, repealed collateral requirements for Federal Reserve notes (extending the 1932 Glass-Steagall provisions), expanded authority to raise or lower reserve requirements, and made other technical changes (House Committee on Banking and Currency 1935, 185).

126. The House had already adopted this plan, but Eccles's testimony angered Morgenthau. He distrusted the Federal Reserve Board, in part because of its unwillingness to further reduce interest rates in 1934 (Blum 1959, 346–47). They "lacked courage" (348). Glass tried to use the opportunity to get Morgenthau to withdraw support, but after talking to Roosevelt, Morgenthau decided to support government ownership of the reserve banks and the principle of placing the open market committee under the Board's control. He did not endorse a specific compromise because Roosevelt had not yet made a decision (349). Throughout the spring Roosevelt was cautious about endorsing title 2. At one point he led Glass to believe that he did not care about title 2 (347, 349).

inflation and the use of monetary expansion by the executive branch to influence elections. And the old issue of regional autonomy remained (366–67). Eccles responded that “monetary policy is a national matter, and it cannot be dealt with regionally without having such situations as we have had in the past” (367).

THE ROLE OF MONETARY POLICY The colloquy with House members shows that Eccles knew the legislation was a long step away from the Glass-Wilson reserve system and toward a modern central bank with responsibility for economic stability. That step was not taken for many years, however. The main reason is that the Treasury held a commanding position during the 1930s and 1940s. Eccles’s beliefs about monetary policy and his framework for analyzing the economy also played a role.

Eccles held a Keynesian view long before that view became dominant among academics and central bankers. Mixed with that view were vestiges of older ideas about underconsumption, overinvestment, borrowing, speculation, and income distribution. Eccles repeated many times, in the hearings and elsewhere, that the depression was due in part to inequality in income distribution. One of the fullest statements of this belief is: “One of the principal troubles or difficulties that brought about the depression was not the shortage in the supply of money altogether, but it was due in part to the inequitable distribution of income which contributed to the speculative situation in the security markets and to an expansion of productive capacity out of relationship to the ability of the people of the country to consume under the existing distribution of income” (House Committee on Banking and Currency 1935, 405).

He regarded the depression as “inevitable” given the distribution of income. The depression might have been deferred or delayed by increasing the stock of money in 1929, but it could not have been prevented: “As long as we had such an inequitable distribution of wealth production . . . a depression was inevitable” (*ibid.*, 210).

The cure was therefore mainly fiscal. Eccles thought that “there is only one way by which we will get out of the depression, and that is through the process of budgetary deficits until such time as private credit and private spending expands. . . . Until private borrowing and spending expands, and puts people to work, the Government must do the borrowing and spending” (*ibid.*, 403).

This view does not seem unusual now, but at the time it struck many of his listeners, both in and out of Congress, as radical. Eccles coupled his view with his belief that depressions were inevitable under capitalism. Debt built up in periods of expansion. Investment expanded production

faster than consumption. When depression came, there were two choices: deflation, bankruptcy, and debt reduction or reflation to lower the real value of the debt (*ibid.*, 346–48).¹²⁷

The most quoted line in Eccles's testimony is "you cannot push on a string" (House Committee on Banking and Currency 1935, 377). Congressman T. Alan Goldsborough (Maryland),¹²⁸ a supporter of Eccles and the bill, introduced the phrase. Eccles accepted it immediately: "That is a good way to put it, one cannot push a string. . . . [T]here is very little, if anything that the reserve organization can do" (377). He had expressed the same pessimism earlier in his testimony several times. Monetary action was asymmetric; it was easier to stop an expansion than to end a contraction.¹²⁹ An attempt to flood the economy with currency by paying off the debt, as some congressmen proposed, would just create excess reserves (322).

Eccles's views fit well with those of Goldenweiser, Riefler, and other Board staff. Monetary expansion did not work in the depression because "you must have borrowers who are willing and able to borrow" (*ibid.*, 216). Although he mentioned interest rates, and the effects of policy action on interest rates, these were far from central to his analysis. The liquidity trap—pushing on a string—dominated his view.¹³⁰ Hence the only role for monetary action was to keep rates low and to be alert to the risk of inflation inherent in the large volume of excess reserves held by the banking system. Several times Eccles warned about this problem and mentioned the large potential expansion in loans and money.

Eccles differed from his predecessors in his belief that government had to take responsibility for the economy. He devoted much of his time to ad-

127. Elsewhere in his testimony, he reaches the same conclusions by arguing that an inequitable distribution of wealth results in "excessive savings" in the expansion phase, hence too little consumption (House Committee on Banking and Currency 1935, 241). Government can help to stabilize by taxing away the excess saving, thereby increasing monetary velocity and spending.

128. In the 1920s, Goldsborough proposed Irving Fisher's rule for price stability. See chapter 4. In 1932 he proposed expansive operations to raise the price level. He took an active part in the hearings on the Banking Act of 1935. Commenting on Federal Reserve purchases in 1932, Goldsborough said, "They continued [purchases] until the danger of the passage of the Goldsborough bill was over, and then it immediately stopped" (House Committee on Banking and Currency 1935, 209).

129. This is a remarkable shift from the hand-wringing in 1928–29 about inability to stop the "speculative" excesses. Before testifying, Eccles held a press conference. Contrary to his testimony, he gave as two main reasons for the banking bill "to accelerate the rate of economic recovery . . . [and] to prevent the recurrence of conditions that led to the collapse of our entire banking structure" (Eccles 1934–37, press conference, February 8, 1935, 1).

130. Although the idea of a liquidity trap is now associated with Keynes (1936), Eccles's 1935 testimony shows that the idea was older. Keynes may have acquired the idea from bankers.

vocating fiscal measures, especially increased spending on investment financed by government borrowing to expand demand.¹³¹

THE BILL IN THE SENATE Senator Glass intended to defeat the bill by separating title 2, containing Eccles's proposals, from the sections the bankers wanted.¹³² July 1 was the critical date on which bankers would have to repay their loans and the (temporary) FDIC would expire. Glass hoped to delay passage until that time, get an agreement to separate the sections, pass titles 1 and 3, and later defeat title 2.

When the House in April appeared ready to pass a version of the bill, Glass held brief hearings on Eccles's nomination, hoping to defeat the nomination and be rid of Eccles.¹³³ The subcommittee approved the nomination four to three, with Glass opposed. On April 25 the Senate confirmed Eccles as governor. Glass then started hearings on the bill.¹³⁴

The Republican minority on the House Banking Committee had ob-

131. Currie seems to have shared this view. Although he analyzed the Federal Reserve's failure to expand as a consequence of adherence to the real bills doctrine and neglect of the falling money stock, he does not seem to have pursued this view at the Federal Reserve. He devoted much of his research after 1935 to developing measures of fiscal thrust and the case for unbalanced budgets (Sandilands 1990, 68–78). Later, he described his 1934 book as “partly obsolete when it was published” (Currie 1971). The reason he gave was that money (deposits) depend on member bank borrowing, and there was no borrowing. This is an odd conclusion.

Currie worked as Goldenweiser's deputy, but he reported directly to Eccles. Goldenweiser could (and did) prevent him from publishing some of his work, but he could not prevent him from urging expansive monetary policies or avoiding the doubling of reserve requirement ratios in 1936–37 if he had chosen to do so. Currie described Goldenweiser as laying down “a rule that nothing can be published by the division which he does not understand, which limits the possibilities seriously” (Currie 1971, 79). It is difficult to understand why Eccles retained Goldenweiser in his position and adopted many of his ideas about excess reserves. Currie noted in a 1934 letter to Eccles that Goldenweiser believed that the Federal Reserve had been too *inflationary* in 1931. They (the staff) are “not interested in money and have never completed a series on money” (68–69). Of course, Goldenweiser disliked Currie's criticism of policy from 1929 to 1933 and thought it tainted by what would later be (loosely) called “monetarism.” In a 1935 letter to Viner, Currie complained that Goldenweiser vetoed publication of an article on income-increasing government spending.

132. Roosevelt worked behind the scenes, but not openly, to assist passage. He had the Senate add three new members to the banking committee and secretly encouraged Senator Duncan Fletcher (Florida), chairman of the whole committee, to hold hearings with the whole committee instead of Glass's subcommittee. The latter effort failed. It violated the spirit and possibly the letter of the agreement under which Glass gave up the chair of the Banking Committee to take the Appropriations Committee.

133. He also began an investigation of whether Eccles remained connected to his banks and therefore ineligible (Hyman 1976, 174–75).

134. At first he ignored Eccles and invited Chairman Leo Crowley of the FDIC and Comptroller J. F. T. O'Connor. Both favored separating title 2 and promptly passing titles 1 and 3. Both Crowley and O'Connor opposed title 2. Morgenthau disliked both of them, but both had

jected to the bill on three main grounds. First, the minority claimed that the bill ended the private-public compromise arrangement in the 1913 act by changing the Board from a supervisory agency to a managing partner and by giving the Board authority to approve the appointment of reserve bank presidents. Second, the bill gave the Board control of open market operations and forced the reserve banks to buy or sell securities at the Board's initiative. Third, since there was no emergency, there was no reason to pass title 2 without further study. The last was Glass's plan, and the objective of the bill's opponents.

Eccles's testimony before Glass's subcommittee responded to the main criticisms in the minority report on the House bill, so it was largely defensive in character. He repeated the arguments he had made to the House committee about income redistribution, but most of his statement defended the shift of power to the Board. He claimed the shift did not increase political control over the financial system: "There is nothing in this bill that would increase the powers of a political administration over the Reserve Board" (Senate Committee on Banking and Currency 1935, 280).

Glass interrupted repeatedly. He disputed Eccles's claim that proposals to place the regulation of monetary policy under government control retained the spirit of the 1913 act. The 1913 act gave the Board supervisory responsibility, he said, not control of policy (*ibid.*, 281).

Eccles offered to compromise. The American Bankers Association had proposed that five reserve bank governors should join with the Board to set open market policy. Eccles accepted this proposal in place of his earlier recommendation that the banks have only an advisory function (*ibid.*, 287–89).

Senator James Couzens (Michigan) raised the most intriguing question: What would the Federal Reserve have done differently if the proposed changes had been law in 1928–29? Eccles first tried to evade the issue, but Couzens, joined by Glass, persisted. Eccles could not answer at the hearing but submitted his response in a letter to Senator Couzens.

"The banking bill of 1935 is not primarily proposed for meeting a situation such as existed in 1928 and 1929" he responded (Senate Committee on Banking and Currency 1935, 673). The Banking Act of 1933 and the Securities Act strengthened the Board's power to meet such situations. Then he added two arguments that reflect hindsight, not the views held at the time. First, despite the dominant view at the Board denying any ability to

support in Congress (Hyman 1976, 345–46). O'Connor had been a law partner of Senator William G. McAdoo (California) and was a friend of Glass and the president's son, James. Crowley had the support of James A. Farley, head of the Democratic Party. Eccles did not testify until May 10, a month after hearings began.

affect economic activity or prices, Eccles claimed, "The Federal Reserve Board felt that there was nothing in the business situation that required restraint" (674). Second, "It was not in 1929 that the powers contained in this bill would have been valuable but in 1931. . . . The System would have been in a much stronger position to adopt a vigorous open-market policy if this bill had been in effect" (674). Eccles added that the bill also would give the Federal Reserve power to counteract inflation if banks expanded based on their current excess reserves.

Adolph Miller was the next witness. Miller supported Eccles's argument about (August) 1931: "In 1931 some of the Reserve banks and the Reserve Board had reached the conclusion that it would be desirable to relieve the situation by an open-market operation of considerable extent. Strong opposition was encountered on the part of two or three of the reserve banks . . . [A]n open market operation was undertaken, but to a very much more limited extent" (*ibid.*, 750).¹³⁵

Miller defended the main provisions of the bill. He had favored, and worked for, Board control of open market operations since 1924. In his view the bill did not cause a massive redistribution of powers within the System (*ibid.*, 699). His main objection was to the section making the 1932 Glass-Steagall provisions permanent. Limited powers to change eligibility requirements in an emergency would be sufficient.¹³⁶

A colloquy with Glass brought out a main substantive issue between opponents and proponents. Glass viewed the reserve banks as acting in the interest of stockholders and depositors. He opposed giving the open market committee "the right to compel [reserve] banks to use their resources and the resources of their depositors, whether they thought it was prudent to do it or not" (*ibid.*, 751). Miller responded that centralization was critical not only to affect the public interest but to concentrate responsibility: "Open market policy is peculiarly a national policy, and if it be kept as a

135. Hamlin's testimony confirmed that the reference was to August 1931 (Senate Committee on Banking and Currency 1935, 945–46). At that meeting, Meyer urged purchases of \$300 million, and Harrison agreed. The committee voted to make seasonal purchases of only \$120 million. Governor Young (Boston) opposed any purchases; Calkins (San Francisco) argued that not all the banks could participate because some lacked sufficient gold reserve. See chapter 5. Another occasion, not mentioned here, is November 1931, when Miller wanted a "bold" program of purchases, but the committee made only seasonal purchases. Hamlin also mentions the refusal by Boston and Chicago to participate in purchases in 1933, most likely a reference to 1932.

136. Glass, a former treasury secretary, observed that the Treasury would always consider it an emergency when it had bonds to sell (Senate Committee on Banking and Currency 1935, 729). With respect to the 1932 Glass-Steagall Act, he observed that "I never would have agreed to have reported that bill but for the fact that we were assured . . . that they did not expect to use it" (685).

national policy and operated only . . . when the indications of its need are clear, I do not think there is anything to fear in the way of bad action through withholding from any individual reserve bank the power of veto so far as itself is concerned" (751).¹³⁷

Citing the Federal Reserve's inability to offset gold inflows in 1916, Miller favored increased power to change reserve requirement ratios. Like Eccles, Miller called attention to the problem of excess reserves and potential inflation that had begun to concern the Board. Glass opposed the change.

Miller proposed that the name of the Federal Reserve Board be changed to Board of Governors with the members as governors, as a "matter of prestige" (*ibid.*, 756). He also proposed that the Board be permitted to elect its chairman and vice chairman, but the final bill gave the president that right, subject to Senate approval.

Harrison decided not to testify, but he helped Glass find witnesses who opposed the bill. Many of them urged the subcommittee to pass the bill without title 2. H. Parker Willis reaffirmed Glass's view that the bill subverted the Federal Reserve Act. Title 2 negated "everything in the theory of the Reserve Act" (*ibid.*, 864). He thought open market operations should be phased out. An expanded definition of eligible paper would make it more difficult to enforce provisions against speculative credit. In Willis's view, "the Reserve System has been in the hands of Philistines a great deal of the time and has not lived up to its early promise. . . . [That] has nothing to do with the validity of the principles under which it was organized" (873).¹³⁸

137. It is likely that Miller's statement was more persuasive than Eccles's had been. He was a proponent of the gold standard and real bills, had been a member of the Board from the start, and was a friend of many senators and of both Hoover and Roosevelt. He had opposed the increase in "speculative credit" that many senators blamed for the depression. Senator McAdoo, another former treasury secretary on the subcommittee, agreed with Miller's statement at the time (Senate Committee on Banking and Currency 1935, 751), but later in the hearing he proposed to give the Board authority to excuse a regional bank from participation in an open market operation (761).

138. A sample of views conveys some of the strong beliefs of the time. James Warburg of the Bank of Manhattan left the Roosevelt administration because of its gold policies. Like Willis, he was against open market operations and favored a return to the principles of the 1913 act that his father had helped to write. Oliver M. W. Sprague, of Harvard, testified that decentralization was no longer possible. There is one money market. The Federal Reserve Board should have more control, but the Board should be independent of the administration. Edwin W. Kemmerer of Princeton opposed the bill as too large a transfer of authority to the president over the Board and the Board over the reserve banks. He also opposed provisions to lower the quality of bank assets by abandoning real bills. Kemmerer ended his statement by reading a statement signed by the sixty-two members of the Economists' National Committee on Monetary Policy urging defeat of title 2.

Board members George R. James and Charles S. Hamlin testified also. James saw no need for a central bank or title 2. The present arrangement worked well. Bankers had caused problems by creating deposits “against prices rather than values” (Senate Committee on Banking and Currency 1935, 925). Hamlin favored several of the changes, including substitution of “sound assets” in place of the needs of trade as a criterion for discounts and centralized control of open market operations. He preferred to leave the power to appoint reserve bank governors to the directors, to leave the treasury secretary on the Board, and to keep current restrictions on changes in reserve requirement ratios. Hamlin concluded by affirming support of the Eccles bill.¹³⁹

In all, Glass called about sixty witnesses. Most opposed title 2 as unnecessary. Several made the same argument that Eccles used to respond to Senator Couzens—that the important changes in powers were in the Banking Act of 1933 and the Securities Act.¹⁴⁰

Glass was exultant after the hearings ended. He told Harrison, “I have them badly whipped both in the subcommittee and in the big committee” (Harrison Papers, Telephone Conversation with Senator Glass, file 2021.0, June 15, 1935). The subcommittee had voted to put off discussion of title 2 for a week, so Glass hoped to pass only titles 1 and 3 to meet the July 1 deadline for bankers to repay their loans and continue deposit insurance. He planned to amend title 2 “to make it objectionable to the administration” (*ibid.*, 1).¹⁴¹

Both tactics failed. Pressed by Roosevelt, Chairman Steagall insisted on a compromise, prepared by Eccles and Goldsborough, that extended title 1 for two months. The Senate accepted many of Glass’s amendments, but the House did not, so the issue moved to a conference committee.¹⁴²

The final bill was again a compromise between concerns about banker or political control. Congress accepted many of the changes Eccles pro-

139. Hamlin’s argument for keeping the secretary on the Board stressed the need for cooperation and coordination of fiscal and monetary actions, a theme much discussed in the early postwar years (Senate Committee on Banking and Currency 1935, 949).

140. Eccles (1951, 206) is critical of this argument and fails to recognize that he had made a similar argument in response to Senator Couzens’s question. A list of some principal witnesses is on 205–6.

141. Glass does not seem to have noticed that Eccles’s testimony, defending the bill and its purposes, had changed opinions in the press and the public. The *Washington Post*, owned by Eugene Meyer, and the *New York Times*, both influential, changed from opposition to support. Eccles was the subject of favorable articles in leading magazines (Hyman 1976, 181–82).

142. Glass’s bill tried to prevent the executive branch from controlling the System. It required the Federal Reserve to report to Congress on open market operations, required a supermajority of five governors to change reserve requirement ratios, limited Board members to a single term, and required four members from one party and three from another.

posed, but not in the form he had suggested. The Board gained power and influence over policy and appointments at the reserve banks; however, Glass managed to get representation by the reserve banks on the new open market committee and authority for directors to choose a reserve bank's officers, subject to Board approval.¹⁴³

Morgenthau supported the final bill because he anticipated large budget deficits and wanted to share responsibility for any future debacle that deficit finance might cause. Above all, he wanted a Board with power to keep interest rates low. He wrote in his diary: "I have been hoping and have not mentioned it to a soul that the Federal Reserve Board would be given additional powers and created more or less as a monetary authority so that they and the Treasury can share the responsibility and possibly help us in case we get into a financial jam" (Blum 1959, 352).¹⁴⁴

The Act

The act changed the open market committee from a committee of twelve reserve bank governors to seven Board members and five members chosen by reserve bank directors.¹⁴⁵ The head of the bank had the title president, not governor, and was not *ex officio* a member of the open market committee. Reserve bank directors appointed the presidents and first vice presidents for five-year terms, with approval of the Board of Governors. As before, the Board set salaries. The act replaced the full-time office of chairman and Federal Reserve agent with a part-time chairman.¹⁴⁶

As before, the president appointed members of the Board of Governors,

143. Subsequently, the new bylaws of the Federal Open Market Committee barred the presidents from divulging FOMC decisions to their directors.

144. Morgenthau continued along this line, citing his power over the present Board as stemming not from his seat on the Board but from the use of the Exchange Stabilization Fund "plus the many other funds I have at my disposal. . . . [T]his power has kept the open market committee in line and afraid of me" (Blum 1959, 352).

145. Section 205 of the 1935 act specified that the five presidents would be chosen from restricted groups as follows: Boston and New York; Philadelphia and Cleveland; Chicago and St. Louis; Richmond, Atlanta, and Dallas; Minneapolis, Kansas City, and San Francisco. Each year, a committee of directors met to choose the representative. The act did not require rotation among the reserve banks. Harrison was chosen from 1936 to 1940, with Boston's president always as alternate. Beginning in 1942, New York gained a permanent seat as vice chairman of the committee; Chicago alternated with Cleveland, and the remaining nine banks rotated within three triplets. New York's first vice president serves as the New York alternate.

146. The 1913 act intended the chairman and Federal Reserve agent to be the main contact with the Board. The position of governor is not mentioned in the act. Practice evolved so that the governor became the chief executive. The 1935 act recognized practice. Directors of reserve banks continued to receive \$20 per meeting they attended plus travel (if over fifty miles), plus \$10 per diem for expenses.

subject to Senate confirmation. The act reduced the size of the Board from eight to seven members, holding office for staggered fourteen-year terms beginning March 1, 1936, and removed the secretary of the treasury and the comptroller of the currency.¹⁴⁷ The chairman and vice chairman (formerly governor and vice governor) received four-year terms in those offices and fourteen-year terms as board members (or the remaining years of an unexpired term). No one could be appointed to more than one fourteen-year term.¹⁴⁸

Accommodating commerce and business remained in the act, but the new law weakened the role of real bills by adding “with regard to the general credit situation of the country.” Eccles did not get his choice of phrasing, but Glass could not keep unchanged the wording in the 1913 act. More important was the change in the definition of eligibility. Under the 1935 act, the Board could define eligibility as broadly as it wished. Although the real bills doctrine lived on, it no longer had the force of law behind it. This was a major step in the evolution of the System.

The Board also gained authority to change required reserve ratios up to twice the prevailing ratio by majority vote. Eccles lost the unlimited authority that he requested and Glass opposed. The act eased restrictions on mortgage loans by member banks. Reserve banks were required to vote on discount rates every two weeks; as before, changes required approval of the Board.

Eccles had tried to replace requirements for geographical representation on the Board with a vague reference to education and experience. Glass's views prevailed, so the bill retained the original restrictions.¹⁴⁹

The bill passed on August 19, and the president signed it on August 23. Glass took credit for the final bill, as he had for the 1913 bill (Eccles 1951, 221). In fact, the compromise gave Eccles many of the changes he wanted.

147. Morgenthau agreed to the removal of the secretary but was piqued when he learned that the comptroller, his subordinate, would remain (Hyman 1976, 187). Glass favored removal of the secretary because he believed that, as secretary, he had too much influence after World War I.

148. The salary increased from \$12,000 to \$15,000 a year, more than \$190,000 in 2001 dollars. The rule for service left either Miller or Hamlin, who had served since 1914, eligible for the fourteen-year term beginning in 1936. The other could receive a twelve-year term. Eccles persuaded Roosevelt not to reappoint either. Hamlin was given a staff position as special counsel, and Miller was given responsibility for supervising construction of the new Board of Governors building (Hyman 1976, 198). The building was financed from the Board's “profits” and by assessments on the reserve banks.

149. In the 1960s and after, several presidents bypassed sectional restrictions by appointing governors based on their birthplace, even if they had not lived there for twenty years or more.

Glass lost on the shift of power to the Board, the diminished powers of the regional reserve banks, and the weakened role of the real bills doctrine. The 1935 Act permitted the Federal Reserve to become a central bank, but the major changes in practice came only after World War II and the Korean War.¹⁵⁰

OTHER PROPOSED CHANGES

Although pleased by the increased power granted by the Banking Act, Eccles was not satisfied with the extent of the Board's powers. He pressed Roosevelt to support legislation forcing all banks to become members of the Federal Reserve System. His reasoning is similar to claims made repeatedly by other Federal Reserve chairmen: the Reserve System "cannot function efficiently or effectively in the national interest as long as half of the banks are in it and the other half out. . . . [O]ne half . . . is free to negate management in the national interest" (Eccles 1951, 267–68; memo to President Roosevelt November 12, 1936, quoted in Hyman 1976, 275–76). Eccles wanted all banks with deposit insurance to be members of the Federal Reserve System and all bank examination and regulation to be under the Federal Reserve's control. Also, he wanted bank examiners to vary examination standards over the cycle in harmony with monetary policy, a result that could be achieved only if the Federal Reserve controlled the examinations.

Eccles greatly overstated his case. More than 50 percent of the banks were not members, as he said, but their share of deposits was down to 15 percent in 1936 from 27 percent in 1928 and nearly 17 percent in 1933. Bank failures in the depression, and the bank holiday, had eliminated many of the small, weak, mainly nonmember banks. New lending powers had encouraged growth in the number of state bank members and national banks. Table 6.3 shows these data for selected dates in the 1930s.

The proposal requiring membership, coming soon after the first increase in required reserve ratios, probably reflects Eccles's concern that the higher ratios would reduce Federal Reserve membership by increasing cost. This argument is more plausible than the argument Eccles—and subsequent chairmen—used. Contrary to their claims, control of money and bank credit or an interest rate does not require universal membership in the Federal Reserve System. There is no valid argument to this effect

150. The act also required the Board and the open market committee to keep a complete record of all action taken, the reasons for the action, and the votes. The record had to be published annually in the Board's report. Miller (1936, 11) describes this as a major innovation for central banking. He thought it would improve the reasoning given for votes.

Table 6.3 Number and Size of Member and Nonmember Banks on Selected Dates

DATE	NUMBER				DEPOSITS (BILLIONS)			
	ALL COMMERCIAL	NATIONAL	STATE MEMBER	NON- MEMBER	ALL COMMERCIAL	NATIONAL	STATE MEMBER	NON- MEMBER
June 1933	13,949	4,897	709	8,343	31.9	16.7	9.8	5.3
June 1936	15,243	5,368	1,032	8,843	47.9	26.2	14.6	7.2
June 1938	14,737	5,242	1,096	8,399	48.6	26.8	14.5	7.3

Source: Board of Governors of the Federal Reserve System 1943, 16–17.

and no evidence that control changed after all banks became subject to reserve requirements in the 1980s.

Examination Standards

Roosevelt did not endorse Eccles's proposal for Federal Reserve control of bank examination, but Eccles did not give up. He tried several more times to persuade Roosevelt to endorse his program. Finally, as part of a program to end the 1937–38 recession, Roosevelt endorsed unification and liberalization of bank examination policies in a message to Congress on April 14, 1938 (Hyman 1976, 247; Eccles 1951, 272).¹⁵¹ Roosevelt then asked Morgenthau to establish a committee of federal and state banking agencies to agree on a more liberal bank examination policy.

All the banking agencies, except the Federal Reserve, quickly agreed on revision of examination procedures and a common set of standards. The National Association of State Bank Examiners accepted the changes. Eccles continued to argue over some technical details. What most disturbed him, perhaps, was that the new standards had been agreed to without legislation. Consolidation of all examination under the Federal Reserve would not be necessary, and he would not get countercyclical examination standards. Adding to Eccles's problem was strong support for the revision by the American Bankers Association and the financial press, and his own political blunder.¹⁵² Morgenthau gave him an ultimatum:

151. Many of the same arguments about examination standards as a cause of recession or slow recovery reappeared in Federal Reserve and administration statements in 1991–92. Eccles's argument seems rather naive despite his experience in government. He compared the banking authority he wanted to create to the Interstate Commerce Commission—"a single, strong, independent, nonpolitical, but public body . . . that would make decisions free from the political winds" (Eccles 1951, 270).

152. Eccles made the mistake of complaining about "faulty examination procedures" in a long letter to Senator Arthur Vandenberg (Michigan), a potential rival to Roosevelt in the 1940 election. The letter urged countercyclical examination standards. Vandenberg published it in the *Congressional Record* and made it public. Eccles's criticism of administration banking policy, with the clear implication that it delayed the recovery, infuriated Morgenthau (Blum 1959, 430–31; Eccles 1951, 275–77).

agree to the committee's recommendations or he would go to the president without Federal Reserve agreement. Eccles agreed, and the standards were issued.¹⁵³

The new standards allowed banks to invest in nonmarketable bonds issued by small corporations and reduced the size of the mandatory write-off of slow and doubtful loans. The standards used average value over several months in place of current market value to judge soundness of marketable assets. This moved away from mark-to-market accounting and increased examiner's discretion.

Eccles did not give up. A few months later he told Roosevelt that he would resign at the end of his term, February 1940, unless the Board of Governors gained new powers "to do the work expected of it" (Eccles 1951, 279). Knowing Roosevelt's reluctance to take up the membership issue, Eccles recommended that the president ask Congress to study the issue and draft legislation. Congress appropriated \$25,000 for this purpose, one-fourth the amount Eccles had suggested. The matter died when the war in Europe shifted attention toward preparation for war. Eccles never realized this objective, nor did other chairmen who pursued it.

Nationalizing the Reserve Banks

Proposals to nationalize the reserve banks by having the government repurchase all outstanding shares continued after passage of the 1935 Banking Act. In May 1937 Congressman Wright Patman (Texas), who later chaired the House Banking Committee, proposed legislation that attracted 151 cosponsors. The legislation transferred ownership of the reserve banks to the government, returned the treasury secretary and the comptroller to the Board, and added the chairman of the FDIC and twelve members, one from each district. The enlarged Board would serve as the Federal Open Market Committee (FOMC). The bill also required the Federal Reserve to stabilize and maintain the purchasing power of money and gave all members of the FDIC the rights and privileges of member banks. At the time, the consumer price index was about 80 percent of its 1926 level. The act required the Federal Reserve to keep the price level within 2 percent of its 1926 value. Once again, some members urged price stabilization and a price level target.

The Board's staff dismissed the last proposal as unrealistic and impractical (Board of Governors File, box 141, undated). The reasons they gave

153. Eccles's version claims that Morgenthau adjusted the recommendations to meet Eccles's requirements (Eccles 1951, 276).

show some change of views. The staff no longer denied that the price level depends on money, but it recognized both monetary and nonmonetary causes of price changes. For example, a crop failure or taxes may raise prices. Also, there was no satisfactory measure of the price level. Index numbers differ.

The staff concluded that the Patman bill mistook ownership for control. The banks owned stock in the reserve banks but did not control the System. All the net earnings of the reserve banks after dividends of 6 percent went into a surplus fund. The excess was paid to the Treasury (or had been used for other purposes, e.g., to establish the FDIC). Congress could allocate the surplus, so it had final control.¹⁵⁴

Raising Prices

The 1937–38 recession renewed proposals to raise the price level and thereafter keep it stable. Congressman Goldsborough again offered legislation to require the Federal Reserve to restore wholesale prices to the 1921–29 average. Other legislation (Board of Governors File, box 136, January 21, 1938) required the Federal Reserve to make social payments to aged and infirm adults and to dependent children and to finance farms and homes for lower income groups. Senator Elmer Thomas (Oklahoma) proposed to reconstitute the Federal Reserve as a monetary authority responsible for controlling the price level based on the values at home and abroad of tax payments, interest payments, outstanding debt, prices, and other factors (Board of Governors File, box 141, March 25, 1937, 7).

The staff responded to the price level proposals by sending out a published version of its response to the Patman bill. It accepted the desirability of economic stability, opposed using price stability as a goal, and opposed raising the price level 25 percent to restore the 1926 price level. The memo failed throughout to distinguish between individual prices and the price level (Wyatt to Congressman Kelly, Board of Governors File, box 141, June 17, 1938).

The lasting feature of these proposals is congressional interest in legis-

154. Other provisions of the Patman bill eliminated the restriction on changes in reserve requirements that mandated uniform changes for all reserve city and central reserve city banks, or all country banks. But it also removed the required reserve ratio from banks that did not borrow from a reserve bank. The staff memo liked the proposals to unify the Board and the open market committee (although the timing might be wrong) and eliminate the Federal Advisory Council of twelve bankers. The council “serves no useful purpose,” and “its advice on monetary and credit matters is either useless or worse” (Board of Governors File, box 141, undated, section 7). But the report grudgingly accepted that there would probably have to be consultation with bankers, so it might be best to retain the council.

lation giving guidelines for improving the economy and maintaining price stability. These concerns eventually led to the Employment Act of 1946.¹⁵⁵ Legislative interest in price stability as a goal of monetary policy waxes and wanes, but Congress has not adopted it.

RESERVE REQUIREMENTS AND OPEN MARKET POLICY, 1935–37

By the time Eccles joined the Federal Reserve, Roosevelt's economic program was about to change. The Supreme Court soon declared the NRA and the AAA unconstitutional. Gold and silver purchases continued routinely, but hopes for reflation to the 1926 or 1929 price level were no longer widely held.¹⁵⁶ Agricultural prices (measured at the time) had increased absolutely and relative to other prices, as Warren had predicted, but they remained 25 percent below the 1926 average. The consumer price index was about 30 to 35 percent above its low but 25 percent below the 1929 level.

Roosevelt had not yet abandoned his hopes for a balanced budget, but the low level of activity and relief expenditures kept the hope unrealized. To finance the deficit while keeping interest rates from rising, Morgenthau bought bonds for the new Exchange Stabilization Fund and the Treasury trust funds—Postal Savings, Railroad Retirement, and others. The Federal Reserve, as fiscal agent, made purchases for the Treasury, limiting its own operation for most of 1934 to exchanges of long-term for short-term debt. The open market portfolio remained below \$2.5 billion, about 25 percent larger than in March 1933.

Morgenthau recognized that using the stabilization and trust funds not only freed him from dependence on the Federal Reserve but gave him an opportunity to influence its decisions. Despite the legislative changes that had increased de jure Federal Reserve independence, the Federal Reserve was less independent of the administration from 1934 to 1941 than in any other peacetime period.

155. The Board also used Eccles's 1938 letter to Senator Vandenberg to respond to proposals for nationalizing Federal Reserve banks or repaying the government debt by issuing currency. On the latter issue, Eccles makes the extraordinary claim that issuing currency to buy back the federal debt would not raise prices or increase prosperity (Eccles to Senator Arthur Capper, Board of Governors File, box 141, June 5, 1939, 3). The claim is that the currency would return as excess reserves and remain idle. In the 1938 letter, this is followed by a contradictory claim that inflation would result (Eccles to Vandenberg, Board of Governors File, box 141, June 14, 1938, 5, 7).

156. Fisher continued to argue for a higher gold price, an increase to \$41.34, the maximum permitted under the Thomas amendment. Roosevelt listened but did not act (Barber 1996, 81). The experiment had not worked in 1933 as Warren and Fisher promised, so Roosevelt had moved on.

Policy Issues, 1935–36

In January 1935 the Board approved reductions in discount rates to 2 percent at Philadelphia, Atlanta, and St. Louis and to 2.5 percent at Richmond, Minneapolis, and Dallas. These were the lowest rates at these banks up to that time, but further reductions in discount rates, open market rates, and deposit rates soon followed. The proximate cause of lower rates was the gold inflow in response to the \$35 price. The Federal Reserve had not made any net open market purchases for more than a year.

THE GOLD CLAUSE On January 25, Eccles told the FOMC's executive committee about the Treasury's concern that prices of bonds carrying the gold clause had increased absolutely and relative to the prices of other bonds. On January 11 the price of Treasury bonds with the gold clause was 0.75 percent above bonds without the clause. The difference remained throughout the month. The price difference reflected the impending Supreme Court decision in *Perry v. United States*, known as the gold clause case.¹⁵⁷

The New York directors responded to the spread in rates by authorizing sales of gold clause bonds in exchange for other bonds. The FOMC followed. On February 5, it approved purchases or sales of up to \$250 million (FOMC Minutes, Board of Governors File, box 1451, January 25 and February 5, 1935).

The administration also prepared for the Court's decision. Harrison was told to stabilize the foreign exchange and gold markets by keeping the French franc within the gold points. The plan was to use the Exchange Sta-

157. There were several cases. The Court issued separate opinions for private bonds and public debt. The plaintiffs in the private bond cases asked to receive compensation for the 59 percent devaluation of the dollar against gold by payment in dollars at the old exchange rate of dollars for gold. They did not question the right to devalue or withdraw gold. The government claimed the right under its explicit power to coin money and regulate its value. The decision, expected in early February, was delayed until February 18. The Court found for the government by five to four, with Justices Hughes, Stone, Cardozo, Brandeis, and Roberts in the majority and Butler, Sutherland, Van Deventer, and McReynolds in the minority. Citing earlier decisions in the Legal Tender Cases (1871) and the Court's opinion following the 1834 6 percent reduction of the gold content of the dollar, Hughes's opinion found that the plaintiff had not been damaged and placed the constitutional power to regulate the value of money above the obligations of private contracts. Stone's decision, in the case involving government bonds, *Perry v. U.S.*, concluded that the plaintiffs had not suffered a loss. McReynolds's dissent denied that the Constitution gave Congress power to repudiate contracts. He found that Congress had acted to "destroy private obligations, repudiate national debts and drive into the Treasury all gold within the country in exchange for inconvertible promises to pay, of much less value" (Krooss 1969, 4:2865). The gold clauses in contracts did not prevent Congress from regulating the value of money. Justice McReynolds is reported to have said, "The Constitution is gone" (Pearson, Myers, and Gans 1957, 5618). The court ignored the higher market price of bonds with the gold clause, clear evidence that the option was valuable as protection against future inflation.

bilization Fund to buy francs by selling sterling “violently” if necessary (Harrison Papers, file 2012.5, February 18, 1935). The Court’s decision, favorable to the government, required no action.¹⁵⁸

DELAY AND INACTION The System’s inaction in 1935 was not accidental.¹⁵⁹ As excess reserves rose, members of the FOMC became concerned about potential credit expansion and uncertain what to do. A background memo prepared for the March 21 meeting addressed the issue by asking, What is the duty of a central bank in the present situation? (Excess Reserves and Federal Reserve Policy, Board of Governors File, box 1449, March 21, 1935).

The memo had two parts. The first traced the increase of excess reserves and discussed the reasons for their continued growth. It found that, initially, excess reserves were expected to pressure banks to expand private loans by pushing down the yield on government securities. This could happen, but there was little evidence so far. One reason given was that government deficits supply bonds that the banks bought (*ibid.*, 2–3): “If this process should continue, should we not expect on the basis of the experience of other nations that eventually a point will be reached where the banks will be unable or unwilling to absorb the government debt, so that the government will be forced to expend its stabilization fund . . . or request the reserve banks to purchase more government securities . . . , or to borrow directly from the Reserve banks” (4).¹⁶⁰ The memo concluded that neither past experience nor central bank theory gave any guidance in pres-

158. Issues about the gold clause did not end with the cases. The decision for the government was based in part on the finding that, since prices had fallen, bondholders had not been harmed. This suggested that the decision might be reversed at a later date. In March 1935 Robert A. Taft, acting for the Dixie Terminal Company, demanded payment on a \$50 bond with the gold clause at the value of gold in 1918, when the bond was issued. The Treasury refused, so Taft sued in the Court of Claims on behalf of Dixie Terminal and other clients. In November 1936 the Court of Claims rejected these suits. A year later, the Supreme Court agreed with the government (Patterson 1972, 152–54). I am indebted to Leonard Liggio for this reference.

159. The Federal Reserve was not alone in its inactivity and hesitancy. Harrison reports on a meeting with Roosevelt in late May. The NRA had been declared unconstitutional on May 27. Harrison describes Roosevelt as “harassed and stumped and for once I thought he had no definite plan and seemed quite hopeless and helpless” (Harrison Papers, memo to personal files, June 3, 1935, 3). The meeting came about after Morgenthau told Harrison that the president was concerned that Harrison might be angry about the banking bill and, for that reason, no longer called on him. Harrison made an appointment. The president “chided me for not having called on him and rather expected me to explain why I had not called” (3). They agreed that Harrison would call and visit when he was in Washington.

160. This presumes without explicit recognition that the gold inflow is less than the deficit. Otherwise banks would continue to gain reserves and purchase Treasury bonds. Eventually prices would rise, reversing the gold flow.

ent circumstances.¹⁶¹ Previous inflations abroad had occurred with rising activity and government borrowing directly from the central bank.

The second issue was the course to follow. The memo considered open market sales to absorb excess reserves but rejected this course on economic and political grounds. The economic argument was that sales might cut off an incipient expansion by overweighting future dangers of inflation and not encouraging expansion enough. The political argument was that the government could offset Federal Reserve actions by using the stabilization fund or resort to issuing paper money under the Thomas amendment. Further, with the banking act in Congress, the government could change the entire financial system, including the central bank: "It seems clear that we could act effectively only with the consent and cooperation of the administration" (*ibid.*, 8).¹⁶²

The memo recommended no action for the present. The only policy change in the next two months followed a May 1 letter from the Board to the reserve banks, calling attention to discount rates and suggesting that the directors consider reductions. A week later the Board approved reductions at Dallas, Richmond, Cleveland, Minneapolis, and Kansas City. Discount rates were now 1.5 percent in New York and Cleveland, 2 percent at all other banks. Discount rates remained at these levels for the next two years.

The volume of discounts fell below \$10 million in January 1934 and, except for a small increase in the 1937–38 recession, remained there until the war. The acceptance portfolio reached \$10 million in spring 1934, then gradually faded away. Open market rates remained below the discount rate and the buying rate on acceptances. Prime commercial paper was at 0.75 percent, banker's acceptances were at 0.125 percent, and long-term Treasury bonds fluctuated around 2.75 percent.

CONCERNS ABOUT FUTURE INFLATION Propelled by gold inflows, the monetary base rose at an 18 percent annual rate for the first three quarters of 1935 and at a 25 percent annual rate in the fourth quarter. Chart 6.2 shows the very close relation between gold and the monetary base dur-

161. The memo has a rare acknowledgment of policy error. Looking back at September 1931, the memo commented that standard theory misled them following England's departure from the gold standard. The Federal Reserve raised the discount rate, a classic response. "The rate increase probably served more to add to the deflationary movement of succeeding months than to check the gold outflow" (Excess Reserves and Federal Reserve Policy, Board of Governors File, box 1449, March 21, 1935).

162. Governor Schaller of Chicago wrote on May 4 urging reduction of Treasury bill holdings, by allowing them to run off weekly, until the bill rate reached 0.5 percent. The Board responded: "Excess reserves should not be reduced until there is evidence of excessive borrowing or speculative expansion" (Board of Governors File, box 1451, May 4 and 17, 1935).

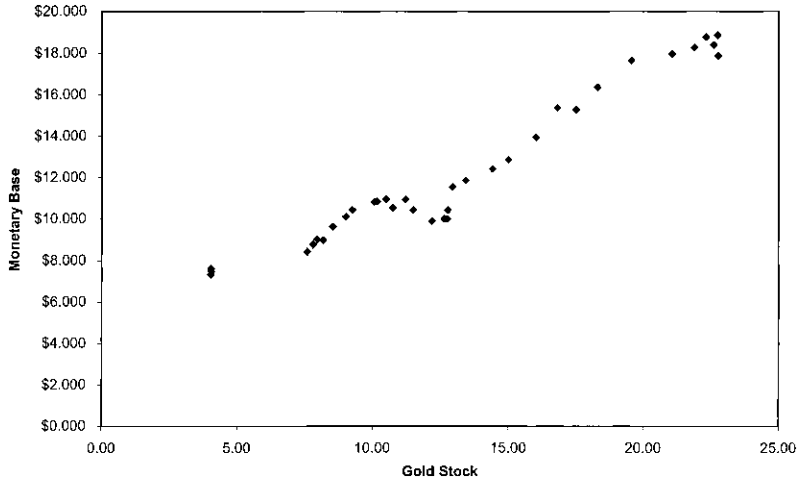


Chart 6.2 Monetary base versus gold stock 1933.2 to 1941.4 (billions of dollars).

ing the recovery. With the exception of a few periods, mainly in 1937–38, gold flows dominated changes in the base. The money stock rose and fell with the base.

The background memo for the October 1935 FOMC meeting noted the improvement in business conditions. But it noted also that member banks held almost \$3 billion in excess reserves, an increase of \$1 billion since March.¹⁶³ The volume of excess reserves now exceeded the size of the open market portfolio.

The memo was more anxious than the March memo. It asked whether the Federal Reserve should intervene to prevent further accommodation and the risk of inflation. Its conclusion: the System must coordinate with the Treasury. Monetary restraint without a reduction in the budget deficit would risk higher interest rates on Treasury financing (Memo for FOMC, Board of Governors File, box 1452, October 22, 1935, 11–12).

The memo raised two questions that the governors discussed at length: What was the appropriate time to reduce excess reserves, and should it be done by open market sales or by an increase in reserve requirement ratios? The governors were divided. Some saw no reason to act; some favored an increase in required reserves; some wanted open market sales. Eccles favored an increase in reserve requirements, but he was concerned about how it could be presented to the public.

The resolution adopted at the meeting recognized the risks of action

163. This figure is preliminary. The final figure was \$3.6 billion. The difference suggests the large changes occurring at the time.

and rejected taking any immediate steps. It called for action “as promptly as possible” to reduce excess reserves, and it provided for purchases of up to \$250 million in the event of a disturbance following an increase in required reserve ratios, the decision to be taken by telegraphic vote. The members generally preferred a change in the requirement ratios to open market sales, because open market sales had previously been used only to tighten credit. This was not the intention. The effect of increased reserve requirement ratios, they said, would depend on the distribution of excess reserves by class of banks and by geographical location. The governors recommended that the Board learn about these distributions (FOMC Resolutions, Board of Governors File, box 1450, October 23, 1935).¹⁶⁴

THE ROLE OF EXCESS RESERVES With borrowing reduced almost to zero, the key relation of the Riefler-Burgess framework was inoperative. Member bank borrowing could not be an indicator of policy action. Instead, the System focused on the level of excess reserves. A high level indicated potential credit expansion; an increase was a sign of increased potential expansion.

This interpretation of excess reserves follows directly from the Riefler-Burgess theory, if excess reserves are treated as negative borrowing. Instead of reducing borrowing when the credit market eased, banks added excess reserves. In the System’s view, beyond some point additional excess reserves were excess in the economic as well as in the accounting sense.

There is no evidence of a study by the Board or the reserve banks to understand why banks held large excess reserves. With short-term interest rates below 0.5 percent, the opportunity cost of holding excess reserves remained low, but banks had other options. Interest rates on long-term Treasury bonds fluctuated around 2.75 percent. The Board appears to have made no effort to understand or explain this puzzle. The common presumption was that unless excess reserves remained concentrated in one part of the banking system, they could be absorbed without consequence.¹⁶⁵ All Federal Reserve discussion at the time treated excess reserves as a redundant surplus.¹⁶⁶

164. After the meeting, Harrison prepared the first of many draft statements explaining that the increase in reserve requirements was a precautionary move, not a change in policy. (Harrison to Eccles, Board of Governors File, box 1450, November 4, 1935).

165. There is remarkably little academic study of excess reserves. The best work (Frost 1966) attributes the increase in excess reserves to risk and the prevailing low level of opportunity cost. See also Brunner and Meltzer 1968a for conditions required for a liquidity trap in the banking system.

166. A staff study showed that at the last call report on June 29 only 897 banks out of 6,410 would have to increase their deposit balances at reserve banks if reserve requirements increased by 25 percent. The Federal Reserve would have to provide only \$99 million of additional re-

The poor quality of the Board's analysis shows also in the estimates of potential credit or monetary expansion. Their usual estimate is ten to twelve times the volume of additional reserves, but some estimates put additional lending potential at twenty times excess reserves. Emanuel Goldenweiser's book, written many years later, repeats these estimates (Goldenweiser 1951, 175). To get these numbers, the staff used only the required reserve ratio, ignoring drains into currency holding and time deposits. A more accurate calculation, one that allowed for these concomitants of monetary and credit changes, would have estimated maximum credit expansion as seven or eight times the addition to reserves. And this calculation is almost certainly too high because, like the Board's staff, it assumes that none of the excess reserves were held for reasons of safety based on experience. The result was a large overestimate of potential monetary and credit expansion and prospective inflation and an underestimate of the effect of higher reserve requirement ratios.

A subsequent memo by the Board's staff considered the pros and cons of a reduction in excess reserve achieved by raising reserve requirement ratios. The pro case claimed there was no question that the Board would have to act; it was "merely a question of timing" (Memo, Board of Governors File, box 1450, November 5, 1935). Prompt action, before banks expand, based on outstanding excess reserves, was best because delay might force loan liquidation. Also, reserves were "ample," so increased reserve requirements would be less likely to lose members.

The memo recognized that the same reduction in excess reserves could be achieved by selling securities. Raising reserve requirements would not affect the government bond market, unlike open market sales, or diminish the earning assets of the reserve banks. It would begin a policy of using the new instrument to adjust to new conditions while reserving traditional methods to expand or contract bank credit. And it would put the Federal Reserve in a better position to control credit expansion by open market operations.

The con case was shorter. There was no evidence of a need for restraint. Policies of restraint should be used when restraint is required, or they risk misunderstanding. Both the open market portfolio and the effect of a max-

erves to offset the shortfall at banks with reserve deficiencies. All the banks had correspondent bank balances sufficient to cover the reserve deficiency. A 50 percent increase would require 2,041 banks to increase reserves by \$528 million. All but 125 could meet the increase from correspondent balances. The memo makes clear that no further adjustment was expected following the increased requirements or the reduction in correspondent balances (Board Minutes, November 6, 1935, 5-6). Only James questioned whether some banks would adopt "less liberal lending policy" to restore excess reserves (6). The rest of the Board accepted the memo's conclusion. Eccles used the memo in his discussions with Morgenthau and left a copy.

imum increase in reserve requirement ratios would remove current, but not future, excess reserves. It might be better to wait to get the maximum effect “when the need comes.” Action might retard recovery, although it should not.¹⁶⁷

On November 15 the directors of the Chicago bank voted to advise the Board that they favored an increase in reserve requirements. One director opposed, preferring a sale of government securities. A month later, New York unanimously endorsed the change (Board of Governors File, box 1450, November 15 and December 16, 1935). The Board was ready to act. The next steps were to discuss the issue with Secretary Morgenthau and to prepare a press release announcing the increase, effective January 1, 1936.

Morgenthau was still chairman of the Federal Reserve Board, but he attended few meetings. On November 7 Eccles briefed him on the Board's decision to raise reserve requirement ratios. Morgenthau prepared for the meeting by getting opinions from former undersecretary Parker Gilbert, a partner at J. P. Morgan, Walter Stewart, and Jacob Viner. All three urged delay; the economy was recovering but needed stimulus, not contraction (Blum 1959, 354–55). Morgenthau added concerns about financing the 1937 budget deficit that would soon be sent to Congress, and he urged delay for three or four months. Eccles agreed that there was no reason for immediate action, but based on the staff memo about the distribution of reserves, he assured Morgenthau that the increase would have no market effect. Eccles reported his conversation to the Board. No action was taken (Board Minutes, November 8, 1935, 1–5).

In May, stock prices started to rise rapidly. After remaining unchanged through 1934, the Standard and Poor's index rose 40 percent in 1935, with much of the increase in the second half of the year. Many of those who believed that the 1927–29 stock market boom had caused the economic and financial collapse interpreted the 1935 increase as another speculative boom presaging another collapse.

Eccles had started to issue a press release after every FOMC meeting, announcing the decision, if any, and the main issues discussed. The release following the November 22 meeting discussed inflation and the stock market boom. It defined inflation as “a condition brought about when the means of payment in the hands that will spend them increases faster than goods will be produced” (Press Releases, Board of Governors File, box 1441, November 22, 1935, 1). The memo added that the economy was a long

167. The Federal Advisory Council opposed, preferring open market sales because of the “rigidity” of reserve requirements (Board of Governors File, box 1450, November 21, 1935). Open market sales would transfer earning assets to the market; increased reserve requirement ratios would reduce bank earnings.

way from inflation. It noted that the increase in stock prices was financed by cash, not credit, a reminder that concern about “speculative credit” remained widespread.

Many bankers criticized administration policy. Some used devaluation, continued budget deficits, large excess reserves, and rapidly rising stock prices to claim that the administration was bent on inflation.¹⁶⁸ As the election year approached, Morgenthau regarded much of this criticism, and many of the pressures to reduce excess reserves, as political efforts to hurt the administration (Blum 1959, 355–56). But he also accepted the argument that rising excess reserves permitted increased inflation. Resisting Harrison’s argument for higher reserve requirement ratios to control the stock market, he recommended an increase in margin requirements instead. Harrison replied that the purchases were for cash, so increased margin requirements would not help. Higher reserve ratios were needed primarily to prevent future inflation and reassure foreigners that we recognized the danger (Memo, Conversation with Secretary Morgenthau, Harrison Papers, file 2012.5, November 21, 1935).

The Board reviewed its policy on December 17 with Harrison and Williams present. Goldenweiser presented the options, now including increased margin requirements. He favored an increase in required reserve ratios, but he warned of a possible bad psychological reaction. He recommended that a press release say that the Board wanted to foster recovery and that “if any action were taken on reserve requirements, it would be in the nature of a precautionary measure . . . rather than a reversal of the System’s easy money policy” (Board Minutes, December 17, 1935, 5).

Goldenweiser was ambivalent about the need for action. He saw the threat of future inflation if the banks expanded but found “no need to worry about inflation at this time with the very large volume of unused plant capacity and unemployment” (*ibid.*, 6).¹⁶⁹ He dismissed pressures from bankers to reduce excess reserves as based on a desire for higher interest rates (6).

John H. Williams supported Goldenweiser’s analysis but strongly urged prompt action: “The present volume of excess reserves was considerably greater than anyone considered necessary for the furtherance of the present easy money policy” (6). He wanted to absorb the 1935 excess reserve in-

168. The extent of the hostility is suggested by the proposal at the American Bankers Association convention to boycott the government and, by refusing to purchase government bonds, force the government to reduce spending (Eccles 1951, 251).

169. He estimated industrial production as halfway between the depression low and the 1929 peak. (Current data put the recovery at two-thirds of the decline.) He put the gold inflow in the year to September at \$900 million, and \$3 billion since the devaluation.

crease, and he proposed that action be taken in January as soon as the administration announced the 1937 budget proposal.

The Board's only action was to issue a press release after the meeting emphasizing that the volume of reserves, reflecting gold inflows, "continues to be excessive" and warning that "appropriate action may be taken as soon as it appears to be in the public interest" (Press Statement, Board of Governors File, box 1441, December 17, 1935).

The FOMC met the following day. It adopted a resolution calling on the Board to act "as soon as possible without undue risk" to absorb part of the excess reserves. It left to the Board decisions about the timing and size of the increase (Sproul Papers, FOMC Resolution, Excess Reserves, December 18, 1935).

Excess reserves decreased seasonally in December but rose back to \$3 billion in January. The relation of the reserve banks to the Board was in an important respect the reverse of the 1920s. The bank governors were the only members of the FOMC for a few remaining months, but having decided to avoid open market operations, the FOMC could only petition the Board to act. On January 21 the committee again adopted a resolution, marked "very confidential," recommending "a substantial reduction in excess reserves . . . as soon as this may be feasible" (Policy Record, Board of Governors File, box 291, January 21, 1936). The vote was nine to three in favor with Governors Roy A. Young (Boston), Oscar Newton (replacing the deceased Eugene R. Black at Atlanta), and William McChesney Martin Sr. (St. Louis) opposed.¹⁷⁰

This was the last meeting of the full membership of the old FOMC. The Board ignored its principal recommendation, choosing instead to replay, in different form, the issue of general versus selective control. Three days later the Board voted to increase stock market margin requirements from 45 percent to 55 percent.¹⁷¹ Two months later, it extended the increase in margin requirements to collateral loans made by banks.¹⁷²

170. The Board replied by letter, citing the increase in margin requirements and insisting that there had been little change in the past month (Sproul Papers, Excess Reserves, January 31, 1936). Harrison told the New York directors that the Board would not act until the new Board took office.

171. Legal counsel advised the Board that it had no responsibility for stock prices or the volume of trading. It could act only on a finding that action was "necessary or appropriate to prevent the excessive use of credit to finance transactions in securities." Earlier in the same meeting the Board noted that the increase in loans on securities was "slight" and "the amount of borrowing at this time is low as compared with some past years." Most of the purchases—estimated at 80 percent—were for cash. Nevertheless, the Board cited increased borrowing to justify its action and used its decision to increase margin requirements to reject the FOMC's recommendation to increase reserve ratios (Board Minutes, January 24 and January 31, 1936).

172. Margin requirements are governed by Board regulation T, collateral requirements by regulation U.

These steps did not allay fears of inflation. In February the Federal Advisory Council concluded unanimously that the Board should increase required reserve ratios. The “present huge volume of excess reserves is a most serious menace.” The council did not make a specific recommendation about the size of the increase, but it urged an increase large enough to prevent the country’s credit structure from “being built on that part of the gold holdings which may be deemed to be transitory or temporary.” The council released its recommendation to the public within a week (Board Minutes, Meeting with Advisory Council, February 12, 1936, 2–3).

Reorganization

The Banking Act of 1935 required the treasury secretary and the comptroller of the currency to resign from the Board. The act also reduced the number of Board members from eight to seven and changed the membership of the FOMC.

Eccles did not want to reappoint most members of the Board. J. J. Thomas resigned as vice chairman in February to return to Kansas City as chairman.¹⁷³ The new members included Ronald Ransom, a banker from the Atlanta district who had served on the legislative committee of the American Bankers Association. The bankers had split on the new legislation, but Ransom and the legislative committee had worked to get a compromise they could support. To gain Glass’s support for Eccles’s appointment, Roosevelt allowed him to choose three members of the new Board. He chose Ransom, John K. McKee, chief examiner of the Reconstruction Finance Corporation, and Joseph A. Broderick, New York state superintendent of banks. Roosevelt chose Eccles and Menc S. Szymczak from the old Board, and Ralph W. Morrison.¹⁷⁴ Disagreement about the member to represent agriculture delayed appointment of the seventh member until June, when Roosevelt appointed Chester C. Davis, head of the Agricultural Adjustment Administration. The four new members joined the Board in February 1936. Four of the seven served through the end of World War II. Broderick left in September 1937 and Davis in 1941.¹⁷⁵

173. Thomas was paid a salary for three years to encourage his return to Kansas City. In hearings on Eccles’s appointment, Glass again raised the issue of Eccles’s financial interests. Eccles replied forcefully, denying the charges, and the matter ended.

174. Morrison remained only five months. His nomination was pushed by Vice President Garner. He was a Texas rancher but had legal and financial difficulties and fled to Mexico in July 1936 (Hyman 1976, 201).

175. Szymczak served twenty-eight years, twenty-five of them under the new rules. His twelve-year term ended in 1948. He was reappointed for a full term but resigned in 1961. He served also as United States director in charge of German rehabilitation in 1946, on leave from the Board and, in 1944, as an adviser to the Bretton Woods Conference (Katz 1992, 314–16).

As the March 1 date for the new FOMC approached, the Board voted not to approve appointment of any president who was over seventy or would become seventy during a five-year term. Four governors left the System. George Seay (Richmond) had started as a governor in 1914.¹⁷⁶ George W. Norris (Philadelphia) and John Calkins (San Francisco) had served since 1920. Of the old guard, only Roy A. Young (Boston), George L. Harrison (New York), and William McChesney Martin Sr. (St. Louis) remained.

The 1935 act did not specify who could be a member of the FOMC. Some reserve banks wanted to nominate people with wide experience in financial affairs who were not officers of the reserve banks. The Board voted that the non-Board FOMC members should be presidents of the reserve banks. At its organizational meeting on March 18 and 19, the new FOMC elected Eccles chairman and Harrison vice chairman and set March 1 of each year as the date for rotation of membership and election of an executive committee to execute transactions and allocate securities to the reserve banks. The new executive committee would have five members as before, but now three came from the Board.

The new bylaws changed the 1933 wording of the governing principle by omitting agriculture. More significant, the new statute now included "bearing upon the general credit situation," an open-ended commitment to discretionary action. The rules barred individual reserve banks from making purchases and sales except as part of the committee, and the committee reserved the right to require a reserve bank to sell or transfer to the System Open Market Account any securities held or purchased outside the committee. The old issue of individual bank earnings was put to rest. Earnings would now depend principally on shares in the open market portfolio (Open Market Regulations, Board of Governors File, box 1433, March 19, 1936).

The Board now had control. Perhaps recalling October 1929, Harrison moved to permit a reserve bank to purchase government securities in an emergency. The motion was defeated. Eccles was unwilling to have the issue considered.

In May, the Conference of Reserve Bank Presidents and the new FOMC discussed the allocation formula for allotment of securities and earnings to the reserve banks. They agreed to transfer all securities held by individual reserve banks to the System account, but the individual reserve banks retained the right to enter into temporary resale agreements for up to fif-

176. Governors Fancher (Cleveland) and McDougal (Chicago) had left in 1935 and 1934. As already noted, Black died at the end of 1934. His replacement (Newton) had served as chairman of the Atlanta bank.

teen days. The new FOMC retained the old formula for allocating profits and losses to individual banks (Board of Governors to Reserve Banks, Board of Governors File, box 1452, June 12, 1936).¹⁷⁷

The First Increase and Its Aftermath

Although the gold stock continued to increase during the winter and spring, excess reserves fell about \$500 million between January and April. The decline did not change the discussion. Harrison and the commercial bankers continued to agitate for an increase in requirements. Harrison, Burgess, and Williams pressed hard at an April Board meeting, but the Board deferred action pending receipt of new information on individual bank positions showing how many banks would lose all their excess reserves. Eccles agreed with Morgenthau, who wanted to delay action until the Treasury completed its June financing (Hyman 1976, 216).

Roosevelt had a different view. With the political conventions starting, he wanted to show that he was alert to the risks of inflation. He told Eccles he preferred the increase in May rather than July (Blum 1959, 356). The political problem was less important to Eccles. The decisive factor for him was the decline in interest rates. During the spring and early summer, government bond yields continued to fall. Eccles's concern was that banks would lend money and buy securities at low interest rates and suffer large losses in a future inflation (Eccles 1951, 289). Nevertheless, Morgenthau prevailed; the Board did not act.

On July 9 Eccles met with Roosevelt to explain that the Board was about to act and to discuss the political consequences of the action.¹⁷⁸ He assured the president that he would not act if he thought interest rates would rise and that the FOMC would purchase bonds if bond prices fell by one point or more (*ibid.*).

The Board voted on July 14 to increase reserve requirement ratios by 50 percent. The new ratios were 19.5, 15, and 10.5 percent for demand deposits at central reserve city, reserve city, and country banks and 4.5 percent for all time deposits. The new requirements became effective on August 15.

177. The formula, proposed by Harrison in December 1929, provided for interbank transfers at book value and for profits and losses distributed at year end based on average annual holdings of securities. Since interest rates had fallen, many of the securities were above purchase price. Reallocation at book value had major effects on individual bank earnings. Additional meetings and some adjustments were required before the transfer could be completed (Minutes, FOMC, Executive Committee, June 24, 1936).

178. Under the new law, Eccles did not need presidential approval, but he believed "the country would hold him responsible for whatever was done" (Eccles 1951, 289). As this and his subsequent actions show, Eccles was not greatly concerned about independence from the executive branch.

The vote was four to two, with McKee and Davis opposed.¹⁷⁹ The staff estimate showed that the increase would absorb \$1.45 billion of excess reserves but would leave excess reserves of \$1.95 billion with \$400 million to \$800 million in excess reserves at the three classes of banks (Board Minutes, Board of Governors File, box 291, July 14, 1936, 4). The press release described the reserves as “superfluous” and the action as preventive, not a change in policy (*ibid.*, 2–3).

The market was not convinced, and Morgenthau was “furious that Eccles had not warned him about the action” (Blum 1959, 356). He did not believe Eccles’s response that Roosevelt had been told the previous week. Bond yields rose by 0.01 percent in the week following the announcement. The Treasury ordered Harrison to buy long-term bonds for the trust and stabilization accounts. The Federal Reserve joined in, selling bills and buying bonds.¹⁸⁰ By late August, yields were lower than at the time of the announcement.

The Economy at the 1936 Election

The August increase had no perceptible effect on the economy in 1936. Expansion was robust as the country approached the presidential election. Industrial production increased 17 percent in the year ending in October, just before the election. Balke and Gordon’s (1986) GNP data show 9 percent growth and 1.9 percent inflation for the four quarters of 1936. Contemporary data show national income produced in 1936 rising 15 percent, with wholesale prices almost unchanged (Barber 1996, 98–99). Based on these data, income had reached 80 percent of the 1929 level, but population and economic potential had increased since 1929, so there was considerable idle capacity. Currie estimated potential output at full employment as \$85 billion to \$90 billion. Using those values, national income was about 65 to 70 percent of its full employment level, but the unemployment rate was 17 percent (Memo, Board of Governors File, May 18, 1936). The private sector created fewer than 30 percent of the 5 million new jobs in 1936 (Barber 1996, 99). The rest were jobs in relief agencies like the Works Progress Administration (WPA).

PARTNERS WITH THE TREASURY Gold inflows continued, influenced in part by fears in Europe, in part by the gold price and economic expansion. By the time the new reserve requirement ratios took effect, some

179. Davis had joined the Board two weeks before, so he voted no because he lacked information. McKee wanted to postpone the decision until September.

180. Eccles claimed that in April Morgenthau agreed to the change. By August 15 the increase in required reserves was \$1.79 billion, larger than the staff estimate.

of the expected decrease in excess reserves had been offset by the gold inflow. The monetary base fell (after adjusting for reserve requirement ratios). For the last six months of 1936, the base remained about 10 percent below the previous year.

Morgenthau's tongue lashing on July 15 was followed by efforts to improve the working relationship. Eccles complained that Morgenthau was very secretive about gold operations and did not inform the Board. Even New York (as fiscal agent) was better informed. Morgenthau agreed to release weekly data to the Board on net purchases and sales by the Exchange Stabilization Fund. In return, he asked Eccles to help with bond market stabilization. The Treasury had bought heavily to keep prices of recent issues above par. He asked Eccles to participate in the purchases. The Treasury would henceforth make purchases in the open market, instead of through the New York bank. At the end of each day, the open market committee could decide to take half the amount purchased. Eccles checked with the committee and agreed to the new arrangement. This arrangement made the Federal Reserve an adjunct of Treasury or, as Morgenthau put it, the Treasury's partner (Blum 1959, 358).

Morgenthau also urged Eccles to make an open market purchase or sale of \$50 million in December. He thought the public should be accustomed to the idea that open market operations would be used, and it was best to get the market accustomed to purchases and sales after three years of inaction.

Gold Sterilization

By the end of October, excess reserves were above \$2 billion, again almost equal to the size of the open market portfolio. The sustained gold inflow had three effects that worried the president and others.

First, foreigners bought United States securities, contributing to a rapid increase in stock prices. Total return to common stocks was 47.7 percent in 1935 and 33.9 percent in 1936. By the end of 1936, the total return on common stock since 1929 was again positive (Ibbotson and Sinquefeld 1989, 160–61). Second, the gold inflow added to reserves and base money, raising the price level. Inflation remained low, however. Consumer prices rose only 1 percent in 1936. Third, the United States was vulnerable to a gold outflow. A particular concern was that in a European war foreign governments would sequester private holdings of foreign securities, sell securities to finance the war, and export gold from the United States.

Similar concerns had arisen before World War I, when the Federal Reserve was unable to prevent a gold inflow, and in the early 1920s, when the Federal Reserve sterilized part of the inflow. Roosevelt wanted something

done to remove speculative inflows without reducing long-term investment (Blum 1959, 359).

The November FOMC meeting came in the midst of these concerns. Eccles told Morgenthau that he proposed to sell \$300 million to \$400 million to offset the increase in excess reserves from August to November. Some FOMC members preferred to again increase required reserve ratios, and some preferred to wait until after the seasonal return of currency to banks in January. Others argued that, although the economy had recovered, the time for reversing policy still lay in the future. The consensus was to wait (Minutes FOMC, November 19 and 20, 1936). In the press release following the meeting, the Board alerted the country to its renewed concern about reserve growth.

Eccles soon shifted his position to favor a second 50 percent increase in required reserve ratios. The Treasury was not enthusiastic.¹⁸¹ Morgenthau searched for an alternative.¹⁸²

The Treasury staff proposed to sterilize the gold inflow to prevent it from increasing bank reserves and the monetary base. The Treasury would continue to issue gold certificates on receipt of gold. Instead of allowing the gold certificates to increase bank reserves, the Treasury would pay for the gold by selling debt. Later, if foreigners sold securities and withdrew gold, the Treasury could reverse the operation and avoid the deflationary effect. In accounting terms, the transaction differed little from a Federal Reserve sale of debt to the public combined with a gold purchase. The difference was that responsibility for the conduct of the operation remained with the Treasury.¹⁸³

181. Nor were some reserve bank presidents and their members. An increase in the reserve ratio would make member banks pay the cost of offsetting the gold inflow, discouraging membership by country banks. George Hamilton, president of the Kansas City reserve bank, made this argument in a letter to Eccles after the November FOMC meeting. Eccles's reply did not respond to this point. Instead, Eccles pointed to the excess reserve holdings of country banks, showing that they held a higher proportion of total to required reserves than other classes of members (Hamilton to Eccles and Eccles to Hamilton, Board of Governors File, box 1450, November 24 and December 5, 1936). Hamilton warned also that "many banks are watching . . . with the idea of dumping [bonds] whenever there is a change made in our policy" (Hamilton to Eccles, Board of Governors File, box 1450, November 24, 1936, 2).

182. Toma (1982) explains the 1936–37 increases, and the recession that followed, as an effort by the Federal Reserve to increase seigniorage. There is no mention of a seigniorage or revenue motive, and as noted, the Treasury was displeased and in 1938 forced a reduction in reserve requirement ratios.

183. The accounts showed a Treasury purchase of gold paid for by drawing on its deposit account at the Federal Reserve and a sale of debt to the public to replenish its deposit. The net effect on the Treasury's balance sheet is a larger gold stock offset by increased debt outstanding. The Treasury issued gold certificates but held the gold in the "general fund in gold," part of Treasury cash. These operations neutralized the effect on the monetary base; no additional reserves were created.

Eccles could not make up his mind. He alternated between seeing the proposal as a way to avoid increasing reserves and concern about the shift in responsibility for monetary policy from the Federal Reserve to the Treasury.¹⁸⁴ He argued also that the timing was bad; reserve growth and the stock market had slowed. The Board could raise reserve requirement ratios, at no cost to the government, instead of selling short-term debt to sterilize gold inflows. In a letter to Morgenthau he demanded that the policy, if adopted, should be automatic, not left to the discretion of the Treasury to operate monetary policy.

The letter annoyed Morgenthau and led to another in the series of disputes that frequently disturbed their relationship. Eccles withdrew from the agreement to share in the Treasury's bond market support program. Morgenthau threatened to take control of monetary policy: "I think there is one more issue to be settled . . . that is whether the Government through the Treasury should control . . . monetary policy . . . or whether control should be exercised through the Federal Reserve Banks who are privately owned and dominated by individuals who are banker minded" (quoted in Blum 1959, 363).

Eccles then sent a conciliatory letter but followed it on December 10 with a more formal letter explaining that he would endorse the sterilization policy if the Treasury would agree not to run its own discretionary monetary policy (Hyman 1976, 221–22). As usual, Roosevelt listened to the two disputants. Instead of making his own case, Eccles changed sides, endorsed Morgenthau's case for sterilization, and declared his own preference for sterilization over the Board's proposal to use open market sales or higher required reserve ratios to neutralize the gold inflow (Hyman 1976, 223; Blum 1959, 364–65).

Roosevelt ordered the sterilization program to begin. On December 23 the Treasury began sterilizing gold inflows and newly mined United States gold. Between December 1936 and July 1937, when gold sterilization ended, gold certificates outstanding increased \$1.3 billion and Treasury cash increased by a like amount. Bank reserves rose only \$180 million in this period.

The FOMC's executive committee met on December 21 to discuss the System's role in smoothing the government securities market. There was general agreement that with short-term rates near zero, much of the market activity was in longer-term securities. Hence the long-term market was now "a huge part of the money market" (Minutes, FOMC Executive Com-

184. At the New York bank, Burgess wrote a strong objection to gold sterilization as putting additional monetary control in Treasury (political) hands (Sproul Papers, Excess Reserves, December 9, 1936).

mittee, December 21, 1936, 4). The committee agreed that it was responsible for smoothing the market, either alone or in partnership with the Treasury.

The committee then met with Secretary Morgenthau. They agreed to renew the partnership operation. The Treasury ended its own purchase operations, restoring the role of the manager of the System Open Market Account acting on orders from the Treasury. The Federal Reserve agreed to share in the purchases and sales up to the authority granted by the FOMC, \$50 million at the time. If more purchases were needed, the FOMC would meet to discuss what action should be taken.

The Second and Third Increases in Reserve Requirements

By late 1936, short- and long-term interest rates were at the lowest levels experienced to that time. The economy and the stock market continued to recover, and gold stocks were at record levels. Many bankers believed that low rates would not persist in that environment. Strengthening that belief was the almost continuous discussion of policy actions to reduce excess reserves by open market operations or a change in reserve requirement ratios.

Perhaps typical of prevailing attitudes is the letter from a Missouri banker who wrote to the Kansas City reserve bank urging open market sales instead of a higher reserve requirement ratio for country banks.

We are vitally interested in protecting our capital funds from depreciation *when the ultimate increase in interest rates comes* and brings along a depreciation in longer term securities. This being true the only chance we have to maintain earnings at all is through an increase in volume. Our deposits show a substantial increase but if reserve requirements were again substantially raised, it would limit our resort to this procedure in what seems to me a very serious way. (J. E. Garm to Hamilton, Board of Governors File, box 1450, November 23, 1936; emphasis added)

Morgenthau reported a similar view in his diary. Discussion of future inflation and proposals to increase reserve requirement ratios, he believed, convinced many bondholders that interest rates would rise (Blum 1959, 367). Morgenthau was concerned that higher interest rates would raise Treasury borrowing costs, increasing the deficit, and hurt the economy by reducing investment. He urged the Board to reach a decision before February 1. To help him plan the March 15 bond issue, he wanted the increase to be effective by March 1.

At Vice Chairman Ransom's suggestion, the Board met with Morgenthau to hear his opinion directly (Board Minutes, January 19, 1937, 2). Morgenthau expressed reservations about a second increase in reserve re-

quirement ratios, but he gave his approval (Blum 1959, 368). A memo from Goldenweiser predicting only small increases in short- and long-term interest rates reassured him (Memo, Goldenweiser, Board of Governors File, box 418, January 12, 1937).¹⁸⁵

Eccles and some of the Board's staff hesitated. On January 25, Currie prepared two memos. One warned that the proposed increase in the reserve requirement ratio for time deposits was too large. The second argued the opposite side at greater length (Currie to Eccles, Board Files, January 25, 1937).¹⁸⁶ He concluded that the current stock of money was sufficient to support full employment.

The reserve bank presidents received a briefing from Goldenweiser on the day of Currie's memos. There is no mention of Currie's estimates.¹⁸⁷ Goldenweiser urged the increase. He expected short-term rates to increase: "Short-term rates had been abnormally low in relation to long-term rates and some stiffening of the former would be desirable" (Board Minutes, January 26, 1937, 3). The Board or the FOMC would have to reduce excess reserves at some time in the future, and he believed that the "most effective time for action to prevent the development of unsound and speculative situations is in the early stages of such a movement when the situation is still susceptible of control . . . [S]uch a time had arrived" (3).¹⁸⁸

Goldenweiser added that aggregate excess reserves of \$2.1 billion could absorb the \$1.5 billion increase in required reserves. However, 2,435 banks would have to draw on correspondent balances, and 197 would have a reserve deficiency that would require borrowing or asset sales (*ibid.*, 4). He also dismissed concerns about loss of membership. John H. Williams reinforced Goldenweiser's arguments and urged prompt action. The longer the Board delayed, the greater the likelihood that future action would force liquidation of loans.

A majority of the presidents spoke in favor.¹⁸⁹ The following day, Golden-

185. Goldenweiser argued that rates on Treasury bills would be held down by rates of 0.5 percent on banker's acceptances and that rates on long-term bonds would remain low until short-term rates equaled or exceeded long-term rates (Board of Governors File, box 418, January 12, 1937, 3, 5). The prediction proved to be wrong.

186. Currie also computed the estimated nominal value of national income three years ahead, based on estimates of velocity and his belief that the price level would rise by 10 percent as the economy returned to full employment in 1939.

187. However, Goldenweiser dismissed the argument that time deposits be exempt from the increase.

188. This is probably a reference to a revised view of the 1927–29 stock market speculation.

189. Harrison again proposed that reserve banks be given emergency powers to purchase and sell securities in amounts up to \$50 million without prior approval. The FOMC postponed discussion until January 26. Eccles opposed the motion, but it passed six to five, with

Table 6.4 Reserve Requirements

DATE	DEMAND DEPOSITS (%)			
	CENTRAL RESERVE CITY	RESERVE CITY	COUNTRY	TIME
Before 8/15/36	13	10	7	3
8/15-3/1/37	19.5	15	10.5	4.5
3/1-5/1/37	22.75	17.5	12.25	5.25
On 5/1/37	26	20	14	6

weiser assured the FOMC that the increase in required reserve ratios would not reverse the easy money policy but would place the System in a position to influence the market by open market operations when needed. Three days later, Eccles reported that Morgenthau had again not opposed the change, provided it was effective no later than the close of business on February 27 so that the market could adjust before the March 15 financing. Eccles and Morgenthau then discussed the issue with the president. Roosevelt left the decision to the Board but did not object to the increase (Board Minutes, January 28, 1937, 4).

Governor McKee proposed that the increase be made in two steps, half at the end of February and half in April or May. Eccles later asked Morgenthau and Burgess about this suggestion. Both found it acceptable. The following Saturday, January 30, 1937, the Board increased reserve requirement ratios by $33\frac{1}{3}$ percent of prevailing levels. The vote was five in favor, one (McKee) not voting. Deferring a bit to Treasury concerns, only half the increase became effective on March 6. The rest was scheduled for May 1. Table 6.4 shows the changes.

The Board's press release emphasized that policy had not changed and affirmed its view that the \$1.5 billion of excess reserves was superfluous: "Member banks will have excess reserves of approximately \$500 million, an amount ample to finance further recovery and to maintain easy conditions" (Press Release, Board of Governors File, box 291, January 30, 1937, 2). The release cited the earlier experience, warned about the risks of inaction, and repeated its earlier conclusion: "It is far better to sterilize a part of these superfluous reserves while they are still unused than to permit a credit structure to be erected upon them and then to withdraw the foundation of the structure" (4).

The Board had now used all of its new authority to raise reserve requirements. With gold sterilization limiting increases in reserves and an open market portfolio five times the estimated volume of excess reserves, the Board believed it had the power to control future inflation.

Governor Broderick voting with the five presidents. Broderick then changed his vote to abstain on grounds that motions of this character should not be carried by such a narrow margin (Minutes, FOMC, January 26, 1937, 15-16).

Burgess met with Morgenthau and the Treasury soon after the announcement. There were no complaints. The main discussion concerned Treasury issues in March and June.¹⁹⁰

BOND MARKET JITTERS Neither the Federal Reserve nor the Treasury anticipated the break in the bond market on March 12. Government bond yields had remained between 2.46 and 2.48 since the start of the year, influenced partly by Treasury operations. Rates rose on March 12 and 13, ending at 2.52 percent on March 13.

Once again Morgenthau was furious. He described the decline as a “panic” and cut short his conversation with Harrison when Harrison pointed out that rates were at the lowest level in history and refused to agree that there was a panic. Morgenthau blamed the increase in reserve requirement ratios for the market break and insisted that the Federal Reserve make net purchases of bonds to support the market (Harrison Papers, file 2012.5, dictated March 31, 1937).¹⁹¹ The Treasury had purchased \$75 million in three days. It was time, Morgenthau said, for the System to help. Eccles agreed, but Morgenthau was doubtful that Eccles could get Harrison and Burgess to consent (Blum 1959, 369).

The FOMC’s executive committee called an emergency meeting for March 13. Eccles reported on his meeting with Morgenthau, explaining that Morgenthau blamed the Federal Reserve and wanted outright purchases to bring the 2.5 percent bond to par (a difference of 0.02 percent). The executive committee refused to make a commitment to a particular interest rate but pledged its cooperation with the Treasury (Minutes, FOMC Executive Committee, March 13, 1937).

The entire executive committee then went to Morgenthau’s office. Eccles reported the decision and, to strengthen his case, urged Morgenthau to balance the 1938 budget by raising tax rates and begin to retire debt. Morgenthau tried to get a commitment from the Federal Reserve about how much it would let interest rates rise, but Eccles would not go beyond a general commitment to continue an easy money policy. Morgenthau

190. The Senate approved a resolution on February 5 asking for the reasons leading to the increase in reserve requirement ratios. The Board’s reply consisted of a copy of the press release announcing the change, and the reasons for it, and a longer article prepared for the *Federal Reserve Bulletin* showing the ability of the banking system to obtain the required reserves from correspondents if needed.

191. The Federal Reserve began sharing purchases with the Treasury on March 12, but it continued its usual practice of offsetting purchases by sales of Treasury bills. Morgenthau wanted an increase in reserves, which Harrison opposed. Total Treasury purchases for the day were \$32 million.

threatened to end gold sterilization, in effect nullifying the Federal Reserve's action. The FOMC members urged him not to do that, since it would transfer responsibility for monetary policy to the Treasury (*ibid.*, 1–2). The two sides agreed to continue operating as they had, placing bids under the market, sharing purchases without any change in the System Open Market Account. The Federal Reserve agreed to hold a full FOMC meeting on March 15 to extend its power to purchase.

At the March 15 meeting the FOMC voted unanimously to continue the policy of offsetting long-term purchases with sales of short-term bills. This increased earnings of the reserve banks, so it was popular with the presidents, and it avoided adding to the portfolio and offsetting part of the long-sought reduction in excess reserves.

Eccles argued at length that the market break was not caused by Federal Reserve policy. He cited instability in France, British rearmament, demand for war materials, increased union activity, inventory building, and concerns about another unbalanced budget. He told the FOMC he had prepared a press release saying that monetary policy remained easy and that “the time for adoption of a restrictive monetary policy does not arise until there is full production and employment” (*Minutes, FOMC, March 15, 1937, 7*). No one responded that a long-term commitment to “easy money” could contribute to the increase in long-term rates.

Harrison agreed with Eccles but took a less defensive stance, accepting that Board action was one cause of the market break, but not the principal cause. The policy change had been necessary to absorb excess reserves. He opposed open market purchases (unless offset by sales of other maturities) and attributed the bond market problem to concerns about inflation.

Goldenweiser discussed the economic situation. Expansion was under way everywhere. As to policy, the committee should be willing to undertake purchases to avoid disorderly markets. They could be offset later. His concern was political: if the System did not act, the Treasury would. The System would run the risk that action might be taken in another form that would complicate the machinery of credit control and divide responsibility for such control (*ibid.*, 11). Williams disagreed. Like Eccles, he regarded the disturbances to the bond market as nonmonetary in character, then added, “Sooner or later the System will be forced to take restrictive monetary action to prevent dislocation” (12). Purchases would be seen as a reversal of policy.

Morgenthau called from Georgia to learn what the FOMC had decided. The minutes report that he was satisfied with the decision to continue bond market support, offset by short-term sales, and with authority to pur-

chase up to \$250 million in an emergency (*ibid.*, 19).¹⁹² The minutes show that the committee wanted to tell Morgenthau it saw no reason to increase its portfolio at that time (16).¹⁹³

Eccles left for vacation. The committee had failed to specify what constituted a dire emergency, requiring purchases. When the bond market fell again on March 16 and 17, Morgenthau wanted to sterilize gold, but Roosevelt did not approve. The Treasury continued to purchase bonds for the trust funds, mainly the postal savings account, but purchases could not exceed the amount of uninvested cash in the fund.

Harrison bought \$37 million on March 16 and 17 but offset the purchases by selling bills. On March 18 the market rose, and by the end of the week the bond yield was at 2.62 percent, an increase of 0.15 in two weeks. Harrison regarded the change as an orderly adjustment; Eccles and Morgenthau saw it as an emergency. Eccles, perhaps influenced by Morgenthau, wanted purchases of \$250 million—a 10 percent increase in the portfolio, the maximum amount approved by the FOMC. If the banks wanted excess reserves instead of earning assets, he would let them have them. Harrison regarded this as partly vindictive (Harrison Papers, file 2140.2, April 2, 1937, 2). Vice Chairman Ransom agreed with Harrison that there was no emergency.

The executive committee met on Saturday, with Harrison presiding in Eccles's absence. Ransom said the meeting had been called because the Treasury had only \$14 million left in the trust accounts. It wanted the System to take responsibility for purchases. Morgenthau had told him, he reported, that "if the Treasury were called upon to make additional purchases in order to prevent a disorderly market such purchases would have to be accomplished with funds derived from the transfer of gold certificates to the Federal Reserve banks or in some other manner" (Minutes, Executive Committee, FOMC, March 22, 1937, 2).

The threat did not perturb the members. Harrison thought the principal lesson from the recent experience was not to follow the market too closely or offset daily adjustments. He had purchased \$121 million for the

192. In the 1960s, the Federal Reserve returned to the policy of offsetting long-term purchases with short-term sales in an effort to change the slope of the yield curve. Most studies of the later episode suggest it had no effect on relative yields.

193. Harrison reports that Eccles opposed a motion to renew authority of the executive committee to increase or decrease the portfolio by telephone conference. The reason was that "it would not satisfy the Secretary" (Harrison Papers, file 2012.5, March 31, 1937, 8). The motion was redrafted to mention emergency action. "It was clearly understood . . . that the emergency in mind must be a dire one" (8). The FOMC minutes report that Morgenthau was unhappy with Eccles's press release and with the decision to leave authority to purchase with the executive committee, where Harrison would have more influence (Blum 1959, 370).

Treasury and \$68 million for the System. Ransom presented Eccles's case for immediate purchases. The committee disagreed. It did not see an emergency that required purchases; it was unwise to increase excess reserves; the best course was to continue Harrison's policy of placing bids beneath the market price and offsetting purchases with sales of bills.

The next day the FOMC considered a broader agenda: purchases; revocation of the May 1 increase; and ending gold sterilization. There was general agreement that none of these steps should be taken (Harrison Papers, file 2140.2, April 2, 1937).

Morgenthau wanted more action by the Federal Reserve but was dissuaded by a conversation with Roosevelt. The president, Morgenthau told his staff, was not worried about the bond market (Blum 1959, 371). But Morgenthau was, and his concern increased as the bond market continued to fall. Yields reached 2.72 in the week ending March 27. Eccles, still on vacation, wanted to act. He blamed Harrison for the failure.¹⁹⁴ But only Eccles and Morgenthau appear to have been disturbed.¹⁹⁵

Eccles and Morgenthau met on April 6. Eccles was "apologetic." He proposed three alternatives. The Board could repeal the May 1 increase for country banks; the FOMC could begin outright purchases; or the System could ask the Treasury to desterilize some gold. The Treasury staff wanted some combination of the three actions to assist the Treasury at its next bond sale. Morgenthau told Eccles he wanted a "big, broad stroke," including release of \$500 million of gold and beginning net open market purchases. Eccles was "very much in favor" (Blum 1959, 372).

If so, Eccles reconsidered. His proposed announcement of the joint program referred only to open market purchases "if necessary." Morgenthau threatened to ease by desterilizing gold if the System would not cooperate. Eccles, at last, agreed to endorse the original joint program, even if the FOMC did not want to purchase (*ibid.*).¹⁹⁶ He now had to sell the plan to the FOMC.

194. Eccles's biography says he hurried back to Washington (Eccles 1951, 292). In fact, he stayed on his fishing vacation in Florida for two weeks and was kept informed by telephone.

195. Ransom reported that the Treasury staff was not disturbed. Harrison and Ransom met with Eccles on Monday, March 29. Both favored doing nothing other than continuing the swap operation, but Eccles wanted more. Eccles favored net purchases but indicated that he would accept gold desterilization (Harrison Papers, file 2140.2, April 9, 1937).

196. Currie sent Eccles a memo that dismissed the reserve requirement change as a factor affecting interest rates. He blamed fears of inflation arising from price and wage increases. (Balke and Gordon's deflator shows a 10.76 percent increase for the quarter; Currie to Eccles, Board of Governors File, box 1433, April 2, 1937). However, the spread between Baa and Aaa bonds, a measure of risk, fell to the lowest level in seven years. Rates on four- to six-month prime commercial paper increased from 0.75 percent to 1 percent in April. They remained at 1 percent for a year.

The committee met on April 3. The bond yield was 2.78, 0.32 above its all-time low. Eccles began the meeting by reading the statement, prepared with the Treasury, announcing a program to release \$400 million in gold from sterilization and open market purchases to increase Federal Reserve holdings¹⁹⁷ (Minutes, FOMC, April 3, 2).¹⁹⁸ He was willing to accept Treasury policy with the understanding that Morgenthau would again sterilize gold after the May 1 increase in reserve requirements.

The FOMC members, other than Eccles, argued that there was no emergency and no reason for System purchases. Harrison urged the FOMC to hold a free and open discussion. It was Saturday; markets had closed. There was no reason for hasty action. Eccles replied that the committee was wrong not to have declared the markets disorderly and begun purchases. Ransom responded that he had talked to the Treasury all through the week and had heard no complaints, even from Morgenthau.¹⁹⁹

Perhaps without realizing it, Eccles shifted his argument. He had claimed throughout that excess reserves were redundant and could be removed without cost.²⁰⁰ Now he recognized that

[the] banks have been accustomed for a long time to an extremely large amount of excess reserves, that by the actions of the Board this excess has been drastically reduced, and that it would take the banks some time to accustom themselves to operating with a smaller amount of excess, as evidenced by the fact that they had sold earning assets rather than reduce their balances with correspondents. He suggested that . . . the System would be justified in increasing the System portfolio in recognition of the fact that, because of the reluctance of banks to reduce their excess reserves, there had

197. Williams's memo to Harrison reporting on the meeting described the memorandum as "an ultimatum by the Treasury" (Williams to Harrison, Harrison Papers, Open Market, April 14, 1937).

198. The Federal Reserve proposed a sentence for the joint statement that attributed the fall in market rates to "developments wholly unjustified by underlying financial and economic conditions" (Blum 1959, 372). Morgenthau objected to the statement because he believed the increase in reserve requirements had caused the rise in interest rates. The System removed the words "developments wholly unjustified." Eccles also wanted to insert that open market purchases would be made "if necessary," but Morgenthau wanted no qualifications and threatened to act alone if the FOMC would not act (*ibid.*). Eccles had promised Morgenthau that the FOMC would decide by noon because the two of them would meet the president at 1:00, and Morgenthau had scheduled a press conference at 4:00.

199. Williams's memo to Harrison gives a somewhat different account of these events. He describes Eccles's statement as "an ultimatum by the Treasury" and reports Eccles as saying that a failure to agree to the program would be evidence that the System would not "play ball" (Williams to Harrison, Harrison Papers, file 2140.2, April 14, 1937, 1).

200. Eccles did not recognize the import of this statement, for he continued to deny responsibility for the rise in interest rates and voted that way at the next day's meeting. His biography also denies any responsibility.

been a larger amount of selling of government securities than was anticipated when reserve requirements were increased, and these offerings were coming into the market at a time when the market was already disturbed by other factors and there were practically no buyers. (Minutes, FOMC, April 3, 1937, 7)

It is difficult to know what to make of this statement. If Eccles believed what he said, he should have stopped the third increase in required reserve ratios. Although the members discussed cancellation at times, there is no suggestion that this was a real possibility. Cancellation would have recognized the System's responsibility for the rise in long-term rates. The main arguments against it were concern about the embarrassment of reversing a policy that had been announced and the belief that inflation remained a threat. The committee was reluctant to appear to have made an error.

The FOMC split between those who favored purchases because of the rise in interest rates, those who wanted to prevent the Treasury from taking monetary action alone, and those who favored letting the Treasury deposit gold certificates at the Federal Reserve. The main opponents of purchases, Ransom, Harrison, and John H. Williams, expressed fear of inflation, citing labor strife and the unbalanced budget.²⁰¹

Harrison asked whether the FOMC considered purchases only to meet the Treasury's demand. In the classic New York–Washington split, he expressed a willingness to purchase if the economic situation required it, but not just to satisfy the secretary. Eccles's reply repeated his earlier argument; rates had increased more than the FOMC had anticipated. Williams supported Harrison. He saw no reason for purchases. The problem was that the Treasury had sterilized gold without waiting for the change in reserve requirements to take effect. They could now stop sterilizing. Eccles opposed this suggestion: "It was the responsibility of the System to take the leadership in meeting this problem" (*ibid.*, 15).

Eccles then talked to Morgenthau, who agreed to wait until the following day for the FOMC's decision. Morgenthau believed the time had passed for action by the FOMC alone, but he was willing to wait a day for joint action on the program he had worked out with Eccles.²⁰² The FOMC decided to let the executive committee meet with Morgenthau at his home that evening.

201. The Congress of Industrial Organizations had broken off from the American Federation of Labor. At the time, there were seven strikes in the auto industry. Freeman (1998, 282) shows that in 1937 there were 2,200 strikes for union recognition, involving nearly a million workers. For comparison, 1935 had 560 strikes for union recognition involving 200,000 workers.

202. The FOMC's discussion of a reversal of the third increase in reserve requirements went beyond its authority and into the actions of the Board. It is clear that Eccles was not overly concerned about the separate roles of the Board and the FOMC.

Eccles and Morgenthau met with Roosevelt in the afternoon. Roosevelt asked whether it would be inflationary to desterilize gold. Morgenthau agreed that it would. The president proposed a compromise that pleased both men. Morgenthau would tell the Federal Reserve that if it did not fulfill the responsibilities Congress had given it, he would act alone. Eccles would have the opportunity to act alone; the Treasury would not desterilize gold if the Federal Reserve purchased enough to reduce the long-term rate (Blum 1959, 373–74).

At his home that evening, Morgenthau criticized the FOMC for allowing interest rates to rise. Harrison continued to balk. The meeting dragged on until Morgenthau exploded: “You people just don’t want to admit that . . . you monkeyed with the carburetor and you got the mixture too thin . . . You give us the policy now” (*ibid.*, 374). Harrison would not yield. Finally, Morgenthau ended the meeting with the warning that the president had suggested. Either the FOMC would act or the government would.²⁰³

The threat ended the controversy. After meeting for the whole next day, on Eccles’s motion the FOMC voted to begin purchases at once, to purchase \$25 million in the current week, and to purchase up to \$250 million by May 1. If the FOMC refused to adopt the policy, or if it failed to lower interest rates, Eccles was willing to cancel the third increase in reserve requirements ratios. He believed it was most important for the System to remain in control of policy.

Harrison fought a rear-guard defense, urging that action not be taken solely to prevent Treasury action. He preferred to continue the policy of shifting maturities without changing the total portfolio, but once he recognized that he had little support, he favored giving the executive committee authority to prevent disorderly markets (Minutes, FOMC, April 4, 1937, 5).²⁰⁴

Only Governors Davis and McKee favored canceling the May 1 increase in reserve requirements. The dominant view was that inflation remained a threat. A majority supported open market purchases, some to prevent Treasury action, some to correct so-called disorderly market conditions.²⁰⁵

203. Eccles supported Morgenthau, agreed on the need for purchases, and at one point threatened to resign if the FOMC did not support him (Harrison Papers, file 2140.2, April 14, 1937).

204. Williams’s memo conveys the intense feeling, even animosity, between Eccles and Harrison (Williams to Harrison, Harrison Papers, FOMC, April 14, 1937).

205. By a vote of nine to two, the FOMC agreed that the disorder in financial markets was not caused by the Board’s policy action. Only McKee and Davis, both Board members, blamed the Board. Neither had voted for the increases. Despite Eccles’s April 3 statement, quoted above, he continued to absolve himself and the Board of responsibility.

With Harrison abstaining, the rest of the committee voted to adopt Eccles's motion. Purchases began the next day. This was the first increase in the open market account since November 1933.

The committee's action was mainly political.²⁰⁶ Only Eccles expressed strong support for purchases. He summarized the views of the other members as acting "on grounds of expediency, to avoid a break with the Treasury" (Harrison Papers, Supplementary Memo, Williams to Harrison, file 2140.2, April 14, 1937). Goldenweiser agreed with Eccles but regarded the decision as "not mainly an economic but a political question."²⁰⁷

The executive committee met again the following day, April 5, and voted to purchase up to \$5 million of Treasury bills. Harrison voted no. Bond rates fell, so no purchases were made until the next day, when rates again rose. Burgess purchased \$29 million for the week. No one objected that the account manager (Burgess) exceeded the authorization for the week's purchases.²⁰⁸

Bond yields reached a local peak of 2.80 percent at the end of the week. In all, rates increased 0.34 (14 percent) from the January low. The executive committee had set a limit to the open market account of \$2.53 billion. The System continued to purchase until the portfolio reached \$2.525 billion at the end of the month, an increase of \$95 million for the month.²⁰⁹

The third increase in reserve requirements took effect on May 1. Banks had prepared adequately, so there were no additional repercussions. Bond yields reached 2.80 percent again, then declined. The Federal Reserve did not undertake additional purchases.

206. Harrison opposed the commitment to purchase a fixed amount in the next week, but he lost on a vote of eight to three. Only Szymczak and Sinclair (Philadelphia) supported him. The choice of a week reflected Morgenthau's warning that he would judge their actions after a week. Harrison subsequently changed his vote to support the motion.

207. Williams summarizes the difference in economic outlook between Eccles and Harrison. Eccles believed the economy had been hurt by the rise in interest rates, citing the virtual standstill in new issues on the capital market. Harrison (and Williams) saw the economy acquiring "increased momentum." They were more concerned about inflation, the budget deficit, wage settlements, and the beginning of armament demand (supplementary memo, Harrison Papers, file 2140.2, April 14, 1937, 2).

208. Eccles twice asked Harrison to reduce the acceptance-buying rate. Harrison took the issue to his directors but expressed his view that the reduction was not justified. The directors agreed (Sproul Papers, Open Market Policy, April 8, 1937).

209. Most of the purchases were made in periods of market breaks on April 6–8 and April 22–24. On the latter dates, the Federal Reserve was the principal buyer. The account also sold bonds when the bond market rose, for example, on April 10 (memo, Harrison to files, file 2012.7, April 10, 1937). Morgenthau was annoyed by the purchases on April 14 because he had to sell bills to continue gold sterilization and bill rates had increased a bit (Harrison Papers, file 2012.7, April 14, 1937). The sales were offset within the week by bill purchases so that the account would not decline.

Summary: Reserve Requirements and Monetary Policy

The response to doubling reserve requirement ratios in 1936–37 remains controversial. The controversy began when Morgenthau blamed the Federal Reserve for the rise in interest rates and for the recession that followed. He did not mention the Treasury's decision to sterilize gold inflows. Eccles and most Federal Reserve officials denied responsibility for both the increase in interest rates and the recession.²¹⁰ Roosevelt's comprehensive study of the 1937–38 cycle includes monetary action as one factor affecting the decline (1954, 239). Friedman and Schwartz (1963, 526–31) argue for the importance of monetary policy acting on output and income by reducing the money stock. Calomiris and Wheelock (1996, 510) reject this explanation at least for the changes in reserve requirements. They give more attention to changes in reserve requirements than to gold sterilization, but they recognize both as factors affecting money growth.

Chart 6.3 compares the increase in the weighted average reserve requirement ratio in 1936–37 with subsequent changes in the years to 1953.²¹¹ The 1936–37 changes removed \$3.1 billion of reserves as a base for monetary expansion in a period of nine months. The reduction is approximately 28 percent of the level of reserves on June 30, 1936. After subsequent changes in reserve requirement ratios, the Federal Reserve held interest rates constant, so banks could sell securities and restore desired reserve positions at unchanged interest rates. The principal effect of later changes in reserve requirement ratios was to raise (or lower) the tax on bank profits without any significant effect on the money stock.

In 1937 Morgenthau and the Federal Reserve agreed to prevent disorderly market conditions without pegging interest rates. Interest rates rose, and the effective monetary base declined. Banks did not restore the reserves absorbed by the changes in reserve requirements; total reserves, the monetary base and, beginning in second quarter 1937, the M_1 money stock

210. McKee, who did not vote for the increases, is one exception, as noted earlier. The Board's staff undertook a study of reserve requirements but did not study the effect of the 1936–37 changes. Their report reconsiders proposals made in 1931 to count vault cash as part of reserves, to make reserve requirements uniform for all classes of banks and types of deposit, and to put reserve requirements on deposit turnover (debits). The report gave a mixed review to these proposals, and none was adopted at the time (Board of Governors File, box 107, February 5, 1938). In March the Conference of Reserve Bank Presidents endorsed the proposal to count vault cash as part of required reserves up to 50 percent of required reserves (Board of Governors File, box 136, March 19, 1938). The Board made the change in vault cash beginning in 1959.

211. The chart is computed using deposits subject to reserve requirements (net demand deposits and time deposits) from the call reports published in Board of Governors of the Federal Reserve System 1943. See Cagan 1965, 198–99.

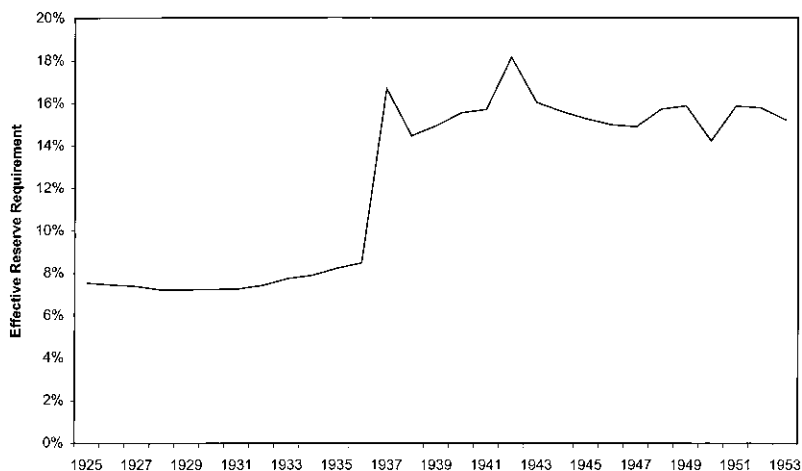


Chart 6.3 Effective reserve requirement at month-end June call report.

fell. In the four quarters of 1936, average M_1 growth was 12.8 percent, propelled by the increase in gold. Growth fell to 5 percent (annual rate) in first quarter 1937. For the remaining three quarters of 1937, the average annual growth rate of money was -6.5 percent.²¹²

Interest rates on risky assets show relatively large increases. Table 6.5 shows the rates on Baa bonds and the spread between Baa and Aaa rates, a measure of the risk premium. The risk premium rose in 1937 and the first half of 1938. At its peak, the risk spread had returned to the level reached in third quarter 1931, when Britain left the gold standard.

The Federal Reserve's error was the belief that excess reserves could be reduced without consequence. Its denial of the effect of doing so is puzzling in light of the efforts that banks made to restore excess reserves, an effort Eccles and others commented on at the time. Since most short-term interest rates did not change, Harrison and others refused to believe that policy had tightened.

Table 6.6 shows the estimates of excess reserves at New York and other banks based on data available at the time. These data suggest that banks in New York and outside first restored, then increased excess reserve hold-

212. Changes in short- and long-term interest rates on government securities show only modest effects of the policy action. Rates on four-to-six-month prime commercial paper increased from 0.75 percent to 1.0 percent in April 1937 and were otherwise unchanged. Monthly average rates on ninety-day banker's acceptances moved steadily from 0.19 percent in December 1936 to a peak of 0.56 percent in April 1937 before declining again. As noted earlier, rates on long-term governments peaked at 2.80 percent in April 1937, then declined slowly. Although these relatively modest changes disturbed Morgenthau, they were much less than the annualized rate of inflation, 8.3 percent for the GNP deflator, in the first half of 1937.

Table 6.5 Risky Rates and the Risk Premium, 1936–38 (percent)

DATE	BAA RATE	RISK PREMIUM	DATE	BAA RATE	RISK PREMIUM
3/36	4.86	1.57	9/37	5.16	1.88
6/36	4.90	1.66	12/37	5.73	2.52
9/36	4.62	1.44	3/38	6.30	3.08
12/36	4.53	1.43	6/38	6.25	1.99
3/37	4.68	1.36	9/38	5.65	2.44
6/37	4.93	1.65	12/38	5.27	2.19

Source: Board of Governors of the Federal Reserve System 1943, 471.

Table 6.6 Estimated or Actual Excess Reserves, 1937–38 (millions of dollars)

DATE	TOTAL	NEW YORK	OTHER
1937			
June 14	902	156	745
September 14	800	70	720
December 14	1,150	360	800
1938			
March 14	1,400	500	900
June 14	2,730	1,040	1,690
September 14	3,150	1,480	1,670
December 14	3,520	1,850	1,670

Source: Board of Governors of the Federal Reserve System 1943.

Note: Detail does not add to total.

ings, so that banks held more excess reserves at the end of 1938 than they did when the System undertook to eliminate them in August 1936. New York banks added more to excess reserves during this period than banks outside New York.²¹³ The policy therefore did not achieve what the Federal Reserve set out to accomplish. It not only contributed to the recession but also failed to reduce the System's fear that it could not prevent future inflation.

The source of this concern is a slightly modified version of the Riefler-Burgess framework. The principle was unchanged. In the 1920s Riefler-Burgess suggested that once banks were out of debt, the Federal Reserve had little control. For it to exercise control, the banks had to be forced to borrow. Since borrowing had almost disappeared in the 1930s, the doctrine changed. Now excess reserves (negative borrowing) rendered the System incapable of preventing inflation. By reducing excess reserves below the size of the open market portfolio, the System believed it was in position to prevent runaway inflation; once excess reserves were smaller than the

213. The risk premiums in table 6.5 suggest the increase in uncertainty, as in Frost 1966. Despite the low interest rates on government bonds, Baa bonds were at about the same rates as in the 1920s, so the risk spreads were higher.

open market portfolio, open market sales could force banks to borrow. Under Riefler-Burgess, they would then want to pay off their indebtedness by contracting.²¹⁴

The System ran the experiment of reducing excess reserves three times. Each time banks responded by restoring excess reserves. Partly out of unwillingness to admit policy error and partly under pressure from the Treasury, the Federal Reserve ignored this contradiction of Riefler-Burgess, much as it had ignored contrary evidence earlier. It continued to cling to its theory.

THE 1937–38 RECESSION

Did the increase in reserve requirement ratios cause the 1937–38 recession? Changes in reserve requirements were part of monetary policy, and monetary policy was part of government policy. The data on interest rates, risk premiums, and changes in the monetary base and money suggest that the Federal Reserve did not offset the effects of the change. Monetary policy became more restrictive. The proximate causes of the monetary policy change were the increase in reserve requirement ratios, not offset by open market purchases, and the shift in December 1936 to gold sterilization.

Monetary factors were not alone.²¹⁵ There were two large contractive changes in fiscal policy in 1937. One was the reduction of soldiers' bonus payments and passage of the undistributed profits tax; the other was the beginning of Social Security tax payments. Passed in 1935, Social Security taxes became effective in fiscal 1936 (calendar 1937).²¹⁶

Congress had insisted, over the president's veto, on accelerating the soldiers' bonus, so that veterans would receive payment before the 1936 election.²¹⁷ Beginning in June 1936, the government issued \$1.7 billion of

214. Concerns about membership appear to have been misplaced. The proportion of member banks among commercial banks increased annually from 1935 to 1939 and more rapidly in 1940 and 1941.

215. Romer (1992) estimates the effects of fiscal and monetary shocks using data for 1920 to 1937. She found no effect of fiscal shocks and attributed the 1937 recession to monetary shocks. Romer assumed a one-year lag of policy variables to recognize that the fiscal changes were known in advance. As the text shows, the Board gave advance notice of changes in reserve requirement ratios.

216. Concerns about the effect of Social Security taxes on the 1937–38 recession led to repeal of actuarial provisions and substitution of "pay as you go" or intergenerational transfer in 1939.

217. The bonus had been approved in 1924 for payment in 1945. Congressman Wright Patman (Texas) led the fight to have the bonus paid in 1936 (without discount). He proposed to finance the payment by printing greenbacks, and the bill passed the House and Senate with that provision. Roosevelt vetoed the bill but did not work to prevent an override after Congress omitted greenback financing. Bonds were issued to the veterans but could be sold immediately for cash (Blum 1959, 249–58).

bonds. By December veterans had cashed \$1.4 billion of the bonds and spent the money. Balke and Gordon's (1986) quarterly data show an 18 percent average rate of increase in real GNP for the final three quarters of 1936. The deflator rose, and profits reached a peak for the recovery in fourth quarter 1936.²¹⁸

Responding to criticism about deficit spending, and hoping to stimulate private spending, in March 1936 the administration promised to tax undistributed corporate profits (Eccles 1951, 260). The tax was based on the peculiar belief that corporations held funds idle instead of investing them. If these funds, like the excess reserves of the banks, could be put to work, the economy would expand faster.²¹⁹ The Treasury expected the tax to raise \$620 million, about 5 percent of the prospective deficit (*ibid.*).

Roose (1954, 238–39) adds some additional factors influencing investment spending, of which the most important is the increase in labor costs following strikes to organize major industries. The combined effect of higher interest rates, fiscal contraction, rising costs, and the growing belief that the Roosevelt administration had become more hostile—as shown by the undistributed profits tax and Roosevelt's second-term rhetoric about “economic royalists”—raised current and prospective tax rates and costs of capital.²²⁰

The National Bureau of Economic Research ranks the 1937–38 recession as the third most severe in the years after World War I. Real GNP fell 18 percent and industrial production 32 percent in the thirteen months beginning June 1937.²²¹ At its peak, the unemployment rate reached 20 percent, not much below the 25 percent maximum in 1932 (Zarnowitz and Moore 1986). It is no wonder that many feared the 1929–33 disaster had returned.

The Federal Reserve made no purchases until fall. The principal reason, again, was beliefs, not lack of information. John H. Williams recognized

218. The bonus payment declined to about \$15 million in 1937.

219. Eccles (1951, 260–65) opposed the Treasury's bill on grounds that it discriminated against small companies with low retained earnings. Like the Treasury, he failed to recognize that the tax increased the cost of capital to corporations financing investment from retained earnings. Eccles's public criticism, and proposals for a less regressive undistributed profits tax, was another reason for resentment by Morgenthau and his staff. The tax worked perversely. Dividend payments increased in advance to avoid the tax, then declined (Roose 1954, 236). Businessmen saw the tax as another example of the administration's hostility toward business (Stein 1990, 87). It was repealed in 1938, effective January 1940.

220. In April, Roosevelt criticized high prices in the durable goods industry as a source of “excessively high profits” and ordered a shift in public works spending to avoid these industries (Roose 1954, 236). The statement reflected widespread concern in view of the rapid price rise. Currie had urged Eccles to consider using antitrust action to deter price increases (memo, Currie to Eccles, Board of Governors File, box 1433, December 16, 1936). This policy was adopted in 1938. Adolph Berle had urged it from the beginning.

221. The two more severe recessions are 1929–33 and 1920–21.

the beginnings of hesitation in the economy at the May 4 meeting of the FOMC, before the peak recorded by the NBER.²²² He saw no reason for action, however, and he favored continuing the policy of preventing disorderly markets, if they should occur. Goldenweiser agreed there was no need for action. The economy had slowed, but “he did not see any possibility at this time of a new period of depression setting in” (Minutes, FOMC, May 4, 1937, 6).²²³

Not much had changed when the FOMC met again on June 8 and 9. The committee discussed the business situation and the continued gold inflow. Williams regarded the slowdown of business as “salutary.” He agreed with Goldenweiser that the gold inflows were the most serious problem of the moment (Minutes, FOMC, June 9, 1937, 3–5). Goldenweiser remarked that the System had to be in a position to offset gold imports when the Treasury stopped sterilizing, probably a reference to Morgenthau’s reluctance to continue borrowing to sterilize gold inflows (3).

Before Eccles left for summer vacation, he called a meeting of the FOMC executive committee to propose purchases of \$200 million to \$300 million to offset the seasonal increase in demand for base money.²²⁴ Harrison opposed “increasing our portfolio merely for the purpose of taking care of a seasonal demand for loans and currency. . . . [He] preferred to . . . have the banks borrow and show bills payable” (Harrison Papers, file 2140.2, August 27, 1937, 2–3). In making this argument, he showed the continuing influence of Riefler-Burgess—the need to get the banks in debt to the reserve banks. He argued that pressure on bank reserves in New York reflected the lower rates charged by correspondent banks. He proposed “reduction in discount rates at reserve banks outside New York.”

The first steps to ease policy came from Chicago and Atlanta. These banks reduced their discount rates to 1.5 percent on August 20. The Board approved, and Eccles urged Harrison to reduce the New York rate at the next directors’ meeting. Ever cautious, Harrison opposed the change as “too early.” He believed they should wait for the Treasury to complete its financing. Pressed by the Board, however, he agreed. New York lowered its rate to 1 percent effective August 27, with one dissent (Harrison Papers, file 2140.2, August 27, 1937, 3; Minutes, New York Directors, August 26,

222. “Since the last meeting of the Committee, the movement had leveled out with some reduction of prices both at home and abroad . . . [T]here seemed to be much less likelihood of a runaway movement than was the case a month or two ago” (Minutes, FOMC, May 4, 1937, 3).

223. The Federal Advisory Council found “some recession in business activity in some districts” but “the recession was apparently temporary in character” (Board Minutes, May 18, 1937, 4–5).

224. This was the first executive committee meeting held in the new Board of Governors building (August 18). The building opened formally on October 20, 1937.

1937, 11). By the end of the first week of September, all reserve banks outside New York had lowered their discount rates to 1.5 percent. These were almost the last changes in discount rates until after World War II.²²⁵

The FOMC voted on September 11 to undertake open market purchases of up to \$300 million during the fall and to ask the Treasury to sterilize \$200 million to \$300 million of inactive gold. The Treasury agreed and acted promptly. The actions were taken more for seasonal than for cyclical reasons, to offset expected seasonal changes in the demand for reserves. After years of inactivity, this was a return to the 1920s policy of seasonal accommodation to prevent interest rates from firming during the harvest and Christmas seasons. Estimates presented at the meeting suggested that the banking system's excess reserves would fall below \$400 million before Christmas, and New York banks would use all of their excess reserves.²²⁶

Only a few months earlier, the FOMC had been reluctant to let the Treasury undertake monetary action by sterilizing gold. Eccles, who appears to have felt most strongly about the issue, was not present at the September meeting. In his absence, Goldenweiser noted that "action by the Treasury also might be interpreted as violating the principle that the Federal Reserve System has primary responsibility for credit conditions and has adequate instruments for handling it" (Minutes, FOMC, September 11, 1937, 5). He urged the System to act on its own. The minutes do not record much discussion of the issue; they report that the committee recognized that "while the System could act alone . . . the most desirable action would be the suggested joint action" (12).

The Federal Reserve had been inactive so long that it needed new criteria to guide operations. Goldenweiser (*ibid.*, 6) recalled that in the past the rule of thumb was that borrowing by New York banks in excess of \$50 million suggested tightness and less than \$50 million suggested ease. That rule was no longer applicable. In its place he proposed to use excess reserves in place of borrowing; \$250 million of excess reserves in New York and \$700 million to \$800 million for the country could be the threshold for judging ease and tightness.²²⁷ The committee did not discuss the pro-

225. The qualification recognizes the reduction of the Boston bank's discount rate to 1 percent in September 1939 and reduced rates on industrial loans for defense production.

226. See table 6.6 above. At the time, excess reserves were above \$3 billion. Contrary to the forecast, excess reserves rose, so the System made few purchases.

227. The staff had estimated the level of excess reserves at which banks would begin to borrow from the reserve banks. A staff memo in February 1937 estimated that the banks wanted to hold \$100 million of excess reserves, a clear recognition that not all excess reserves were redundant. At the time, excess reserves were \$2.5 billion, but there is no attempt in the memo (or elsewhere that I have seen) to explain why actual excess reserves remained so far above the estimate of desired excess reserves.

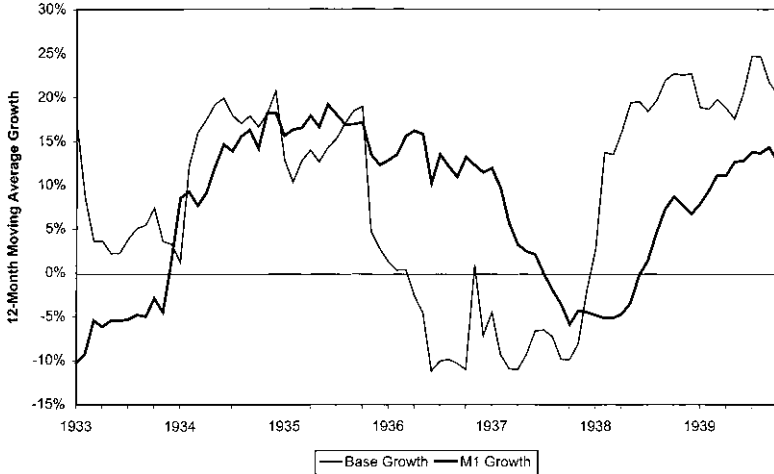


Chart 6.4 Adjusted St. Louis base versus M_1 , twelve-month moving average growth.

posal, but it reveals that the events of the 1930s had little effect on the Riefler-Burgess framework. Only the numerical magnitudes had changed.

In his biography, Eccles reports that he expressed concern to the president about the economy as early as March. His concern at that time was that rising prices and wages would prevent the economy from reaching full use of capacity (Eccles 1951, 296–97). In August, he urged the president to encourage housing construction.²²⁸ None of these concerns appear in the September 11 minutes. Williams again recognized that the economy had slowed, but he was uncertain whether a recession had started (Minutes, FOMC, September 11, 1937, 6–8). Harrison noted that bank credit was available, so the “causes of the present situation were not in the monetary field” (9) The implication was that there was no need for policy action.

Once again, the monetary base and the money stock tell a different story. Chart 6.4 shows the growth rates of the adjusted monetary base and the money stock from 1936 to 1939.²²⁹ Growth of the monetary base turned negative after gold sterilization in December 1936. The base fell throughout 1937, much of the time at a 7 to 11 percent rate. The money stock lagged behind; although its growth rate fell throughout 1937, the money stock be-

228. Eccles (1951, 361) defends himself against the charge at the time that the increases in reserve requirements and the undistributed profits tax had caused the depression. These beliefs appear to have been held most vigorously by advocates of a balanced budget who may have wished to avoid criticism of fiscal tightening in 1937.

229. The adjustment corrects the base for changes in reserve requirements by reducing (or increasing) reserves by the dollar value of reserve requirement changes.

gan to fall only in August, two months after the start of the recession. Money growth remained negative until the early months of the recovery. With inflation (deflator) rising at a 6 percent average for the first three quarters, real money balances fell. In fourth quarter 1937 the situation changed; the price level fell and the base rose, so the real value of base money increased as real rates of interest rose. Again, as in 1920–21, the rise in the real value of the base and money dominated the effect on economic activity of rising real rates of interest.

Although the recession began in June, the FOMC made no purchases until November. Even a sharp stock market break, reducing the stock price index by 26 percent from late August to mid-October, did not induce a response. At last, on November 9, the FOMC executive committee voted to begin purchases at once and to purchase \$50 million by the end of the month, using the authority of the September meeting. Eccles again wanted purchases because the Treasury threatened to act on its own by dewatering gold. Harrison opposed purchases but voted in favor (Harrison Papers, file 2140.2, November 6, 1937). Perhaps because excess reserves rose and there was no evidence of seasonal tightening, the system bought only \$38 million in November.²³⁰ On November 16, Harrison and Eccles agreed to stop purchases after checking with Morgenthau. The System made no further purchases until March 1938.

Williams explained why the Federal Reserve purchased so little and stopped so soon. He described the period as a small depression but with “continued monetary ease,” and “for that reason, a policy of monetary ease could not be counted on as a major corrective” (Minutes, FOMC, November 29, 1997, 3). “Those in authority should not sit back and do nothing. . . . steps should be taken to devise a means of encouraging private investment” (4). But he made few suggestions about what should be done, opposed any increase in government spending, and stressed the impor-

230. Unlike earlier recessions, the Federal Reserve learned about the severity of the recession slowly. At the October 8 meeting of the Federal Advisory Council, participants talked about a tendency toward decline and suggested that only steel, textiles, and construction were below September 1936 levels. The council expected that the fourth quarter “would be satisfactory” although below earlier anticipations (Board Minutes, October 8, 1937, 4). By mid-December the Advisory Council recognized that there had been a sharp business recession. Some plants had been closed. Others produced for inventory only. The tone remained relatively optimistic about recovery in the near future (Board Minutes, December 14, 1937, 6). This contrasts with statistics on industrial production. The Board’s index shows a decline from 106 in September to 83 in December (22 percent). The Miron-Romer (1989) index shows a modest decline in this period (1.2 percent) and a very large decline in January 1938 (23 percent), with further declines cumulating to 44 percent by July 1938. Kindleberger (1986, 271) reports that on several measures the recession destroyed half the recovery from the 1932 lows.

tance of a balanced budget and other fiscal measures: reduction of the undistributed profits tax, the capital gains tax, and the surtax.

Goldenweiser agreed that monetary policy had been easy since early 1932. The increases in reserve requirements had not reversed the easy money policy; the recession was due to (unspecified) nonmonetary causes. He agreed with Williams that the third increase in reserve requirements should have come earlier (*ibid.*, 6). He saw no reason for “any major monetary action at this time” (9). The System remained inactive.

The committee voted unanimously to continue the authorization to purchase for seasonal adjustment agreed on in September. Not a single dissenting voice suggested that the committee should purchase for expansion. Once again, the level of money market interest rates misled the FOMC. The members failed to see that falling prices meant that real rates of interest had increased as deflation and recession took hold.²³¹ Using nominal interest rates instead of monetary growth as an indicator of the policy stance gave the wrong signal in 1937 just as it had in 1929–33. Even growth of bank loans would have told the Federal Reserve that policy was restrictive; in the year ending June 1938, total bank loans fell 7.5 percent, reflecting restrictive monetary policy and the recession.²³²

Kindleberger (1986), Roose (1954), and Eccles (1951) describe the recession as principally an inventory recession. Eccles is representative of this view. He denied any monetary influence and attributed the 1937–38 cycle to four causes: (1) the buildup of business inventories at a time when (2) government spending declined; (3) the introduction of Social Security tax payments (\$2 billion); and (4) labor disturbances that threatened to raise future production costs (Eccles 1951, 294–95). Instead of the \$4 billion deficit in 1936, the Treasury had a cash surplus of \$66 million in the first nine months of 1937.²³³

Chart 6.5 shows two measures of the change in inventories during these years. The sharp peaks in fourth quarter 1936 and second or third quarter

231. The meeting made a small adjustment in the allocation formula to increase earnings at banks that might have difficulty covering expenses and dividends. After 1933, the reserve banks did not pay franchise tax to the Treasury. Earnings above dividends and expense increased earned surplus.

232. Investments fell also, so total bank earning assets declined.

233. Morgenthau's figures are slightly different. He has a cash deficit (excluding gold and silver purchases) of \$288 million for the first nine months compared with a \$2.8 billion deficit in the same period of 1936 (Blum 1959, 383). Morgenthau worked tirelessly to get the budget balanced and, to Eccles's consternation, made a speech in New York on November 10, 1937, promising to balance the 1939 budget. Among the cabinet, James A. Farley and Henry Wallace endorsed his view, and Roosevelt also adhered to it until late in the recession.

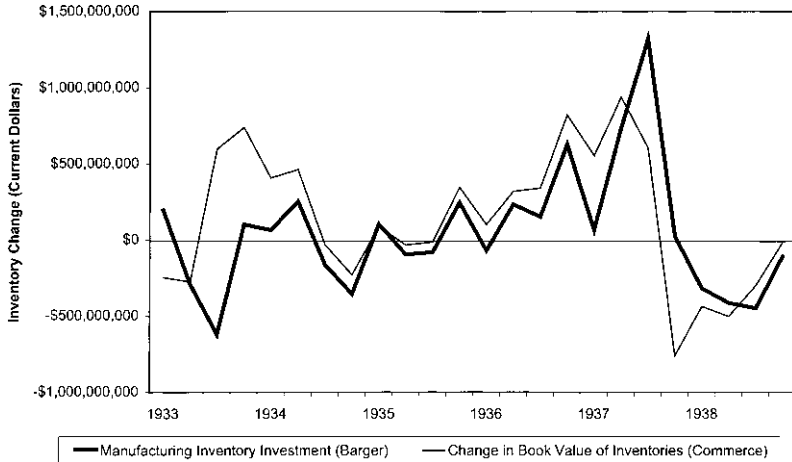


Chart 6.5 Change in manufacturers' inventories, seasonally adjusted.

1937 are clearly visible. The change in inventories, however, is small relative to the change in GNP or final sales.

A more plausible interpretation is that the very large decline in final sales made inventories seem excessive. Chart 6.6 shows that rapid money growth in 1935 preceded the increased growth of final sales in 1936. The deceleration of money in 1937 preceded the sharp decline in final sales, and the resumption of money growth preceded the resumption of growth in final sales. On this interpretation, gold inflows caused an acceleration of the monetary base followed, as in chart 6.4, by an acceleration of money and, as in chart 6.6, by faster growth of final sales. Fiscal changes, especially bonus payments, reinforced these effects. At peak deceleration in the summer of 1937, the monetary base declined at an 11 percent annual rate. Final sales (and real GDP) reached their trough at the end of 1937.²³⁴

Contemporary observers within and outside the administration gave considerable weight to the president's "antibusiness" rhetoric and actions. Although the undistributed profits tax did not produce more than about \$400 million in revenue in fiscal years 1936 to 1938 (much below projections), the revenue aspect seems to have been less important than the

234. Eccles (1951, 299) appears to change his argument without noticing: "Soon thereafter the inflated price bubble burst for want of purchasing power to sustain it, and the slump started in earnest" (emphasis added). This recognizes a monetary effect. Consistent with his belief that monetary policy was impotent in recessions, Eccles's proposals for responding to the recession never mention Federal Reserve actions. He urged the president to lower mortgage down payments and interest rates on loans from the Federal Housing Administration (302).

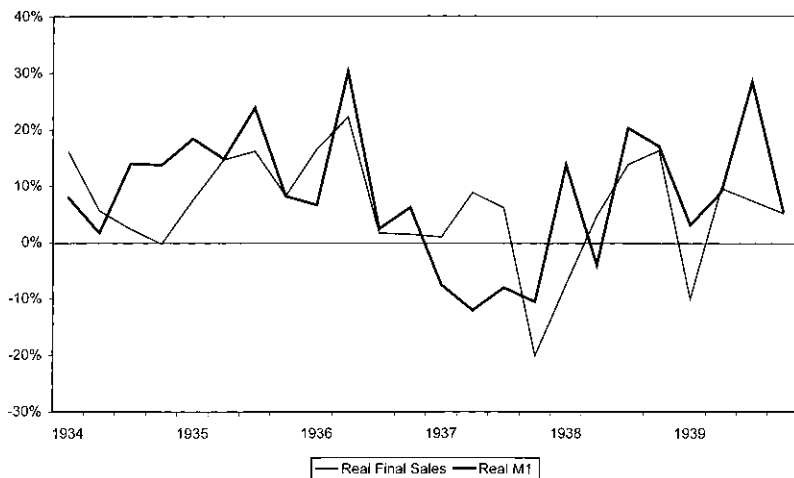


Chart 6.6 Real final sales growth versus real M_1 growth. Quarterly final sales from Barger 1942.

president's message (March 3, 1936) citing the large growth of corporate profits in the 1920s as a source of disturbance. Regulation of foreign exchange and the capital markets by the Securities and Exchange Commission also gave rise to concerns.²³⁵

End of the Recession

The Federal Reserve did little to correct the mistakes that contributed to the recession. Since short-term market interest rates remained low, it regarded its policy as easy. It continued to express more concern about future inflation than about current deflation. It took expansive actions when prodded by the administration and to avoid criticism for hindering the expansion program that the administration finally adopted.

Although the recession started in May 1937, policy did not change until 1938, when Morgenthau and the Treasury pressed for an end to gold sterilization and reductions in the reserve requirement ratios. Eccles continued to urge increased government spending and a larger deficit. Repeal of the undistributed profits tax relieved some of the real or psychological effects its passage had generated.

In November 1937, when Morgenthau first proposed to end gold steril-

235. Harrison reports, as an example, a conversation with George Whitney, a partner in J. P. Morgan. Whitney attributed the recession "largely to the Government's attitude about taxes and business regulation and the rapidly growing fear of business that it will not be allowed to make a profit" (Harrison Papers, file 2610.1, November 12, 1937). Jacob Viner partly endorsed these views (Blum 1959, 384).

ization, Eccles opposed on the grounds that “Roosevelt might grab the idea as a panacea for solving all economic problems. He considered excess reserves plentiful and contended that neither desterilization nor loosening of reserve requirements would actually ease credit” (Blum 1959, 393).

Morgenthau persevered. On February 8 he met with Roosevelt, deeply concerned about the continuing recession and the effect of the recession on other democratic countries. Despite his concerns about deficits, he wanted to spend an additional \$250 million in the remaining months of the fiscal year to increase WPA employment by 650,000. He believed falling prices encouraged delays in private spending, so he proposed to end gold sterilization. Roosevelt accepted both suggestions (Blum 1959, 400). Morgenthau’s diary explains that Morgenthau ended sterilization, in part, to prevent more government spending.²³⁶

Eccles hesitated to approve unlimited gold purchases. The gold purchase program announced on February 14 limited the monetary base increase to \$100 million a quarter, retroactive to January 1.²³⁷ Chart 6.4 (above) shows the immediate large change in the growth rate of the monetary base. In the second quarter, final sales rose modestly but inventories declined, so real GDP did not rise until the third quarter.

Eccles regarded the gold program as Morgenthau’s plan. He was at best cool to the idea (Blum 1959, 406). Gold purchases expanded money without increasing Federal Reserve earnings, but his principal concern was the size of excess reserves. At the March 1 FOMC meeting, he favored continuing the program of selling long-term bonds and buying bills. The committee discussed open market sales to reduce excess reserves. This action would have neutralized Morgenthau’s program, in effect resterilizing gold. Eccles concluded: “No useful purpose would be achieved by reducing the total amount of securities held in the System open market account.” He did not propose purchases (Minutes, FOMC, March 1, 1938, 6–7).

Again in April, the Roosevelt administration, not the Federal Reserve, acted to spur the recovery that by then was under way. Morgenthau leaves no doubt about the reason for action. On March 25, while Roosevelt was on vacation in Georgia, the stock market fell sharply. The proponents of spending within the administration seized the opportunity to convince the

236. If nothing was done, they “would get instead a transcontinental highway or \$8 billion of extraordinary expenses” (Blum 1959, 405).

237. This implied an annual rate of base growth of 4 percent. The Anderson and Rasche 1999 measure of the base increased 4.6 percent for the quarter; all of the change occurred in March. Morgenthau checked the plan with the British (under the Tripartite Agreement discussed below). The British agreed but asked why the United States did not reduce reserve requirements.

president that more spending would help the economy and the Democratic Party.²³⁸ After much internal wrangling, and Morgenthau's threat to resign over the budgetary consequences, Roosevelt announced a new recovery plan on April 18.²³⁹ Spending for construction and welfare increased by about \$2 billion. On the monetary side, the Federal Reserve reduced reserve requirement ratios, and the Treasury desterilized \$1.4 billion, all the remaining gold sterilized since December 1936. The reduction in reserve requirement ratios released an estimated \$750 million, reversing the May 1, 1937, increase for central reserve and reserve city banks (to 22.75 percent and 17.5 percent) and lowering to 12 percent and 5 percent the requirement for country banks and all time deposits. The Board's minutes refer to the change as part of the president's program (Board Minutes, April 15, 1938, 1–2).²⁴⁰ The very rapid expansion of the monetary base is apparent in chart 6.4 (above). Estimated excess reserves rose to \$3.9 billion when desterilization was complete. Within a few months, the money stock began a sustained increase.

238. On April 5, Roosevelt told the cabinet: "The situation was bad not only for the country but also for the Democratic Party, which might lose the fall election if conditions continued as they were" (Blum 1959, 418). The reaction of the stock market was probably more closely related to foreign than to domestic conditions. The Harrison Papers (file 2140.3, March 21, 1938) discuss growing concerns about a European war after Hitler annexed Austria that month.

239. This program is cited as the first United States example of a planned increase in spending and the deficit to stimulate the economy. Some writers describe the decision as a major change in Roosevelt's thinking about fiscal policy (see Stein 1969, 109–14). Stein does not mention the political argument for spending. Currie, who served as Roosevelt's economic adviser during the war, does not share Stein's view. He claimed (1971, 3) that Roosevelt understood compensatory changes in spending and taxes only in 1940. I am indebted to Roger Sandilands for a copy of Currie's letter. Currie and others may have based their view on Roosevelt's opposition to increased spending in the 1939 budget, but it is also true that, in the fall of 1938—possibly to placate Morgenthau—Roosevelt appointed a conservative businessman, John W. Hanes, as undersecretary of the treasury, responsible for fiscal decisions (Blum 1965, 15–16).

240. The preliminary draft of the announcement stated: "While there were ample excess reserves to meet any probable needs . . . many people were under the impression that the Board's action . . . increasing reserve requirements was unduly deflationary; . . . the System is in a position, in the opinion of a substantial portion of the public at least, of resisting the recovery program; and that for that reason the Board could not be motivated exclusively by the economic factors in the situation and disregard the psychological factors" (Policy Records, Board of Governors File, box 291, April 15, 1938). All this was eliminated in the final draft, which talked about a "concerted effort by the Government." It appears, however, in the FOMC minutes for April 21 (7), which described the reduction of reserve requirements as "in the best interests of the Federal Reserve System."

Discussion of the effects of the 1937 reserve requirement increases was highly contentious. In February, Goldenweiser was relieved of all other duties and ordered to rewrite the annual report to make the discussion of reserve changes more appealing to the Board (Board Minutes, February 25, 1938). The FOMC rejected Williams's report on reserve requirement changes three times.

The Federal Reserve was reluctant to permit all the sterilized gold to increase reserves at once; the Treasury felt otherwise. The Treasury wanted to issue gold certificates in exchange for Federal Reserve deposits, then use the deposits to retire Treasury bills as they came due. This would increase excess reserves quickly, pressuring the banks to expand credit. The Federal Reserve preferred to have the Treasury use its deposits to pay for gold purchases, thereby spreading the increase in excess reserves over a longer period. On April 19 the executive committee of the FOMC agreed to present its case to Morgenthau in terms of disorderly debt markets. Reducing the stock of short-term government securities would reduce yields and could create disorderly markets. The Treasury dismissed the argument.

The president's announcement of the new program sparked a rally in the Treasury market. Already low yields on short-term securities fell to zero out to a maturity of eighteen months (Minutes, FOMC, April 21, 1938, 7). Desterilization and the reduction in reserve requirements appear to dominate any effect of a larger deficit; the market viewed the monetary ease as more than sufficient to absorb any additional debt resulting from the deficit or increased private spending and borrowing.

The FOMC's April 21–22 meeting gave most attention to the problem of replacing Treasury bills and notes with market yields at zero or below.²⁴¹ With a large increase of excess reserves currently and prospectively available, yields on Treasury securities had fallen at all maturities. The FOMC's principal concern was "disorderly markets"; rates had declined rapidly and could reverse.²⁴² The members did not want either to criticize the administration's program or to accept responsibility for correcting disorderly markets.

Eccles told Morgenthau about these problems. He reported to the FOMC that Morgenthau was sympathetic but would not agree to stop retiring \$50 million in Treasury bills a week. The most he offered was to reconsider the subject later. Divided and uncertain about what to do, the

241. Treasury bills have large denominations that make them useless in transactions. At an equal nominal rate of zero, the real yield on currency—the own or nonpecuniary yield—is the higher of the two. Also, Cecchetti (1988) shows that the negative yields were the price paid for "exchange privileges." Certain coupon securities carried rights to purchase new issues of these securities. Adjusted for this option, rates on notes are positive but close to zero. Treasury bills did not have the exchange privilege. Bankers urged their customers to withdraw deposits and buy bills (even with very low yields) to save the cost of deposit insurance, one-twelfth of 1 percent.

242. Yields on long-term government securities declined from 2.62 in April to 2.51 in May and June (Board of Governors of the Federal Reserve System 1943, 471).

FOMC voted to replace maturing Treasury bills with notes out to a two-year maturity, if it could be done without paying a premium (negative yield).²⁴³

The following week the committee reconsidered the same issues. Harrison wanted authority to replace maturing issues with longer-term securities if useful for maintaining orderly markets and authority to purchase or sell securities to prevent disorderly markets. Eccles opposed sales as counter to the administration program. He proposed to continue replacing securities as long as yields were not negative. Harrison's motion was defeated eight to three; Eccles's proposal then passed unanimously.²⁴⁴ Unlike the situation in the 1920s, the Board had control.

In September, long-term Treasury yields rose as the economy recovered and despite foreign buying of United States securities at the time of the Czech (Munich) crisis. The Treasury bought \$37 million of notes and bonds. The Federal Reserve made smaller purchases, offset by sales of bills. Pressure from the Treasury to keep yields low lessened a bit after the Munich agreement. With Eccles absent, Harrison urged the executive committee on September 15 to let up to \$700 million in bills run off without replacement if necessary. This would have reversed the April reduction in reserve requirements and offset Treasury purchases to hold rates down. The committee defeated the proposal. It voted instead to replace government bonds with Treasury bills to put the System in a position to offset monetary expansion without taking portfolio losses.²⁴⁵

The December meeting reconsidered the same issue, the problem of replacing bills as they matured without paying a premium to buy bills. The

243. Failure to replace maturing securities reduced the open market portfolio. The System was reluctant to offset or cancel the reserves released by the reduction in reserve requirements so as not to appear in opposition to the president's recovery program.

244. At the May 31 meeting, the FOMC decided that meetings with the secretary of the treasury were not official FOMC meetings, so they did not have to be reported in the minutes.

245. The September 15 meeting accepted the resignation of W. Randolph Burgess as manager of the System Open Market Account. Burgess resigned as vice president of the New York bank on September 13 to become vice chairman of National City Bank. He returned in the 1950s as treasury undersecretary in the Eisenhower administration. Allan Sproul became account manager. Appointment of a new manager led to a brief discussion of the conduct of open market operations. Harrison mused that "he had come to question whether the Committee had not gone into the market too frequently to try to moderate movements which, in some cases, were merely temporary. . . . He suggested that better results might be obtained in the future if the Committee were less responsive to minor fluctuations." The suggestion had no visible effect. The System continued and later intensified its concern for short-term changes. Governor Ransom suggested that the System "enter the market in the early stages of a situation which might develop into a disorderly rise or fall." He offered no suggestion about how that perennial problem could be solved (Minutes, Executive Committee, FOMC, September 15, 1938, 3).

FOMC asked Morgenthau to increase the size of weekly bill issues, but he preferred to encourage lower bond yields by keeping bill yields near zero. Over Eccles's objection, the FOMC voted to let bills run off without replacement if they could not be replaced without paying a premium. A background memo prepared for the December 30 meeting showed the problem worsening. The System had to buy an increasing amount of notes to prevent a decline in its portfolio. In its announcement after the December 30–31 meeting, the FOMC noted that its portfolio might show some fluctuation solely because the System was unable to replace maturing bills. The committee assured the public that “no change in Federal Reserve policy is contemplated at this time” (Press Release, FOMC, Board of Governors File, box 1452, December 31, 1938).²⁴⁶

GOLD AND EXCHANGE RATES, 1935–40

Gold and exchange rate policies, culminating in the 1934 devaluation, provided the main stimulus to domestic recovery in the first two years of the Roosevelt administration. The permanent increase in the gold price to \$35 an ounce permitted gold holders to exchange gold for United States goods and assets on more favorable terms. As gold flowed to the United States, the principal countries remaining on the gold standard—France, Belgium, Italy, and Switzerland—came under increasing deflationary pressure.

By 1935 advocates of stable exchange rates, to revive international trade, had become more active. In the Treasury, Jacob Viner argued that side. Harrison favored allowing the British Exchange Equalization Account to buy and sell gold directly with the Treasury to help stabilize the pound.²⁴⁷ These ideas appealed to Morgenthau, who wanted to build a democratic alliance against Hitler and hoped that monetary cooperation would help achieve that goal (Blum 1959, 140–41). But Morgenthau hesitated, because Roosevelt was suspicious of British intentions and believed Harrison was influenced too much by the British.

246. In December the staff considered means of improving operations of the government securities market. The suggestions included allowing each reserve bank to deal in government securities in its own district (a return to conditions in the early 1920s), making open market operations continuous instead of intermittent, and having the manager report directly to the executive committee of the FOMC instead of to the New York reserve bank, an issue that would return many times (Board of Governors File, box 1433, December 9, 1938). The committee's use of press releases, and its concerns about market reactions, contrasts with its traditional secrecy. The System became aware of anticipations as a strong influence on markets without explicit recognition of why these changes could be helpful.

247. Under Treasury rules, only countries that remained on the gold standard could deal with the Treasury. This excluded Britain.

The dollar weakened early in 1935 when the Supreme Court was about to decide the gold clause cases. United States gold clause bonds went to a premium. Harrison discussed with Morgenthau and Undersecretary T. J. Coolidge what actions the Treasury planned or had under way through the Exchange Stabilization Fund.²⁴⁸ He wanted the Treasury to develop a policy instead of operating from day to day. Morgenthau agreed to talk to Roosevelt, who controlled the decision (Harrison Papers, file 2012.6, February 18, 1935).

At about this time, Morgenthau asked John H. Williams to suggest a policy. Williams proposed informal discussions with the British. Something had to be done, he believed, because United States gold and silver policies drained gold and silver from all other countries, making both standards untenable. Harrison agreed. Morgenthau relayed the conversation to the president, but Roosevelt would consider cooperation only if the British asked for help (Harrison Papers, file 2013.2, March 2, 1935).²⁴⁹

With the pound continuing to weaken against the dollar and the franc, the Bank of France proposed to extend credit of \$330 million (Fr 5 billion) if the British would agree to defend the pound and would state, informally, the level they intended to hold. The French asked the New York reserve bank to join in the support operation if the French government approved. Morgenthau discussed the issue with the president, who was ambivalent. The United States offered "sympathetic support" and expressed hope that the pound would not go below \$4.86, the old parity (Harrison Papers, Memo J. E. Crane to Files, file 2012.6, March 6, 1935).

The pound continued to fall, reaching \$4.776 on average for March. Morgenthau did not pursue the issue of support operations. Instead, he invited some advisers on foreign exchange and domestic prices to dinner on March 5. The topic was further devaluation of the dollar against gold to raise commodity prices. Former governor Eugene Meyer was in favor, but he gave no reason.²⁵⁰ George Warren and Herman Oliphant favored devaluation. Oliphant wanted the president to announce a price level objective. Harrison, Williams, Viner, and undersecretary Coolidge opposed. Viner

248. T. J. Coolidge served as special assistant to the secretary from March to May 1934 before he became undersecretary, where he served until February 1936. The Treasury had been selling pounds to buy French francs, while the British did the opposite, selling francs and buying pounds.

249. Harrison urged a conversation among technical central bank experts to avoid politics. The Treasury responded that those days were gone; exchange policy was now run in the Treasury (Harrison Papers, file 2013.2, March 2, 1935, 5).

250. Eccles was governor at the time but was not present. Meyer was no longer in the System. J. E. Crane was a deputy governor of the New York reserve bank concerned with foreign exchange operations. He was present at the dinner and summarized the discussion in a memo to Harrison, who was present also. Herman Oliphant was the Treasury counsel at the time and one of Morgenthau's principal advisers.

and Harrison argued that the administration's objective should be to increase business activity and reduce unemployment. Profits, not just prices, were the key to recovery. Williams supported this position and warned against further competitive devaluations. With his council divided, Morgenthau did not pursue the idea.

The next move, again, came from France. Still wanting to stay on the gold standard, and willing to deflate as necessary, the Bank of France requested permission to sell gold to the United States.²⁵¹ Morgenthau agreed to buy up to \$150 million on May 31 and to release the dollars for immediate use in New York or Paris (Harrison Papers, file 2012.5, June 3, 1935). This support helped to convince the French government that the United States would cooperate.

Conversations with the British and the French continued sporadically throughout 1935. Roosevelt, who did not trust the British, was particularly wary of Neville Chamberlain, then chancellor of the exchequer. He blamed Chamberlain for the system of empire preference that gave British exports an advantage in British colonies. And he blamed the British for the failure of the London Monetary and Economic Conference. They blamed him (Blum 1959, 141). Despite these antipathies, Morgenthau remained eager to engage the British and the French in stabilization measures as a means of strengthening democratic governments against Hitler. He believed that exchange rate stability would improve prospects for expansion in all three countries. By 1936 the United States economy was expanding rapidly, attracting gold from the rest of the world; faster expansion abroad would slow the inflow.²⁵²

Late in April 1936 Poland, one of the remaining members of the gold bloc, imposed exchange controls and embargoed gold, effectively leaving the gold standard. The pound fell slightly. Morgenthau used the opportunity to convince Roosevelt to permit him to begin conversations with the British about stabilization. Since the president's authority to devalue had expired at the end of January, the United States was less able to threaten independent action. The British eventually replied to his overture, and to Morgenthau's insistence on greater transparency in their actions, by stat-

251. One reason for pressure on the franc-gold price was the continued gold drain to the United States. The more immediate cause was the crumbling of the Latin Monetary Union, the last gold bloc. Belgium devalued in April. Italy, the Netherlands, and Switzerland did not devalue until the following year, 1936, but Italy adopted extensive exchange controls, contrary to gold standard rules.

252. Contemporary Federal Reserve explanations of the inflow gave primary responsibility to relatively strong United States expansion and uncertainty about devaluation by the gold bloc countries. It did not mention the \$35 gold price (memo, Despres to Sproul, Sproul Papers, December 5, 1935).

ing their aims. They wanted to return, eventually, to a reformed gold standard, but they were not ready to commit to such a move. They wanted to retain the right to devalue if necessary. Within that framework, they welcomed cooperation. Morgenthau was pleased by these conditions. He suggested further discussions between the two treasuries, avoiding the central banks (Blum 1959, 142–43).

The French elections of May 1936 accelerated the conversation. A coalition of leftist parties, known as the Popular Front and including the Communist Party, came to power under the leadership of a Socialist, Leon Blum. Their platform did not put forward a clear monetary program. The Socialists were willing to consider devaluation, but the Communists opposed (Kindleberger 1986, 252). Morgenthau favored devaluation of the franc by 15 percent but opposed a French gold embargo. Several of his advisers were willing to accept a 25 percent devaluation (Harrison Papers, file 2012.6, June 9, 1936).

The British used the market disturbance resulting from French strikes, the election, and concerns about devaluation to request authority to purchase gold directly from the United States Treasury. Morgenthau, as usual, took the issue to Roosevelt, who objected. But Morgenthau managed to convince the president of the importance of a French devaluation followed by stabilization of the pound, franc, and dollar. The next day Roosevelt agreed to let Morgenthau sound out the British on a program to let the franc devalue by 25 percent without any retaliation by the United States or Britain (Blum 1959, 145–47).

France was the stumbling block. In a pattern later followed by socialist governments in Chile, France, Peru, and elsewhere, Blum and his finance minister, Vincent Auriol, believed they could raise wages and reduce the workweek to forty hours without devaluing. To add to their mistakes, they allowed firms to borrow from the Bank of France at a 3 percent interest rate to cover the additional employment costs. The government guaranteed the loans.

The program increased costs and raised prices. In the Blum government's first year, French wholesale prices rose 47 percent. Blum and Auriol had pledged to maintain the franc's gold parity, but they left room for an adjustment in its value as part of an international agreement. In fact, they had few choices. Faced with a continuing loss of gold, they could devalue or resort to exchange controls. Morgenthau's offer of assistance, and his use of sanctions against Germany, convinced the new government that a cooperative agreement was possible.²⁵³ They sent a special repre-

253. Germany used currency manipulation—discounts of the mark for purchases in Germany, export subsidies, and other policies—to expand exports. The Treasury claimed these actions violated the 1930 Tariff Act, so they required retaliation. The State Department

sentative to meet Morgenthau to discuss international monetary relations.²⁵⁴

The Tripartite Agreement

To remain on the gold standard, France and the gold bloc had followed deflationary policies in 1934–35. By the summer of 1935, French wholesale prices were 51 percent of their 1929 average. The policy would have worked had it been followed long enough, but the cost was high, and the policy had become unpopular. There were two problems. First, devaluation of the dollar and the increased United States gold price drained gold from France. Second, as a consequence of continued deflation, the gold bloc countries faced increasing unemployment or lower wages at a time of recovery in Britain, Germany, and the United States.²⁵⁵

Beginning in summer 1935, repeated efforts to deflate by balancing the budget, reducing wages and pensions, and other means failed to stop inflation. Chart 6.7 shows that French prices began to rise absolutely and relative to prices abroad. Eichengreen (1992, 367–74) describes the response; successive governments blamed the unbalanced budget. They promised to do better.²⁵⁶ If fiscal stringency did not work, many said, the answer was more stringency.

In the year before the Blum government took office, French wholesale prices rose 15 percent. By September 1936 the French price level was back to 67 percent of the 1929 average. This compares with 86 percent and 78 percent for the United States and Britain. In August, before the franc devaluation, the real dollar-franc exchange rate was 4.8 cents, about 20 percent above the 1929 rate.

The Blum government hesitated to act. The final push came after renewed weakness of the franc against the dollar and the pound in August 1936. The French wanted the dollar and pound to remain fixed if they de-

objected, but the solicitor general found for the Treasury. Roosevelt agreed. On June 4, the United States ordered countervailing duties (Blum 1959, 149–53).

254. Governor Montagu Norman usually took his vacation in Maine. In June 1936 he expressed interest in coming to Washington during July to confer with Morgenthau and Eccles. Morgenthau talked to Roosevelt, who was concerned that, since no agreement was contemplated, the press would decide that the meeting had failed to reach agreement. Part of the concern may have been an unwillingness to have a policy “failure” so close to the presidential election (Harrison Papers, Conversations with Other Officers of the Bank of England, file 3117.4, June 29, 1936).

255. Eichengreen (1992, 357–74) gives a good account of the problems within the gold bloc. Even before the Popular Front, a French government had tried reflation instead of deflation. As noted in the text, French prices began to rise in 1935 before the election.

256. Eichengreen (1992, 367) notes that in 1935 France lost 20 percent of its gold reserves, the Netherlands 25 percent, and Switzerland 40 percent.

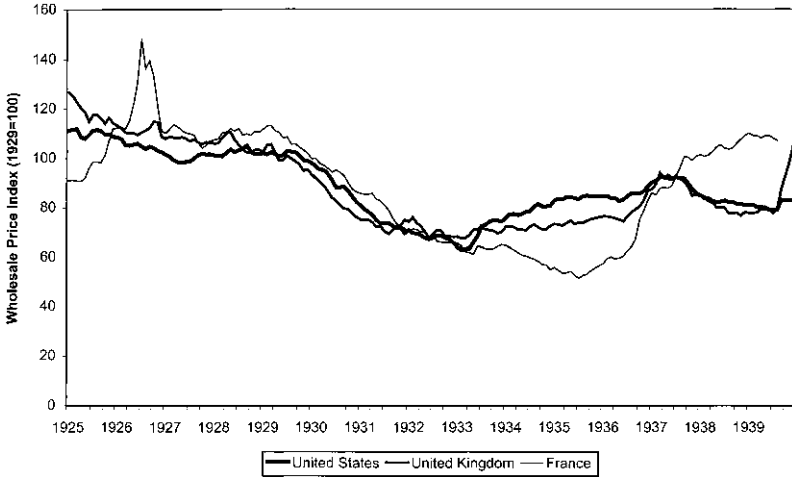


Chart 6.7 Wholesale price indexes (1929 = 100).

valued the franc, and they wanted an agreement to return to the gold standard. Neither the United States nor Britain would agree to fix rates permanently. Roosevelt, Morgenthau knew, would not agree to return to the gold standard.

The French government's position was weak. It had paid out more than one-fourth of its gold stock in nine months and counted on devaluation to provide enough profit on its remaining gold to balance its budget. Morgenthau offered only a general agreement to avoid retaliation following a French devaluation. He did not mention the gold standard. The British response was similar. The final agreement accepted the main points of the United States statement, although each government used its own wording.²⁵⁷ The agreement provided funding for a French stabilization fund from half the proceeds of the devaluation. Each country agreed to stabilize exchange rates, one day at a time, by announcing in the morning the price at which it would exchange its currency for gold at the end of the day.²⁵⁸ The British did not insist that the United States agree to sell gold to stabilization funds, but it did agree to do so on October 12. Belgium, the Netherlands, and Switzerland chose to comply with the agreement. Switzerland

257. The Blum government hesitated to state that it would devalue the franc. It preferred to float the franc but in the end agreed to a devaluation of 25 percent to 34.3 percent with the pound at $\$5.00 \pm 0.10$. Roosevelt insisted the pound must be above $\$4.86$ as the United States election approached. Blum (1959, 160–73) gives the details of the discussion and negotiation. The British did not mention $\$4.86$ and did not agree to keep the pound fixed, but they agreed not to force devaluation.

258. The Bank for International Settlements called the arrangement a daily gold settlement system.

and the Netherlands devalued by 28 percent and 20 percent, respectively. Italy also devalued by an additional 33 percent to bring its devaluation to 40 percent since the United States devaluation in 1934.

Morgenthau did not mention the agreement to Eccles or the Federal Reserve until it was final. Like Roosevelt, he wanted to put governments, not bankers, in charge of monetary policy. The Tripartite Agreement was another step in that program. Unlike the 1920s, when Strong and the New York bank ran international monetary policy, the Treasury was now in charge.²⁵⁹

Morgenthau was euphoric about the outcome. He believed the agreement was a major step toward peace, economic stability, and prosperity. The Treasury staff shared his enthusiasm, as is common among those who have participated in a long and difficult negotiation.²⁶⁰ Major newspapers lauded the agreement (Blum 1959, 173; Eichengreen 1992, 380). Harrison was cautious. He probably expressed the view of those who wanted to restore the gold standard when he told Morgenthau that “a stabilization fund to keep the franc within a 10 percent range only added one more flexible exchange [rate]” (Harrison Papers, file 2012.6, September 25, 1936).

In fact, the agreement was more symbolic than substantive. The franc and some of the currencies allied in the former gold bloc devalued their nominal exchange rates by 15 percent to 30 percent of their 1929 values. The dollar and the pound remained close to their predepression nominal parity. Britain and the United States agreed not to respond immediately to the French devaluation, a modest sign of cooperation.

One measure of the agreement is the effect on exchange rates. Table 6.7 shows estimates of exchange rates adjusted for changes in wholesale price levels, a measure of so-called real exchange rates, at selected dates. The top row shows bilateral real exchange rates before the start of the Great Depression. Rows 2 and 3 show these rates after the 1931 British devaluation and the 1934 United States devaluation. Row 4 follows the Tripartite Agreement.

Devaluation restored the 1929 real franc exchange rate for the dollar

259. Eccles's book does not mention the agreement. Harrison was informed and acted as an adviser to Morgenthau, but he could not talk to Eccles or Ransom. When the countries reached an agreement, he called the principal New York bankers, at Morgenthau's request, to ask that they avoid speculating against the three currencies.

260. The Bank of England was enthusiastic also, judging from correspondence between H. A. Siepmann at the bank and Allan Sproul at New York. These men exchanged personal letters, sharing views and information. Siepmann's letter dated October 27, 1936, for example, is sixteen pages of handwritten comments that end by noting that he did not inform the bank's governor of their correspondence (Sproul Papers, Bank of England, November 6, 1936).

Table 6.7 Real Exchange Rates, Selected Dates

DATE	DOLLAR-POUND	DOLLAR-FRANC
June 1929	4.75	0.042
October 1931	3.90	0.040
February 1934	4.71	0.053
October 1936	4.60	0.041

and devalued the real rate for the pound by 3 percent. What a cumbersome and costly way to correct the misalignment of exchange rates after the restoration of the gold standard in the 1920s!²⁶¹

The adjustment that the agreement made possible did not produce stability. Chart 6.7 shows that between September 1936 and the start of the United States recession in June 1937, French prices continued to rise relative to United States and British prices; the franc depreciated in real value against the dollar and the pound.

After the Agreement

Harrison telephoned to ask for cooperation from the major bankers on Friday evening, after agreement was reached. Apparently they did not all relay the message to their traders. On Saturday morning the pound began to sink, falling from \$5.02 to \$4.91. The proximate reason was an order from the Russian State Bank to Chase National Bank to sell £1.2 million for dollars. Morgenthau viewed this as an attempt to subvert his agreement: “He was not going to have the Reds or Communists ruining this program” (Harrison Papers, file 2012.6, September 26, 1936, 9). He ordered Harrison to buy the pounds immediately for the Exchange Stabilization Fund, and he threatened to announce publicly that “the Reds were making an attack on the pound in order to draw it down and spoil the program” (10).²⁶²

The agreement did not specify who could buy or sell gold at the Treasury. Morgenthau tried to clarify the issue at a press conference in October, but he misstated the policy. By limiting transactions to governments only,

261. The agreement has always had greatest appeal to proponents of currency stabilization policies. See, for example, Kindleberger 1986, 258–59, or Eichengreen 1992, 381–82. See chart 6.1 (above) for more detail on real exchange rates.

262. When Morgenthau called the Chase to get permission to announce the transaction, he learned that the total was £1.2 million, of which £300,000 had been sold on the thin Saturday market before the Exchange Stabilization Fund intervened. After Morgenthau made the announcement, with Roosevelt’s permission, at a Saturday press conference, Winthrop Aldrich, president of Chase, informed him that the transaction was a commercial transaction by the Russians to obtain dollars to repay a loan to Sweden. Morgenthau did not dispute the explanation but remained skeptical (Blum 1959, 173–74). And he was happy to show that the bankers, not the government, were doing business with the Russians.

he was more restrictive than he intended, but he would not issue a corrected statement until after the November election (Harrison Papers, file 2012.6, October 13, 1936). Finally, on November 24 the Treasury announced that it would sell gold to treasuries or fiscal agents acting for treasuries (including stabilization funds) that would sell gold to the United States. This statement relaxed the restriction on the Treasury to deal only with gold standard countries, in effect since January 1934. Britain, France, Switzerland, the Netherlands, and Belgium became trading partners.

In 1937 the French began to respond to German rearmament by increasing military spending. The increased spending added to the burden of the Popular Front's social programs and the devaluation. By February the franc was under pressure, falling against the dollar and the pound. Harrison began conversations with the British about stabilization of exchange rates, and the Treasury began intergovernment discussions. At \$2.5 billion, French gold holdings were at the lowest level since the 1931 British devaluation. The French suggested that the United States buy \$5 million to \$10 million worth of francs but not convert them into gold until after the summer tourist season. Morgenthau was shocked. The suggestion "made him break out in a cold sweat" (Blum 1959, 456). The loan would probably have violated the Johnson Act, passed in 1934, prohibiting loans to any foreign government that had defaulted on its war debt.

The French thought they would have to impose exchange controls, violating the Tripartite Agreement. At Neville Chamberlain's urging, bankers arranged a private loan to France, so the agreement continued. The Blum government survived (*ibid.*).²⁶³

By March 1937 the franc was under pressure again. The French wanted to arrange a defense loan, payable in dollars, francs, and pounds. The announcement created a storm in Washington, and Morgenthau had to testify that the Treasury viewed the loan as a violation of the Johnson Act, hence illegal (Harrison Papers, file 1610.1, March 8 and 9, 1937; Blum 1959, 461–62).

So it continued, with intermittent disturbances followed by brief periods of calm. Again, as in 1927–29, the main problem was never mentioned: exchange rates were misaligned and, as charts 6.1 and 6.7 show, inconsistent with the relative movements of wholesale prices in the principal countries.

Rumors spread in April that, to slow gold flows, the United States planned to revalue the dollar against gold. Gold flowed to the United States

263. Both the United States and Britain wanted the Blum government to survive. Both saw Blum as the strongest antifascist likely to form a government. Morgenthau and Roosevelt also liked his social policies (Blum 1959, 456–57).

from private speculators and the exchange stabilization funds of smaller countries (Kindleberger 1986, 265). The franc weakened again in nominal and real terms. On April 9 President Roosevelt denied any knowledge of a plan to change the gold price. The franc continued to weaken, but the rate of decline slowed temporarily (Harrison Papers, file 2012.7, April 10, 1937).

The Blum government fell in June 1937. The new government promptly devalued the franc by 15 percent but agreed to hold the new range, 3.80 to 3.96 cents, and not seek a competitive devaluation. It wanted only to offset the costs to French industry of the Blum government's social legislation.

Morgenthau accepted the devaluation as within the Tripartite Agreement because the French avoided new controls and announced a buying and selling rate at which they would sell gold. He was able to persuade the British to agree also, although they privately warned the French to avoid a further devaluation (Blum 1959, 478).

For the next year, several French governments, plans, and discussions produced no result. To save the remnants of the agreement, Morgenthau offered to let the French use "temporary" exchange controls (*ibid.*, 500). In May 1938 France again devalued the nominal exchange rate to 175 francs to the pound and 2.8 cents per franc. The more critical real exchange rate was now 3.6 cents per franc, about 12 percent lower than at the start of the agreement. The British did not want to accept the new parity, but they feared even more ending the Tripartite Agreement while facing the prospect of war to stop German and Italian expansionist actions.

Discussions continued about how to use the agreement as a political measure to strengthen the democratic governments. For practical purposes, the agreement ended before the May 1938 devaluation. After Munich, in September 1938, preparations for war increased in Britain and France. Both currencies fell against the dollar in nominal and real terms. The United States continued to regard the agreement as in effect.

What Was Achieved?

Proponents of international cooperation point out that exchange rate variability declined after the agreement. Eichengreen (1992, 382) shows that afterward monthly exchange rates were more stable in leading countries (except France).

This is a modest benefit to put beside the economic cost. The agreement could work only if the new nominal exchange rates were (close to) full equilibrium rates, consistent with stable real exchange rates. Differences in price levels and in economic policies leave little doubt that this was not so. Within six months the real dollar-pound exchange changed by 6 percent.

Try as they did, Morgenthau and Chamberlain could not make cooperation produce stability. The British insisted that the agreement was limited to daily, or short-term, exchange rates and a pledge to avoid using devaluation to improve relative positions.²⁶⁴ That meant uncertainty about future exchange rates remained. Countries remained free to pursue policies that would result in devaluation. Indeed, the French were engaged in such policies at the time. Instead of criticizing the policies as inconsistent with the agreement, Morgenthau and Roosevelt praised and encouraged them as a French version of Roosevelt's New Deal.

The policies failed. French industrial production had increased 9 percent in the year ending March 1936. Under the Popular Front, production fell; increased costs of production, particularly labor costs, aborted a recovery that was under way, much the same as happened in the United States under the NIRA in summer 1933. Prices rose, requiring devaluation. The agreement postponed devaluation, delaying adjustment. A floating rate would have devalued the currency to reflect the cost increase; the fixed rate forced the adjustment to come through changes in prices, output, and employment.²⁶⁵

The agreement had two basic flaws. The first was failure to distinguish between real and nominal exchange rates. Fixing nominal exchange rates forced adjustment of misalignment through price changes. The discussions leading up to the agreement, and after, show no recognition of this central point. Second was the belief that international cooperation was a viable alternative to exchange rate adjustment. Exchange rates and prices were misaligned in the mid-thirties, just as at the end of the twenties. Belief in the gold standard remained strong, however. Prominent economists like Viner and Williams, who advised Morgenthau, and many businessmen and politicians believed that fixing exchange rates under some type of gold standard was evidence of adjustment and a source of stability. What better way to restore stability than to fix exchange rates?

In retrospect, we know now that the agreement ended the major principle of the gold standard—that countries should avoid devaluation as a means of adjustment whatever the cost. If the British devaluation was the

264. They did not fully agree on what the Tripartite Agreement required. As late as December 1937, Sproul and Siepmann exchanged views on such basic questions as the size of permissible fluctuations, responsibility for maintaining stability of the bilateral rate, and the conditions requiring gold shipments (Siepmann to Sproul, Sproul Papers, Bank of England, December 15, 1937).

265. France is the only major country in the 1930s, and possibly the only country, that saw output fall after devaluation. This suggests the extent of misalignment in countries such as the United States, Belgium, and Britain.

first step, the French, Dutch, and Swiss devaluations represent rejection of the principle by the last countries with strong commitments to the gold standard. After 1931–36, devaluation was no longer unthinkable.

As a political measure, the agreement had greater merit. Morgenthau was eager to show the Germans and Italians that the democracies would work together toward a common goal. And Roosevelt overcame some of his suspicions about the British, so he was better prepared to cooperate in a wartime alliance.

POLICY AND WAR PREPARATIONS, 1939–41

The probability of a European war rose and fell in the late 1930s. The first explicit mention of preparations by the reserve banks came at the time of the Munich agreement, on September 8, 1938. The New York directors discussed their policy toward loans on government securities in the event of a war. They reached no decision, but they reopened the subject at the Conference of Reserve Bank Presidents (Presidents Conference) later that month. The main issues were the rates at which the reserve banks would lend on government securities and whether the rates would be higher for nonmember banks, individuals, and corporations. The presidents recommended making their discount rates (1 percent to 1.5 percent) the applicable rates for member banks but using a slightly higher rate for nonmember banks and others (Board Minutes, September 21, 1938, 1–2). The political problem in Europe eased, so they did not make a decision.

By early 1939, real GNP rose above its prerecession peak, with prices slowly falling. Falling prices and economic recovery, plus the threat of a European war, increased the gold flow from \$113 million in the first half of 1938 to \$1.3 billion in the second half. More than \$3 billion followed in 1939.²⁶⁶ Sterilization had ended, so the monetary base rose 23 percent in 1938 and 20 percent in 1939. Interest rates and risk premiums fell as excess reserves rose.

At the end of 1938, excess reserves were above \$3 billion, higher than in August 1936, when the System first increased reserve requirements. A year later, excess reserves were above \$5 billion. The gold reserve percentage reached 83.5 percent, the highest level since World War I, but not yet a

266. People shipped gold by parcel post. Many of the shipments came from France, although the sender may have lived elsewhere. The Bank of England tried to stop or slow the shipments by getting insurance companies to raise insurance rates, but the insurance business shifted to Swiss companies. In 1938 shipments averaged £1 million per month. By February 1939 shipments reached £4 million per month (telephone conversation with the Bank of England, Sproul Papers, Bank of England, March 13, 1939).

peak. Although excess reserves were again greater than the open market portfolio, the Federal Reserve remained inactive.²⁶⁷

Conflict continued between the Treasury and the Federal Reserve over whether to increase the size of the weekly Treasury bill auction. The System wanted a higher bill rate so it would not have to extend portfolio maturity. It hoped that an increased supply of bills would lower the price and raise the yield. Higher short-term rates were expected to raise long-term interest rates, permitting the System to reverse the approximately \$100 million (4 percent) increase in the portion of its portfolio with five years or more to maturity.²⁶⁸ The Treasury opposed. Morgenthau liked the low yields on Treasury bills, so he turned down the request. To prevent a fall in long-term rates, Morgenthau sold \$10 million from the Treasury trust accounts. He invited the System to participate in the sale, but it declined because markets were not disorderly. The “strength of the market was due to fundamental causes which would not be reached by the action suggested” (Minutes, Executive Committee, FOMC, March 13, 1939, 2). The fundamental causes were the government’s silver purchase policy and the gold inflow at the time of the March 1939 German occupation of western Czechoslovakia.²⁶⁹

Concerns about a European war remained high. Pressed by the Treasury for a policy to prevent market disorder in the event of war, the executive committee agreed to share purchases equally with the Treasury until the Treasury had invested all of the balances in the trust accounts, approximately \$100 million. After that, the System would purchase on its own up to \$500 million, a 20 percent increase in its portfolio.

Eccles made his reasoning clear. After the Treasury exhausted the trust funds, any additional Treasury purchases would come from the Exchange Stabilization Fund, “which would create in the Treasury an open market portfolio of Government securities. . . . This would be undesirable” (Minutes, Executive Committee FOMC, March 14, 1939, 2). He preferred to operate alone, after consultation with the Treasury (3).

Harrison, cautious as usual, agreed to the proposal but asked for a com-

267. In March the New York bank acknowledged defeat in its efforts to establish a bill market comparable to the London market, as Strong and Warburg had planned. The directors abolished the bill department and merged bill and securities (governments) operations (Minutes, New York Directors, vol. 45, March 2, 1939, 21).

268. The Federal Reserve did not want to take the risk of a rise in longer-term yields, but it also did not want to sacrifice income.

269. A background memo suggested that the decline in long-term rates resulted from \$390 million of purchases by New York banks. The banks wanted to increase their income, so they sold notes and bills and purchased bonds (Board of Governors File, box 1452, March 17, 1939).

mitment to sell the securities after the emergency passed: "There should be no objection . . . solely on the ground that no sales should be made before conditions warranted a change in the present easy money policy" (*ibid.*, 3–4). The committee agreed only to keep an open mind about sales.²⁷⁰ The following week, the full FOMC authorized the proposed purchase policy.

The presidents and governors again discussed discount policy in the event of a European war. Late in April, the reserve banks agreed to make loans to member and nonmember banks at the discount rate, if collateralized by government securities valued at par. The New York rate was 1 percent, with 1.5 percent at all other banks. The Board approved the policy but agreed not to announce it until a war began.²⁷¹ This changed as war approached in late August; the Board wanted to announce the policy as part of a general statement describing its powers and its willingness to serve as lender of last resort. Only the Cleveland bank objected to not waiting for the war to start. By the time the discussion finished, war had started. The Board issued the statement on September 1.

Gold flows increased. As war approached, safety of capital and, later, payment for war materials supplemented the United States gold price as a driving force. By the end of 1940, the United States Treasury owned almost 80 percent of the world's monetary gold (Schwartz 1982, tables SC6 and SC8). The inflow would have slowed without policy action as Treasury gold holdings approached 100 percent of the world's monetary gold stock.

Policy changed first. In March 1941 Congress approved "lend-lease," under which countries allied against Germany or at war with Japan could obtain materials in the United States on loan from the United States.²⁷²

Before lend-lease, Britain purchased supplies by selling \$2.5 billion in

270. After this discussion, the committee discussed how to maintain an orderly market in the event of a major disturbance. Committee members were aware of some dynamic effects of policy. Harrison argued against fixed, or pegged, interest rates because they would encourage market participants to "dump their holdings," since most of them had profits. He proposed an adjustable peg, under the current market. Each day a new price would be set. He did not consider, however, why the adjustable peg would not generate the same expectations and sales by market participants. The committee agreed to the procedure (Minutes, Executive Committee, FOMC, March 14, 1939, 4–5).

271. Only Chicago opposed; it wanted a 4 percent rate for nonmembers. Federal Reserve officials regarded these rates as low, as they were in an absolute sense. Rates on prime commercial paper and banker's acceptances were lower still. The System had inadvertently returned to a penalty rate.

272. The act was initially an amendment to the Neutrality Act, but hostility to foreign aid was strong in the Foreign Relations Committees, so the majority leaders introduced the bill (Blum 1965, 216–17). The act also contained a section authorizing negotiations about the postwar economy. Discussions leading to the Bretton Woods Agreements began under this title.

gold and United States securities formerly held by British citizens. To appease Congress, Morgenthau insisted that they also sell direct investments in United States companies. Lend-lease substituted United States government debt for gold as payment for war material.

Almost immediately, the gold inflow slowed. After rising at a 22 percent annual rate from the start of the European war to first quarter 1941, the base fell at a 4 percent rate for the next three quarters.²⁷³ The banking system's excess reserves reached a peak of \$6.5 billion in January 1941. By December, excess reserves had fallen to \$3.4 billion.

Criticism of Easy Money

With the economy expanding strongly in the spring of 1939, excess reserves far larger than the (stagnant) open market portfolio, and interest rates on Treasury bills at 0.25 percent or less, the Federal Reserve began considering what it could or should do. Harrison raised the possibility of open market sales in discussions with the New York directors. The directors believed that sales were appropriate (Minutes, New York Directors, vol. 45, June 1, 1939, 94).

Earlier, the Federal Advisory Council had asked the Board at its February meeting to reexamine the effects of "cheap money." The Board rejected the suggestion on grounds that there had been many studies, so not much more could be learned. The council was more forceful in June. The easy money policy, in effect since 1929 (*sic*), they wrote, expected to stimulate business by making borrowing cheap. The policy had failed. The reasons were that low interest rates reduced saving, weakened the capital position of the banks by reducing their earnings, and made the public and Congress indifferent to the size of the government's debt. The council urged the Board to abandon the policy of extreme easy money (Board Minutes, June 6, 1939, 6-7).

Governor Ransom asked what the council wanted the Board to do. One member proposed open market sales and increased reserve requirements to raise interest rates: "Nothing would be more effective than the resumption of the coinage and circulation of gold and . . . no further devaluation of the dollar." He said that the System should advocate this policy (*ibid.*, 7). Other members agreed on the importance of higher interest rates and pointed to the British agreement to have a minimum 0.5 percent rate on

273. Since gold flows had been the driving force in growth of the monetary base, base growth turned negative in second quarter 1941. Despite rising government expenditure, the economy slowed in the second half of 1941. The Federal Reserve made no open market purchases. In the fourth quarter, industrial production, real GNP, and stock prices fell.

Treasury bills at auctions. Several participants urged open market sales of \$100 million to show that the System recognized that rates were too low.

Goldenweiser gave the Board's view. Policy had not forced easy money. Low rates had been brought about by an active policy in 1932. Since that time the System had been passive, except for the increase in reserve requirements in 1936–37. This was “not a policy of restraint, but a preliminary precautionary action to bring the System in touch with the market” (*ibid.*, 12–13). Low rates reflected gold flows, silver policy, and business conditions. The System could make some minor adjustments, but even if the FOMC sold its entire portfolio, excess reserves would be plentiful and would continue to increase: “The System would be deprived of its ability to do anything in the future . . . and would have no source of income with which to pay its expenses” (14).

Goldenweiser's defense of inaction did not convince the bankers. They differed only on the rate at which securities should be sold. Several emphasized that market participants believed long-term rates would continue to fall, so they saw little risk in buying bonds. A signal that the System disapproved of the easy money policy, or was concerned about low bank profits, would change perceptions. Some expressed concern about bank losses and possible failures if war in Europe raised rates in the United States.

The bankers' arguments were largely self-serving, the search for an argument to justify higher portfolio earnings. Goldenweiser's response again showed the persistence of the Riefler-Burgess framework. The Federal Reserve could do nothing. With total member bank borrowing below \$5 million and excess reserves above \$4 billion and rising, the System was “disconnected” from the market.

Both sides shared a “lending” approach. Neither suggested an aggressive policy of buying long-term bonds, corporate bonds, and other securities to change the relative prices of assets and output and encourage expansion.²⁷⁴ The bankers would have opposed purchases of long-term securities because, temporarily, their earnings would have declined.

The meeting authorized reductions in the open market portfolio to maintain orderly market conditions. This action was in the direction the bankers wanted. Between June 21 and August 16, the FOMC sold \$100 million. Bond yields rose by 0.1 percent. These were the first net sales in any week since March 1933.

274. Eccles came closest to this position. He wanted the Treasury to stop the sale of long-term bonds not only to avoid capital losses at banks but to force investors to buy corporates “and thus encourage the private capital market” (memo Harrison to Rouse, Harrison Papers, file 2140.4, August 16, 1939).

War Starts

As Europe moved toward war at the end of August 1939, the Federal Reserve at first was alert to market disturbances, but not active. On August 25 Britain suspended gold payments, formally ending the Tripartite Agreement.²⁷⁵ The pound fell from \$4.53 to \$4.44, but the bond market opened unchanged. Harrison met with city bankers to urge them not to sell bonds. During the week to September 1, the System purchased \$6.8 million as rates fell.

Eccles reminded Harrison that they had authorization to purchase up to \$500 million in the event of a disturbance if war started. This pledge had been made to the president, and he wanted assurance that Harrison would carry it out. Harrison was characteristically hesitant to take decisive action or to disagree with Eccles. With yields at 2.27 percent, they agreed that bonds would not fall below par, about 2.75 percent—a decline of approximately \$6 per bond (Harrison Papers, file 2140.4, August 30, 1939, 5–7). On September 1 and 2, the System purchased \$139 million as prices fell (System Open Market Account, Board of Governors File, box 1452, September 13, 1939).

Bond prices continued to fall. On September 5 Harrison talked to an excited Eccles, who shifted between proposals to let the market fall and to support it on the way down. Harrison proposed buying at declining yields, pointing out that bondholders were shifting to the equity market and that corporate bonds had fallen more than governments, so governments were out of line.²⁷⁶

Between August 30 and September 13, the FOMC bought \$800 million, half for the Treasury accounts. Bond yields rose about 0.5 percent. The Federal Reserve continued the policy of following market prices down until, at a meeting in the Treasury on September 12, Morgenthau urged it to let prices “go down faster and with less expenditure of money.” He had to sell some new issues soon, and he wanted the market to reach bottom (Harrison Papers, file 2140.5, September 16, 1939).²⁷⁷

275. The Bank of England sold dollars in large volume during August. New York Federal Reserve records report \$235 million from August 10 to August 24, with the daily amounts increasing. The bank told the Federal Reserve of its decision to float the pound the night before the public announcement (Sproul Papers, Bank of England, August 1939).

276. Harrison reports Eccles as saying: “Why try to stabilize at all, why not let it go down 2 or 3 points? I [Harrison] said that was our judgment [to let it open 1/2 point down] and if he did not like it, he [Eccles] could take a vote and we would abide by that” (Harrison Papers, file 2140.5, September 5, 1939, 1).

277. With Eccles absent, the executive committee split two to two, so no change was made. The Board members voted to keep the gradual policy. Harrison was angry when the

The System's aggressive purchases, to slow the rise in interest rates, contrast sharply with its passivity throughout the depression. There are only two previous periods in which weekly rates of purchase were closely comparable to the \$800 million purchased jointly with the Treasury in three weeks at the war's start. One was in the fall of 1929 when, despite the Board, New York purchased \$157 million in two weeks. The other was at the peak of the purchase policy in spring 1932, when the System purchased \$640 million in seven weeks.

Three main reasons explain the 1939 purchases. First, the FOMC had discussed for months the policy it should follow in the event of a European war. Eccles had committed to an expansive policy in meetings with the president and the Treasury. The reserve banks had agreed in advance to purchases of up to \$500 million for the System account. Second, the objective was to stabilize the money or bond market in the face of an external disturbance. This objective was widely shared and uncontroversial. Unlike New York's effort in October 1929, there were no issues about the inevitable consequences of stock market speculation dividing New York and Washington. Third, low rates were interpreted as "easy" policy, rising rates as evidence of tightening. Neither the Federal Reserve nor the Treasury distinguished between real and nominal rates, so they did not mention, and probably did not recognize, that the war changed real expected returns and risk premiums.

The Federal Reserve agreed to lend to member and nonmember banks at the prevailing discount rate. This was a major change—the first time the System publicly accepted responsibility for systemwide liquidity.²⁷⁸ As Walter Bagehot had urged, it announced its policy in advance. Although there is no mention of the deposit insurance system, by lowering the risk to the Federal Reserve of lending to nonmember banks, deposit insurance may have contributed to this change.

At the September 18 FOMC meeting, Eccles presented three issues: the speed at which the bond market should decline, the size of purchases during declines, and the timing of purchases. He favored strong resistance to prevent bonds from going below par value (Minutes, FOMC, September 18, 1939, 6).

For the first time in many years, Eccles asked for individual views. The committee was divided. Harrison repeated Morgenthau's view that the System had been too active. He preferred to let the market decline while avoiding disorder by placing bids below current prices. This would revive the

news of the split appeared in the papers. The Treasury believed the committee had opposed action to embarrass the secretary (Harrison Papers, file 2140.5, September 22, 1939, 12–13).

278. New York agreed to hold clearing balances for nonmember banks in 1935 (Minutes, New York Directors, August 22, 1935, 1134).

private securities market and help the Treasury. Roy A. Young (Boston) and John S. Sinclair (Philadelphia) expressed views similar to Harrison's. George Hamilton (Kansas City) wanted aggressive purchases if bonds fell below par, because the public expected it. Most of the others preferred to continue the policy of purchasing to prevent rapid decline and opposed pegging yields.

The committee voted to buy up to \$500 million additional if needed to maintain an orderly market. Within a week, the System was able to sell as yields reached a peak and declined. The decline in yields continued for the rest of the year. Sales and retirements brought the account below \$2.5 billion by year end, and lower than before purchases began. Bond yields ended the year at 2.30 percent, 0.16 percent above the lowest rates of the year and 0.44 percent below the peak.

The FOMC resumed the quiet life. The December 13 meeting concluded that the System should confine its activity to smoothing the market by buying or selling on a sliding scale when there were few other bids. Again, it explicitly resolved not to peg interest rates.

The policy statement at the December meeting, withdrawing from active play, reflected earlier discussions with the Federal Advisory Council. The council again unanimously approved a statement opposing the "easy money" policy and urging the Federal Reserve to allow bonds to be priced by the market, "free of official intervention" (Board Minutes, October 10, 1939, 2). It approved of actions to prevent a disorderly market but opposed the prevailing actions—sales to force rates back to earlier levels.

Discussion at this meeting was a prelude to discussion of "bills only" in the 1950s. Governor Ransom asked, What is an orderly market? Several members acknowledged that they could not define "orderly." The best the group did was to define an orderly market either as "a natural self-supporting market" that, if perturbed, maintained the new price without panic buying or selling or as a market in which bids and offers were not too far from the last sale (*ibid.*, 4–5). A market was not orderly if there was a single buyer or seller "whose one purpose was to maintain a market" (14).

The members stated forcefully that they opposed "easy money," and they disliked the System's requirement that buyers and sellers had to give their names during the market break.²⁷⁹ They again suggested a return to the 1920s policy of letting individual reserve banks buy and sell government securities with district banks.

279. This requirement remained in effect for only a few days. The idea was to prevent speculative selling. Several bankers argued that it also prevented buying, so the effect was ambiguous at best. The bankers' discussion mentions some of the rumors spread by security dealers to increase transactions volume (Board Minutes, October 10, 1939).

Eccles's main comment is similar to Goldenweiser's statement at the June meeting. He denied that the System influenced the interest rate structure. Any influence was temporary, he said.²⁸⁰ The System had not bought to maintain "easy money"; the dominating factors were the gold flow and the level of excess reserves.

Three lasting procedural and administrative changes were made at the end of 1939. Although he was a member of the executive committee, Hugh Leach (Richmond) was not included in the frequent telephone conversations between New York and Washington. In response to his complaint, Harrison ordered the manager of the System Open Market Account to call Leach every day at about noon to keep him informed. This is the origin of the daily conference call that continues to the present (Harrison Papers, file 2140.6, November 29, 1939).

Early in November the New York bank nominated Robert Rouse to replace Allan Sproul as manager of the System Open Market Account.²⁸¹ At about the same time, the bank adopted new rules limiting trading to "recognized dealers."

Search for a Policy Guide

By March 1940, the pace of decline had slowed. Goldenweiser and Williams regarded the decline as a correction of heavy inventory building after the war started. They proposed no policy action, and none was taken (Minutes, FOMC, March 20, 1940).

The main decision was to undertake a study of the role of open market operations under prevailing conditions—conditions of relatively large and growing excess reserves and minuscule yields on Treasury bills. The study produced the first statement of guiding principles in many years (Memo, Despres to Goldenweiser, Board of Governors File, box 1433, April 29, 1940).²⁸²

The report began by repeating the explanation of how open market operations worked in the 1920s, made familiar by Riefler and Burgess. The new elements were the large volume of excess reserves and the relatively small supply of short-term assets issued by government and corporations. Monetary policy could work in this environment by changing the interest

280. For several years the FOMC had been trading bonds for shorter-term securities, at times with the announced intention of changing relative yields. Eccles's statement suggests that he concluded that these operations had only temporary effects.

281. Rouse joined the New York bank as assistant vice president on July 1, 1939. He became a vice president when he became manager.

282. Emile Despres was an international economist at the New York bank and later a professor at Stanford University.

rate structure—the relation of short- to long-term rates. Changes in money were irrelevant: “Any volume of expenditure in the markets for goods and services can be financed by any quantity of money” (ibid., 2). The memo illustrated how changes in short-term interest rates induced changes in borrowing, money holding, and spending. The discussion emphasized mainly borrowing costs.²⁸³

The memo then made a significant break with standard beliefs: “Excess reserves are truly ‘excess’ only in the legal sense. In an economic sense, they meet the banking system’s demand for liquidity which was formerly met by its holding of short-term assets. The willingness of banks to hold their present portfolios of Government securities at existing yields is dependent on the present supply of reserves” (ibid., 4). Goldenweiser’s marginal comment: “That I think is doubtful.”

The memo applied similar analysis to money holdings. The argument reflected contemporary understanding of Keynes’s 1936 *General Theory*. There were fewer alternatives to cash than in the twenties. Money holders had shifted into long-term bonds, but their willingness to hold bonds depended on expectations about future interest rates, and thus on Federal Reserve policy: “If the market believes that the System is prepared to furnish vigorous support to the government security market, holders of high-grade securities will be less disposed to press their holdings on the market” (ibid., 5). By signaling its intentions, the System could shift holders between cash (money) and bonds, with significant effects on long-term rates.

The conclusion was that excess reserves and low short-term rates did not remove the possibility of controlling inflation. With short-term rates near zero, the System had much greater influence over long-term rates than in the past, so it could operate directly on the margin between money and long-term assets (ibid., 5). The memo concluded by urging a policy to promote “expansion now and stability later.”

Entrenched views were too strong to overcome. The System continued its inactivity, and the Federal Advisory Council continued its concern for the System’s “easy money” policy. At the Board’s suggestion, the council developed a statement of the causes of easy money and what might be done. The council wanted the statement published in the next issue of the *Federal Reserve Bulletin*.

The council’s statement gave seven main causes of “easy money.” Placed first was the Board’s easy money policy and “its continuous advocacy” of that policy. The Board had not “set up warning signals against the evil ef-

283. Goldenweiser’s handwritten comment is, “Availability is more important than cost” (Memo, Despres to Goldenweiser, Board of Governors File, box 1433, April 29, 1940, 4).

fects of the extreme to which it has been carried and of the dangers of its continuance" (Board Minutes, May 21, 1940, 8). The policy began at the end of 1929 and had not been reversed. Instead, bill rates had been pushed to zero, and the System had bought long-term debt (a speculative asset). The government's spending program and deficits also contributed by making the Treasury a proponent of low interest rates, dollar devaluation, silver purchases, and the Johnson Act (prohibiting loans to foreign governments that had defaulted on war debts). Finally, the statement cited the continued gold inflow and discontinued sterilization policy.

The council proposed open market sales, purchases only to offset disorderly markets, sale of Treasury issues to nonbank investors, and jawboning by the Federal Reserve against easy money policy. The quality of the council's understanding is suggested by its simultaneous call for a return to a full gold standard, followed in the very same sentence by a request to resume gold sterilization.²⁸⁴

The only proposal that appealed to Eccles came near the end—an increase in legal reserve requirements. He told the council he could think of nothing more injurious to the position of the council than publication of its views. The Board would respond to the statement, bringing the conflict before the public. He urged them to cooperate in a joint statement that might get Congress to act.

Several members of the Board denied responsibility for "easy money." Criticisms of the Board and the administration aside, there was general agreement on the need to end easy money by reducing excess reserves. Governor Szymczak raised the usually unspoken issue. If the System reduced its bond portfolio, "it would be without sufficient earnings and would be forced to go to Congress for appropriations" (Board Minutes, May 21, 1940, 17). Eccles added that only a small amount could be sold before earnings fell below expenses. And he reminded the council that it had publicly opposed giving the Board authority to increase reserve requirements when the Banking Act of 1935 came before Congress.

The outcome was an agreement to work on a joint statement and to invite the reserve banks to join the discussion. In December the Board, the council, and the presidents of the reserve banks agreed on three main recommendations: (1) authority to double reserve requirement ratios from the current maximum to 28 percent, 40 percent, and 52 percent for the three classes of banks; (2) decisions about reserve requirements to be transferred from the Board to the FOMC, where the reserve banks, hence

284. The council ended its statement by reciting its opposition to many "artificial" devices. The list includes devaluation, pump priming, taxing undistributed profits, and easy money. These policies had failed, they said.

the member banks, had more influence; and (3) reserve requirements to apply to member and nonmember banks. Eccles explained that he had agreed to the second change to avoid opposition from commercial banks.²⁸⁵ The discussion and recommendations show no recognition of Emile Despres's memo to Goldenweiser. Excess reserves were treated uniformly as an inflationary threat, "excess" in the economic as well as the legal and accounting sense.

The final draft offered the recommendations as part of defense policy, necessary to prevent inflation from hindering mobilization. In addition to the powers to change reserve requirements, the memo called for repeal of the silver policy, the Thomas amendment authorizing the president to issue greenbacks, and the president's authority to devalue the dollar. These provisions removed several of the irritants that bankers disliked. The memo also suggested that, as production expanded, a rising share of government spending should be financed by taxation.

The Board sent the statement to Morgenthau, who angered Eccles by doing nothing for ten days and failed to endorse the statement or comment on it publicly when it was sent to Congress at the end of December. When long-term bond yields rose (from 1.88 to 1.97), Morgenthau blamed Eccles and declared the increase in interest rates "not warranted" (Eccles 1951, 355). In response to a question, he suggested that Congress was unlikely to act on the statement. He would give his opinion of the policy only if Congress took the proposal seriously (Sproul Papers, Monetary Policy, 1940–41, January 9, 1941). Eccles complained to Roosevelt without effect.²⁸⁶

Morgenthau's only policy proposal asked Congress to make interest on all government securities taxable. Dismissal of the joint proposal started a new period of hard feelings and intermittent feuding between the Federal Reserve and the Treasury and between Eccles and Morgenthau. Eccles described the Board's response to Morgenthau's statements as "a mood of impotence and frustration" (Eccles, 1951, 355).

285. Eccles's acceptance of a large role for the reserve banks reversed his position at the time of the 1935 banking act. President Young (Boston) wanted to add to the statement that it was a change from the "easy money" policy, but other presidents opposed. Goldenweiser suggested that the limit be raised to three times present requirements, but it was not adopted.

286. Morgenthau's reaction should not have surprised Eccles. Eccles, Harrison, and Edward E. Brown, chairman of the Federal Advisory Council, presented the statement to Morgenthau on December 19. Morgenthau's response was that issuing the statement might raise interest rates. He promised only to discuss the issue with the president, and he urged Eccles to discuss the matter with Lauchlin Currie, who was then on the White House staff as economic adviser. In conversation with Morgenthau, Roosevelt dismissed both the idea and Eccles: "This is so unimportant, the Federal Reserve system is so unimportant, nobody believes anything that Marriner Eccles says or pays any attention to him" (Blum 1965, 298). Later Roosevelt assured Eccles that everything would "work out all right" (Eccles 1951, 357).

The bankers' criticisms and reconsideration of policy actions had a modest effect on decisions. The FOMC was much less active at the time of the German invasion of the Netherlands, Belgium, and France and the fall of France in May and June.²⁸⁷ The FOMC authorized sales at the May meeting, to prevent disorderly conditions. It made a few sales in June, as interest rates fell. During the autumn, sales increased. Between September and December the FOMC sold \$250 million, more than 10 percent of the portfolio. By December, members expressed concern about whether the portfolio would be large enough to pay the reserve banks' expenses and dividends. Authority to prevent disorderly markets replaced the authority to sell (Minutes, FOMC, December 18, 1940, 10). The FOMC made no further purchases or sales until the United States entered the war a year later. During most of this period, long-term bond yields remained between 1.9 percent and 2 percent. The gold stock rose above \$22 billion, and excess reserves reached \$5 billion. On November 1, 1941, with inflation above 10 percent, the Board reversed the 1938 reduction in reserve requirement ratios, returning to the maximum values and removing approximately \$1.5 billion of excess reserves.

Disputes ended when the United States entered the war. In December 1941 the Board adopted a statement assuring the public and the administration that it was "prepared to use its powers to assure that an ample supply of funds is available at all times for financing the war effort and maintaining conditions in the United States Government security market that are satisfactory from the standpoint of the Government's requirements" (Minutes, FOMC, Board of Governors File, box 1433, April 4, 1950).

Controls and Regulations

Treasury intransigence about interest rates helped to shift the Federal Reserve's focus toward selective controls. Soon after President Roosevelt declared an emergency. He used his emergency powers to order controls on consumer credit in summer 1941. The Board issued regulation W setting rules for credit allocation and down payment requirements, effective

287. German conquests raised the issue of ownership of gold earmarked and held for foreign central banks. An executive order, issued on April 10, 1940, extended the president's authority, under the Trading with the Enemy Act (1917) and the Emergency Banking Act of 1933, to license all transfers between banking institutions in the United States and abroad. The order explicitly protected Norwegian and Danish gold from transfer to Germany. It was extended later to include other countries. On April 19 the order was extended to include transfer of stocks, bonds, or any property in which a foreign state or national had an interest (Board Minutes, April 23, 1940, 12–14). In May the board agreed to assist the Vatican by accepting deposit of its gold under earmark at the New York bank (Board Minutes, May 22, 1940, 1–3).

September 1, 1941. Eccles believed the controls would help the defense effort by restraining consumer spending, particularly spending on durable goods. He expected in this way to reduce inflationary pressure.

The Board's announcement of credit controls warned about what was ahead—price controls, rationing, and allocation: “Our people can not spend their increased incomes and go into debt for more and more things today without precipitating a price inflation that would recoil ruinously upon all of us” (Board Minutes, September 1, 1941, 2–3). The Board's announcement recognized that credit controls are “a supplemental instrument to be used in conjunction with the broader, more basic fiscal and other governmental powers in combating price inflation” (3).

Controls were supposed to work by restricting demand. They work only if the public does not spend on other goods or services but saves instead, and if it uses the saving to finance government spending. Credit controls alone have little effect on aggregate demand.

To Eccles's credit, he did not rely only on controls. He strongly urged higher taxes and higher interest rates to finance defense and wartime spending (Hyman 1976, 278–81). Morgenthau opposed. The two protagonists changed sides. Eccles, who had favored government investment and larger deficits to increase output and employment, now wanted smaller deficits and increased taxes. Morgenthau, who had abhorred deficits in the 1930s, welcomed them as an inexpensive way of financing defense and wartime spending.

Earlier the Board had made the facilities of the Federal Reserve System available to finance construction of defense plants. The Board set rates as low as 1.5 percent, the discount rate at most reserve banks, for loans to finance these facilities. The maximum rate was 4 percent (Board Minutes, October 7, 1940, 2–3).

PERSONNEL AND ORGANIZATIONAL CHANGES

Harrison left the New York Bank at the end of 1940 to become president of New York Life Insurance Company. Although his resignation was effective on July 1, the Board asked him to postpone his departure until the end of the year.²⁸⁸ Allan Sproul succeeded Harrison as president of the New York reserve bank, and Leslie Rounds replaced Sproul as first vice presi-

288. There is a hint in the New York directors' minutes that Harrison was annoyed by the board's refusal to approve his salary increase for 1940. Discussions of senior officers' salaries became more contentious in the late 1930s.

289. Sproul began service as head of research at the San Francisco reserve bank in 1920. In 1924 he became secretary of the bank. He moved to New York, as secretary, in 1930, then became, in turn, assistant to Harrison, account manager, and first vice president. He re-

dent.²⁸⁹ At the same time, Owen Young completed his long service as director and chairman of the bank's board. Under the 1935 act, he could serve only six years.

Under the Banking Act of 1935, Boston and New York shared a seat on the FOMC. In practice, Boston ceded the seat to New York by agreeing each year that Roy Young would serve as Harrison's alternate. Harrison's resignation reopened the issue. A committee of Boston and New York directors recommended that Boston should be moved to a different group so that Young (and his successor) could serve as a member of the FOMC. New York would hold a permanent seat. This required an amendment to section 12A of the Federal Reserve Act.

Pending the legislative change, the directors agreed to have Sproul serve for the first year and Young (or his successor William Paddock) serve in the second year. The Board was unwilling to sponsor the legislation, so it was not presented (Minutes, New York Directors, May 1941). Perhaps because of the war, Boston agreed to suspend the agreement in 1942, so Sproul continued as a member of the FOMC with Paddock as alternate.

In August 1942, Congress amended section 12A to make New York's president a permanent member of the FOMC with its first vice president as his (or her) alternate. Boston moved to a three-year rotation. Cleveland and Chicago shared the only remaining two-year alternation.²⁹⁰

To cooperate with the defense effort, the Board approved a letter to the president in June 1940, offering use of the facilities of the Board and the reserve banks and the services of the System. The offer included the directors of the reserve banks, members of the Federal Advisory Council, and the System's staff. The Council on National Defense used the facilities.²⁹¹

mained as president until June 1956. Sproul's initial salary was unchanged at \$32,500. In March 1941 he was appointed to a five-year term at a salary of \$45,000 (approximately \$500,000 in the late 1990s).

290. In 1940 the Board discussed employment of married women whose husbands worked. It declined to reappoint a woman draftsman to a permanent position because she was married to a man who was employed (not at the Board). Governor Ransom was the only member to argue that "women should have the same right to a career as men" (Board Minutes, June 27, 1940, 2-4).

291. To Eccles's consternation, one user of the System's resources wanted to take them over for the duration of the war. In December 1941, a meeting of the chief military advisers to the United States and British governments took place in the Federal Reserve's boardroom. The United States Joint Chiefs admired the Board's building and proposed to move in. They suggested the Board could move to Maryland. The meetings are known as the Arcadia Conference. Twelve meetings were held. Eccles successfully defended the Board's territory by ceding some space to the military. As in most matters of great urgency, the president decided the issue. The Board remained in its home. See Hyman 1976, 282-84, for a more complete account of the incident.

RECOVERY FROM DEPRESSION

In 1940 more than 8 million people, 14.6 percent of the labor force, were counted as unemployed. As Darby (1976) noted, some of these people were on work relief or other government work programs. Allowing for Darby's suggested correction reduces the unemployment rate to 9.5 percent.²⁹² The usual interpretation of these data is that until wartime spending began, economic policies were unsuccessful. Since gold inflows provided substantial growth of money and low market interest rates, this interpretation suggests that monetary policy was weak or impotent. Table 6.8 gives selected data for the period.

The data show that the labor force grew by 7 million persons, but employment was the same in 1940 as in 1929 and below 1929 in all the intervening years. The economy did not absorb, net, any of the increase in population and labor force, facts that Morgenthau recognized at the time (Blum 1965, 24). Further, hours of work were about 14 percent smaller at the end of the period. Real GNP rose modestly, less than 2 percent, and per capita real GNP rose only \$50 for the eleven-year period as a whole.

The experience raises two central questions: First, why after more than ten years was the recovery incomplete before war and defense spending restored high employment and more complete use of resources? Second, why was economic activity more responsive to government spending for war and defense than for public works and relief?

The Roosevelt administration did not have a uniform answer. At first the administration seemed optimistic that its program would work. By 1937–38, doubts set in. Within the government, many concluded that monopoly pricing by utilities, construction firms, and large manufacturers slowed the recovery. Morgenthau believed that “the best way to stimulate building was to knock down building costs” (Blum (1959, 414). For a change, Eccles agreed: “Big business was exploiting the bad times [in 1938] to drive for repeal of New Deal reforms” (ibid.). The president told Congress in 1938: “One of the primary causes of our present difficulties lies in the disappearance of competition in many industrial fields, particularly in basic manufacture where concentrated economic power is most evident and where rigid prices and fluctuating payrolls are general” (quoted in Cox 1981, 179). To counter monopoly power, the administration began an active antitrust campaign, and Congress ordered an investigation of pricing

292. As new opportunities developed in 1940–41, workers made substantial shifts out of work relief. This suggests that counting this employment as equivalent to private employment overstates employment.

Table 6.8 Income, Output, Employment, and Hours, Selected Dates, 1929–40

DATE	LABOR FORCE	EMPLOYMENT	NUMBER UNEMPLOYED	LABOR HOURS PER WEEK IN MANUFACTURING	REAL GNP (\$)
1929	49.2	47.6	1.6	44.2	203.6
1933	51.6	38.8	12.8	38.1	141.5
1937	54.0	46.3	7.7	38.6	203.2
1938	54.6	44.2	10.4	35.6	192.9
1940	56.2	47.5	8.1	38.1	227.2

Source: Economic Report of the President, February 1971.

Note: Labor force, employment, and unemployed are in millions. Real GNP is in billions of 1958 dollars.

practices to show how monopoly power hurt consumers and delayed or prevented recovery.²⁹³

Alvin Hansen (1938) explained the incomplete recovery as the result of secular stagnation. Investment opportunities had declined, and the economy was mature. This explanation extended the Keynesian argument for government spending and deficits as a cure for the problems of the time.

Many businessmen took the opposite view. Government deficits were part of the problem. Morgenthau and some others in the administration, including at times the president, held firmly to this view. They believed that deficits promoted lack of confidence and fear of inflation.²⁹⁴ At the Federal Reserve, Harrison held strongly to this view, as did much of the banking community in New York.²⁹⁵ One variant, found in Williams's memos to Harrison, is that low-risk government debt permitted banks to earn a profit without taking lending risk. Hence bank lending remained low.

The argument about harmful effects of deficits is difficult to reconcile with the facts. The total increase in government debt from 1932 to 1940 was \$23.8 billion. Even if the entire decline in private debt (\$8.5 billion) is considered to have been "crowded out" in these eight years, the increase in outstanding debt is relatively small. Most of the increase (\$16.4 billion) oc-

293. The Temporary National Economic Committee (TNEC) was organized to study concentration. Adolph Berle had proposed antimonopoly policy as a means to recovery in 1933. Berle's argument requires increasing monopoly power, not just its presence.

294. Morgenthau also believed that a low interest rate was evidence of public confidence in government.

295. This argument carried some weight in Congress. In 1939 Congress defeated some of the administration's spending proposals. Assistant Treasury Secretary Hanes told Harrison: "Business must show that it has the power to recover through private spending before Congress reconvenes; otherwise, it is very likely that the next Congress, convening in an election year, will resort to unbridled public spending" (Harrison Papers, file 2150.2, August 16, 1939). Hanes added: "The action of both Houses in turning down the President's spending program . . . was intended as a very definite evidence of a change in the trend and an attempt to give business its chance" (*ibid.*). Harrison agreed but did not think the action went far enough.

curred during the years of rapid recovery, 1932 to 1936. In the five following years, 1940 to 1945, government debt increased \$207.7 billion without provoking concerns that prevented expansion. In fact, bankers responded positively to the president's declaration of an emergency and his announcement of increased defense spending. Within a few days, the same bankers who had opposed deficits and repeatedly urged a balanced budget told Harrison about "their existing desire and ample capacity to finance the credit requirements . . . which might arise from the preparedness program" (Minutes, New York Directors, June 13, 1940, 95).²⁹⁶

Businessmen did not limit their criticism and antagonism to deficits. There were frequent complaints about high tax rates, the undistributed profits tax, regulation of securities markets, licensing of foreign exchange, and devaluation. In fact, corporate income tax rates rose sharply under the Hoover administration to forestall criticism of unbalanced budgets. The Roosevelt administration did little to increase these rates before 1938. Chart 6.8 compares the maximum corporate tax rate for the period with average marginal tax rates paid by individuals. The highest corporate and individual tax rates (note the different scales) are at the end of the period, so they cannot explain both the sluggish recovery earlier and the robust wartime expansion.²⁹⁷ Although the increased marginal tax rates in the 1930s were a deterrent, any deterrent effect was dominated by other factors, including the pace of recovery.

Personal income tax rates rose a bit more than corporate rates under the New Deal, but until 1941 the average marginal personal tax rate remained in the range 3 to 5 percent. From the 1940s to the 1980s, the average marginal rate was 20 to 25 percent.²⁹⁸

The different explanations for the sluggish recovery offered in the late 1930s show that many contemporary observers accepted the conclusion that the recovery was slow. Here it seems useful to distinguish between early and later views, between explanations applicable to the entire period, like complaints about the New Deal, and those that were offered after 1937–38, when there is more of a puzzle about the absence of full recovery.

296. The New York bankers asked Harrison to send a letter to the National Defense Advisory Commission in Washington to affirm their interest in lending for industrial expansion and preparedness.

297. At an income of \$10,000, relatively high in the 1930s, a taxpayer paid an average effective rate of 0.9 percent in 1928, 6.0 percent in 1932, and 5.6 percent in 1938. At \$100,000 the rates are 14.9 percent in 1928, 30.2 percent in 1932, and 33.4 percent in 1938 (Bureau of the Census 1960, 217).

298. The undistributed profits tax is not included, but that tax was more a nuisance than a revenue raiser. Excess profits tax was levied also, but average corporate tax payments remained at about 14 percent of corporate income.

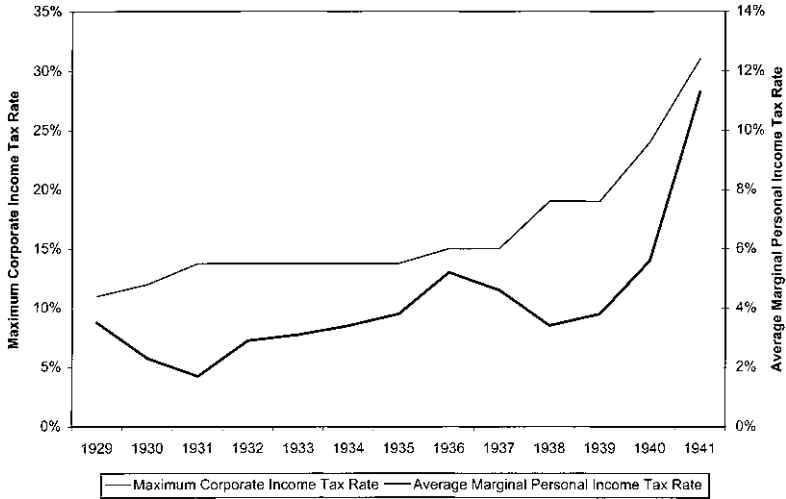


Chart 6.8 Corporate and personal income tax rates, 1929–41. Personal tax rates from Barro and Sahasakul 1983; corporate tax rates from Economic Almanac 1953–54.

Table 6.9 uses real GNP data from Balke and Gordon (1986) to compare the speed of recovery from deep recessions. These data suggest that, relative to the length and severity of the decline, the speed of recovery was not very different from 1933 to 1937 than it was in the 1890s or 1920–21. Recovery from the 1929–33 depression was not especially slow in the early years; real GNP rose 17.5 percent and 9.8 percent, respectively, in 1935 and 1936. Table 6.10 shows growth of real GNP from Balke and Gordon (1986) and total return on common stocks from Ibbotson and Sinquefeld (1989). These data suggest that much of the problem lies in the period after 1937.

Two striking features of table 6.10 are that stock prices fell after the 1937–38 recession despite the recovery and output recovered at a relatively rapid rate. By 1940, real GNP had passed the 1929 or 1937 level. We know from table 6.8, however, that average labor hours in manufacturing were no higher in 1940 than in 1933, and more workers were counted as unemployed in 1940 than in 1937.

Other Explanations

Kindleberger’s explanation emphasizes international external policy and policy coordination:

The explanation in this book is that the 1929 depression was so wide, so deep, and so long because the international economic system was rendered unstable by British inability and U.S. unwillingness to assume responsibility for stabilizing it by discharging five functions: (1) maintaining an open

Table 6.9 Recoveries from Deep Recessions

RECESSION	QUARTERS TO TROUGH	QUARTERS TO 50 PERCENT RECOVERY	QUARTERS TO 90 PERCENT RECOVERY	QUARTERS TO 100 PERCENT RECOVERY
1893.1–1893.4	3	10	10	10
1895.4–1896.4	4	7	7	8
1920.1–1920.4	3	4	6	7
1929.3–1933.1	14	22	29	40

Source: Data from Balke and Gordon 1986.

Table 6.10 Real Growth and Stock Returns, 1933–41 (percent)

YEAR	GROWTH	STOCK RETURNS	YEAR	GROWTH	STOCK RETURNS
1933	2.8	49.3	1938	7.4	27.7
1934	6.2	-4.5	1939	8.9	-2.7
1935	17.5	43.6	1940	6.0	-11.8
1936	9.8	30.3	1941	8.7	-13.3
1937	-7.8	-36.7			

Source: Data from Balke and Gordon 1986 and from Ibbotson and Sinquefeld 1989.

Note: All growth rates are fourth quarter to fourth quarter except 1933, last three quarters only.

market for distress goods; (2) providing counter-cyclical or at least stable, long-term lending; (3) policing a relatively stable system of exchange rates; (4) ensuring the coordination of macroeconomic policies; (5) acting as a lender of last resort . . . in financial crises. (Kindleberger 1986, 289)

Let us accept the relevance of tariffs as a factor disrupting trade in 1929–31. United States trade barriers fell after 1934, and most research suggests that the aggregate effect of the 1929 increase was small.²⁹⁹ The failure of the Federal Reserve to serve as lender of last resort is generally accepted as an explanation of 1931–33 but has less relevance for the late 1930s after development of deposit insurance in 1934.

The remaining items put most of the burden of explanation on international factors, particularly exchange rate variability and absence of policy coordination. Kindleberger does not mention the misalignment of real exchange rates, discussed earlier, before and during the depression.

The problem in the 1930s, as on other occasions, was that unemployment and misaligned exchange rates required countries to choose. High employment, freedom of capital, trade, and exchange, and price and exchange rate stability could not be achieved simultaneously. Some countries sacrificed fixed exchange rates and capital mobility to increase domestic

299. In Meltzer 1976 I point to the role of the 1929 Smoot-Hawley Tariff and retaliation for its effects on trade, but mainly on gold flows. Most research suggesting a small effect ignores the pronounced effect on farm exports, distress, bankruptcies, and bank failures in farm states.

employment. President Roosevelt's choice, in 1933–34, of domestic expansion over international stability was a major reason for United States recovery in 1934–36. International cooperation to maintain fixed exchange rates required a different set of choices. France, Belgium, Switzerland and the rest of the gold bloc made this choice until 1935. Results were poor. Deflation continued.

Policy coordination can solve problems of misalignment only if countries are willing to adjust their tax, spending, and monetary policies to benefit their partners. Given the political difficulties that many countries, including France and the United States, faced in adjusting spending and tax policies for domestic reasons, the required cooperation was unlikely.

It was also unnecessary. Exchange rate changes were a readily available substitute. To argue that exchange rate changes led to competitive devaluations misses the point. There is every reason to expect that countries seeking relative advantage through devaluation would have chosen other policies to gain relative advantage, as Germany did.

The main difficulty with Kindleberger's argument is that it misstates the central problem. The sluggish decline in United States unemployment was mainly a result of domestic policy. The decline in the United States was larger and deeper than in the principal European countries, but the recovery after 1933 was also more robust. Chart 6.9 shows comparative data for real GNP growth in six advanced countries.

The recovery of German GNP, based on armaments and autarky, is the only one that surpasses that of the United States, and only for a few years. Until the policy mistakes of 1937, real GNP growth in the United States seemed certain to pass the 1929 level. Relative to the other developed countries, the United States recovery until 1937 was strong, not weak.

Unemployment rates tell a different story. The reported unemployment rate declined more slowly in the United States than in Europe and was much higher in 1939.³⁰⁰ Insufficient international cooperation cannot explain this difference. Policy mistakes in 1937 are again part of the explanation, but the United States unemployment rate remained relatively high before the 1937–38 recession, despite its relatively strong recovery. Chart 6.10 shows these data.

Wages and Profits

Recent research on wages and employment during the recovery concludes that New Deal wage and labor policy acted as a negative shock to the supply

300. Correcting for part or all of the relief workers, as in Darby 1976, would alter this statement only slightly. Unemployment in Switzerland and the United Kingdom had fallen to about 6 percent in 1939. Darby's measure is 9.5, slightly above Sweden.

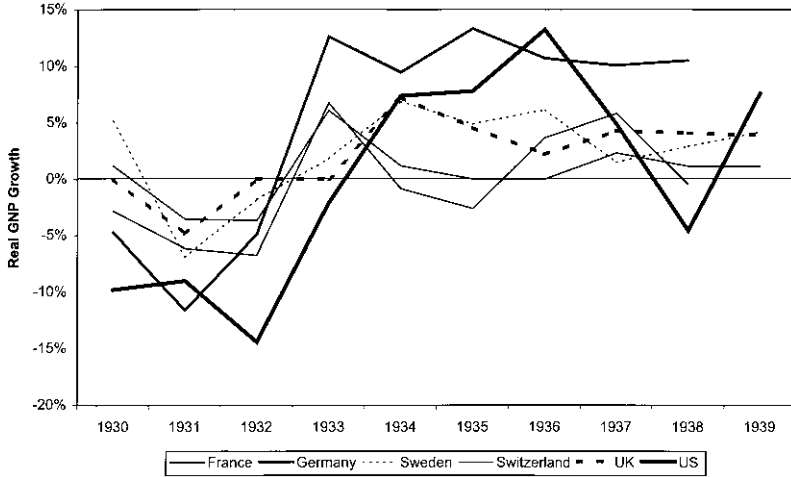


Chart 6.9 Real GNP growth, 1930–39.

of output by raising wages and encouraging labor unions. In 1933 and 1934, as we have seen, the NIRA established codes that raised wages in many industries. Subsequently the Wagner Act (1935) strengthened trade unions and led to the organization of labor in the steel, automobile, rubber, and other manufacturing industries. Strikes and occupation of plants achieved settlements that recognized unions and further raised wages. In 1938 the Fair Labor Standards Act introduced a minimum wage and maximum hours of work.

When demand rose rapidly, as in 1935–36, profits rose despite higher wages. Hourly wages in manufacturing continued to increase in 1937 and 1938 despite the recession and the reduction in hours of work. Chart 6.11 shows that after 1938, growth of profits is much slower absolutely and relative to wages.³⁰¹ Further, stock prices fell in 1939, 1940, and 1941, and prices of large company shares fell relative to small company shares, suggesting that profits were not expected to increase strongly, particularly at larger companies most subject to government and union pressures.³⁰²

301. The profit series from Barger 1942 is not comparable in coverage to the Commerce Department Series, so I have not attempted to combine the two series and have omitted 1939, the transition year.

302. Silver and Sumner (1995) find strong support for the negative effect of wage policy on output. Their findings show considerable difference in the effect of wage growth on growth of industrial production in the 1920s and 1930s. They attribute the large negative effect in the 1930s to New Deal wage policy. As noted above, Weinstein (1981) estimates that NRA codes raised real wages in manufacturing 12 percent a year in 1933 and 1934. Bordo, Erceg, and Evans (1997, charts 14 and 18) show the very rapid rise in real wages and the sluggish increase in hours worked noted earlier.

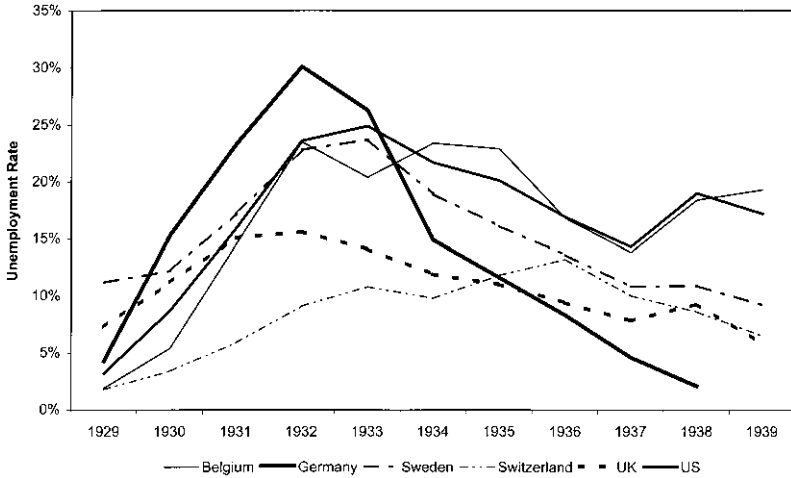


Chart 6.10 Unemployment rates, 1929-39. Source: Mitchell 1992.

Chart 6.11 compares rates of change of nominal profits and nominal wages from 1935 to 1941. Note the difference in scales. Growth of profits declined well before the 1937 recession and (based on a different data series) increased more slowly after the recession. The economy entered the recession with rising wage growth and falling profit growth. After the recession, wage growth continued to increase, contributing to the low level of optimism about future profit growth that stock prices reflected at the time.

Productivity growth appears to be a principal factor affecting stock prices, most likely by changing the growth rate of expected future earnings. Chart 6.12 shows that the two series move together from 1933 to 1938. Thereafter they diverge; productivity growth exceeds growth of stock prices after 1938. Stock price changes for this period support the finding in chart 6.11 based on the less reliable profits data. Together the two charts suggest that after the 1937-38 recession, both profit growth and expected future profits fell.

Real wages remained above average productivity through most of 1933-40. New Deal labor policies were a common complaint. If the data for manufacturing in chart 6.13 are representative of the economy, two periods dominate these years. The first, 1933-35, corresponds to the NRA period but also to the start of recovery. The second, 1937-38, includes the wages and hours legislation and mandatory minimum wages. It follows the period of militant union organizing. Following both periods, productivity remained below real wages.

The data on productivity and real wages correspond broadly to the patterns shown by profits after 1936. There are too few observations to pre-

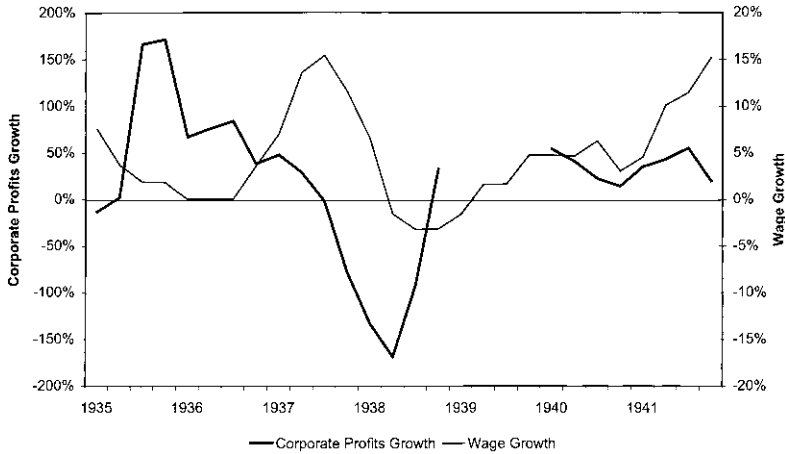


Chart 6.11 After-tax corporate profits versus average hourly earnings, four-quarter moving average rates of change: 1934–38, data from Barger 1942; 1939–41, data from Department of Commerce.

cisely separate current and lagged effects of cyclical and New Deal changes. Nevertheless, the evidence is consistent with a number of studies suggesting that New Deal labor legislation increased unemployment rates by raising costs of employing labor (Weinstein 1981; Silver and Sumner 1995; Cole and Ohanian 1999).

New Deal labor policies emphasized demand. Proponents of these policies expected higher wages, and higher incomes, to stimulate demand through the income effect. In labor markets, as in agricultural markets, the policies ignored or minimized the effect of relative price changes, later called supply-side changes.

Political calculation and economic beliefs are not easily separated in the policy process. Particularly after 1936, the president and parts of his administration reinforced the concerns of businessmen with rhetoric suggesting that additional costly changes were more likely than a retreat from the policies that increased costs of production and lowered profits.

For the postwar years 1962 to 1984, Fallick and Hassett (1998), building on Rose 1987, test the hypothesis that unionization is a tax on capital. They find that, on average, union certification is equivalent to a thirty percentage point increase in the corporate tax rate. Applied to the 1930s, this finding suggests that rising unionism, encouraged first by the NIRA and later by the Wagner Act, may explain both rising real wages and the sluggish growth of investment in the 1930s. The possible effect is large; union membership rose from 11 percent of the labor force in 1933 to 27 percent in 1941. The largest jump came in 1937 (Freeman 1998, 292).

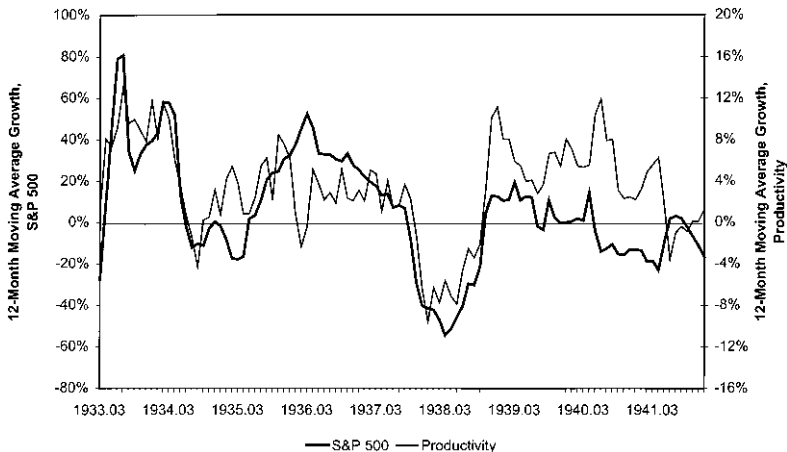


Chart 6.12 Productivity growth versus S&P 500 growth, March 1933 to December 1941. Source: National Bureau of Economic Research database index of output per man-hour, manufacturing.

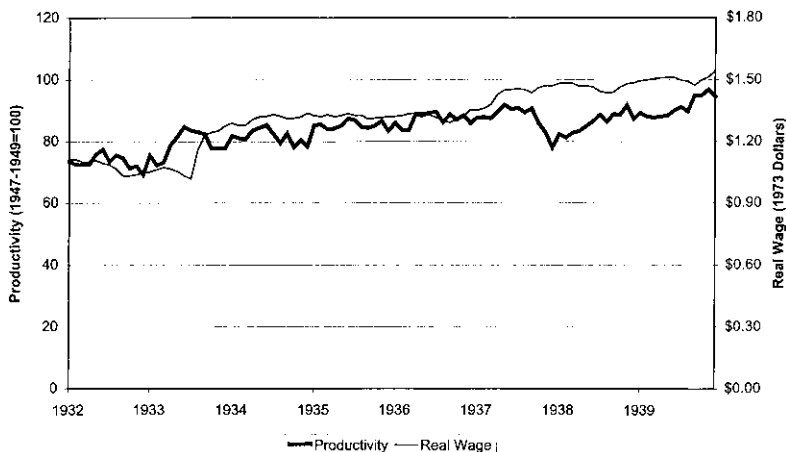


Chart 6.13 Productivity versus real wage, January 1932 to December 1939. Source: Real wages in manufacturing from Bureau of Labor Statistics, 1932–59; productivity from National Bureau of Economic Research, 1932–51.

Chart 6.13 shows that real wages again rose rapidly in 1941. Yet unemployment fell, and most explanations based on the stifling effect of New Deal policies, taxation, and regulation do not apply to the defense and war period. Nor do they apply to the postwar period, when high rates of taxation and many regulations remained. If New Deal regulations are part of the explanation for the thirties, by the end of the decade their effect was probably more on prices and exchange rates than on profits. And by 1940

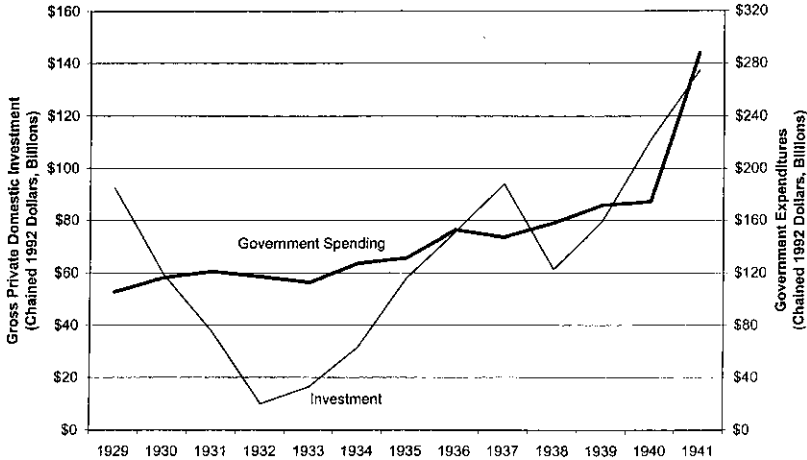


Chart 6.14 Real gross private domestic investment and government expenditures, 1929–41. Source: Bureau of Economic Analysis.

the president and most of his administration sought cooperation. Antibusiness rhetoric declined.

Frequent unanticipated changes in policy may have been important also. The New Deal had little coherence and little continuity. Roosevelt was proud of his commitment to experimentation and not much concerned with consistency. The NIRA and the AAA sought to raise prices. The anti-monopoly rhetoric and the antitrust drive aimed to prevent price increases or to lower prices. The administration shifted also on balanced budgets, the role of gold, devaluation, and many other issues. Policy changes, reinforced by changing rhetoric, maintained a state of flux in which long-term planning was difficult.³⁰³ As Alvin Hansen remarked at the time, “Businessmen avoided as much as possible long-term capital commitments” (quoted in Roose 1954, 174).

In contrast, defense (and later wartime) spending was both larger and expected to continue longer. President Roosevelt’s declaration of an emergency in June 1940 was the beginning of a sustained program. A permanent expansion replaced temporary experiments. Output and employment responded to the permanent change and perhaps to the changes in rhetoric and practice. To manage the defense buildup, the president appointed

303. Higgs (1997) makes a persuasive case for heightened uncertainty about what the administration intended. There was also concern with what it did, for example, abrogating the gold clause in contracts, regulating small details, and prosecuting even very small businesses that violated the NRA codes or later legislation.

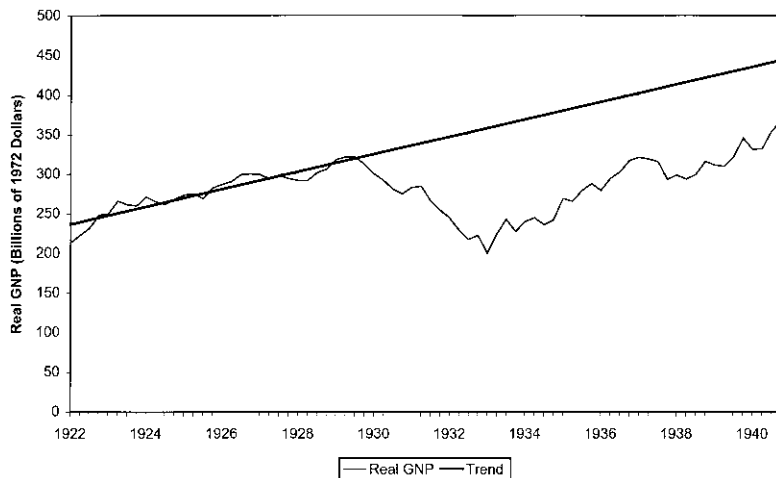


Chart 6.15 Real GNP versus 1922.1 to 1929.4 trend. Data from Gordon 1982.

leading Republicans—Frank Knox and Henry Stimson—to the cabinet, and leading businessmen to the new defense agencies.³⁰⁴ Chart 6.14 shows the increase in real government spending and private investment. The slope of the real investment line increases in 1940 and 1941.

Chart 6.15 shows one measure of the incomplete recovery. Trend real output growth, at the rate calculated for 1922 to 1929 (based on Balke and Gordon's quarterly data), put 1940 output about 15 percent below the capacity output that would have been achieved if the 1920s trend (2.7 percent) had continued in the 1930s.³⁰⁵ One reason for using the 2.7 percent growth rate is that recovery from the depths of the recession was rapid to the end of 1936, 11 to 12 percent a year. If the economy had avoided the policy errors that produced the 1937–38 recession, real GNP, on this path, would have reached the 2.7 percent trend line by the end of 1938. No doubt this is an overestimate. Growth would likely have slowed as it approached the old trend. Nevertheless, much of the gap between actual and potential output would have closed before wartime spending began.

304. Recall that Harrison met with New York bankers in the summer of 1940. Many of these men led the criticism of New Deal taxes and deficits. Now faced with much higher tax rates and larger prospective deficits, they wanted Harrison to express their interest in financing defense plants.

305. Admittedly this is a relatively high growth rate, well above the approximate 2 percent average generally used as the trend. I have used the higher rate intentionally for the calculation that follows. At 2 percent growth, the shortfall is less than 10 percent in 1940.

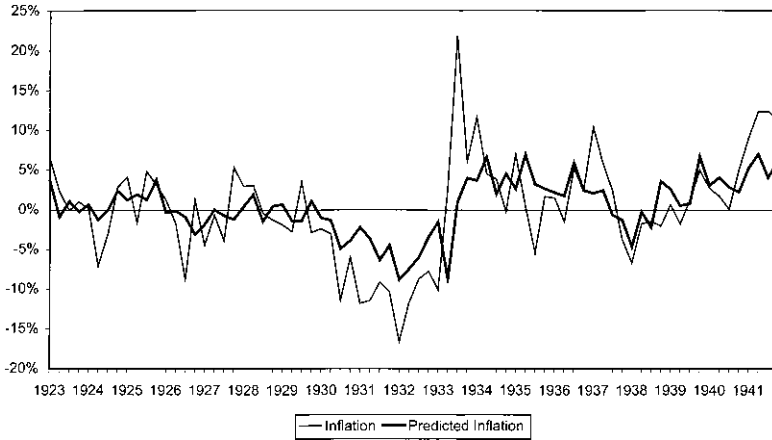


Chart 6.16 Actual inflation versus predicted inflation: inflation regressed on inflation (-1) and $M_1(-1)$: 1929.4 to 1941.4 forecast based on 1923.1 to 1929.3 regression.

The conclusion I draw is that the 1937–38 recession is part of the explanation for the failure of the economy to fully recover. New Deal labor, and other policies, played a role. That these policies did not prevent recovery of profits, employment, and production after 1940 suggests that, if the deep 1937–38 recession had been avoided, the lasting effect of New Deal policies would have been mainly on the price level and the real exchange rate.

Money and Inflation

Money growth had a major role in the recovery and in the 1937–38 recession. Although the Federal Reserve took few actions, gold flows and gold sterilization changed the rates of growth of money and base money. Chart 6.6 (p. 529) plots the relation between quarterly values of growth in real final sales and growth of real money balances. The association is strong, although there are some large exceptions.³⁰⁶ The chart suggests that money growth continued to affect spending during the recovery. The chapter appendix shows some statistical analysis.

Finally, chart 6.16 shows the relation between actual inflation and the inflation predicted for 1930 to 1941 using estimates computed from the 1920s. The prediction captures the thrust of actual inflation, again suggesting that the relation of money growth to inflation remained in the 1930s. The chapter appendix shows the underlying relation.

306. McCallum (1990) shows that an adaptive rule for the monetary base captures the main features of the decline and recovery of nominal GNP.

CONCLUSION

The two outstanding features of economic performance from 1933 to 1941 are the strong recovery of output, interrupted by a deep recession in 1937–38 and the weak recovery of employment and investment spending. Together these features tell a consistent story about economic policy.

The main policy stimulus to output came from the rise in money, an unplanned and for the most part undesired consequence of the 1934 devaluation of the dollar against gold. Later in the decade, German mobilization and annexation of the Rhineland, Austria, and Czechoslovakia, the rising threat of war, and war itself supplemented the \$35 gold price as a cause of the rise in gold and money.

The United States was on the gold standard after 1934 in the sense that changes in the monetary base were dominated by gold movements and the Treasury agreed to buy or sell gold at a fixed price.³⁰⁷ At first the Treasury agreed to sell gold only to countries on the gold standard. Later, after few countries remained on the gold standard, it bought and sold gold with other foreign governments and their agencies, but not with United States citizens.

In practice, the Treasury bought all gold offered at the \$35 price and issued gold certificates to the Federal Reserve. With market interest rates low and excess reserves accumulating rapidly, the Federal Reserve and the Treasury became concerned about inflation. One response was to return to the gold sterilization policy that the Federal Reserve followed during much of the 1920s. A second response was to remove excess reserves by raising reserve requirements for member banks. In 1935 the Federal Reserve received new powers to increase reserve requirement ratios without presidential approval. In 1936 and 1937 it put the new powers to use.

The two discretionary monetary actions, coming within a brief period and supplemented by the end of the soldiers' bonus, caused a reversal of the rapid economic recovery. The economy returned to recession in 1937–38.

As in 1920–21 and 1929–33, the Federal Reserve took no responsibility for the recession, denied that higher reserve requirements had contributed, and took no expansive actions until late in the recession. The administration increased relief payments but did not initiate countercyclical policy until spring 1938.³⁰⁸

307. Silver purchases also added to the monetary base, but their contribution was much smaller.

308. Eccles, his principal aide Goldenweiser, and most of the Board denied that the increase in reserve requirement ratios had done more than absorb redundant excess reserves. This view was not unchallenged. A staff memo by Emile Despres later argued the opposite side

The principal force for recovery from the 1937–38 recession came from the decline in prices that raised the real value of the money stock and, later, from the rise in the nominal money stock. As in 1921, both real money balances and real interest rates rose; again the expansive effect of real balances outweighed the contractive effect of real interest rates. With the release of gold from sterilization and a modest reduction in reserve requirement ratios, the nominal stock also rose, followed by a rise in spending.

Although Federal Reserve officials believed that monetary policy was impotent, and this view was widely held in the academic profession, the evidence suggests very strong effects of real money balances on real output during the recovery. (See chart 6.6, for example.) For the period 1933 to 1941 as a whole, there is very little change in monetary velocity. Using Balke and Gordon's (1986) quarterly data, real GNP and the price deflator rose at a compound annual rate of 6.6 and 2.5 percent, respectively. The monetary base rose at a 9.7 percent annual rate, so monetary base velocity changed relatively little over the period.³⁰⁹ This is consistent with the small change in interest rates, particularly long-term rates. (See appendix chart 6.A1.)

Marriner Eccles headed the Federal Reserve Board from 1934 to 1935 and the Board of Governors after March 1936. Eccles was much more interested in fiscal actions, housing, and advising President Roosevelt on these and other issues than in conducting monetary policy. The Federal Reserve took very few discretionary actions. Except for doubling reserve requirements in 1936–37, it was passive through most of these years. Despite the mutual antipathy between Eccles and Treasury Secretary Morgenthau, the Treasury usually led and the Federal Reserve followed.

A main reason the Treasury could lead in monetary matters was that most of the profit from the 1934 revaluation of gold went to establish the Exchange Stabilization Fund. Morgenthau threatened to use the fund, and the Treasury trust funds, to engage in open market operations. The Federal Reserve disliked these actions, disliked being a junior partner, and feared that the Treasury would take over its functions. Morgenthau, on his side, distrusted Eccles and regarded most Federal Reserve officials as bankers of questionable loyalty to the administration. He wanted interest rates to remain low so he could market government debt on favor-

and urged that a vigorous monetary policy of expansion could be used to end the recession. Goldenweiser opposed this view, and it does not appear to have had any effect on decisions.

309. Starting in first quarter 1934 avoids the revaluation of the gold stock and the bank holiday. This conclusion would not change greatly if official (annual) data are used instead. For 1933 to 1941, nominal GNP, as reported by the Commerce Department, rose approximately 10 percent a year compared with the 9.7 percent rate of base money growth.

able terms; and he was willing to use his trust funds as a threat so that he could choose the monetary policy he wanted. These efforts were generally successful.

Treasury pressure is not a full explanation for Federal Reserve passivity and subservience to the Treasury. Board members and the Board's principal staff believed that monetary policy was impotent. One reason is that nominal or market interest rates were low. A second reason is that excess reserves rose.

At first the appearance of excess reserves puzzled the staff and the governors. Gradually they modified the Riefler-Burgess doctrine to include excess reserves. Excess reserves replaced borrowing as the main indicator of the thrust of monetary policy and the position of the financial system. In the 1920s, the Federal Reserve considered borrowing of \$500 million neutral; policy was neither easy nor tight at that level. With borrowing almost eliminated, the level of excess reserves and short-term interest rates became the principal measures of policy thrust. Both measures suggested that policy remained easy throughout the decade. Hence there was no reason for action.

One of Morgenthau's achievements, which he valued highly for political and economic reasons, is known as the Tripartite Agreement. The agreement fixed exchange rates between the British pound, the French franc, and the dollar. Morgenthau believed the agreement showed that the democracies could cooperate politically to achieve a common end. Economically, it fixed exchange rates daily; the parties could change rates with one day's notice.

In fact, the agreement had little economic effect. The principal reasons are that countries pursued independent policies often unrelated to the exchange rate goal and that after adjusting for differences in inflation, nominal exchange rates were misaligned. The agreement to fix nominal or market rates meant that the French government had to deflate its economy further. After years of high unemployment and repeated cuts in spending on social services and pensions, most French voters were unwilling to accept additional austerity. Even before the agreement was made, a centrist coalition had started an expansive policy. Its successor, a socialist government with Communist support, pursued expansive policies more aggressively. These policies were inconsistent with the Tripartite Agreement, so the agreement could not, and did not, accomplish much economically.

The period between 1933 and 1940 is known as the New Deal, the name President Franklin Roosevelt gave to his administration. The New Deal in-

troduced many programs to redistribute income and initiate welfare state measures. These programs succeeded politically; the administration was reelected by a large majority in 1936 and a smaller but decisive majority in 1940.

At the time, and afterward, many economists regarded the New Deal as a failure or as less than successful (Arndt 1966; Hansen 1938; Kindleberger 1986; Morgenthau, in Blum 1965, 124). A principal reason was continued high unemployment. Between 1929 and 1940, the figure of 6.5 million new entrants in the labor force is about the same as the net increase in the number unemployed. Hours of work declined.

New Deal programs raised real and nominal wages faster than productivity or encouraged these increases. By 1940 per capita real output had returned to the 1929 level, but real wages in manufacturing were 44 percent higher than in 1929. The early New Deal prescribed wage increases through NIRA codes. When the Supreme Court declared NIRA unconstitutional in 1935, other legislation encouraged union organizing, a shorter workweek, a minimum wage, and other measures to raise wages. Similar measures in France after 1936 had a similar effect; wages and prices rose while employment fell.

Although New Deal measures help to explain the sluggish growth of employment and the persistence of unemployment during the 1930s, the long-term effect of these measures was on the price level and the exchange rate. Once the United States entered the war, employment rose rapidly.

The New Deal had a lasting effect on the organization of the Federal Reserve. The Banking Act of 1935 changed the locus of power in the Federal Reserve System by strengthening the role and powers of the (re-named) Board of Governors in Washington. Without ever reaching an explicit, collective judgment, Congress and the Roosevelt administration appear to have concluded that the policies pursued by the reserve banks, particularly New York, had encouraged speculation, leading to the 1929 stock market collapse, bank failures, and depression. Centralization of responsibility and authority in the Board, and measures to prevent security market speculation, were the chosen solutions.

Subservience to the Treasury during the recovery, and in the war that followed, limited the effect of the legislation for a time. The Treasury took control of international economic policy. Both New York and the Board had a limited role. The Board gained nominal control of open market operations and the power to approve appointment of reserve bank presidents. The new powers changed the System's internal organization and operations in the 1930s. Major effects on policy had to wait for the post-war years.

APPENDIX: STATISTICAL RELATIONS

This appendix shows the regressions underlying chart 6.16, gives some related equations, and reproduces the chart on base velocity, highlighting the data for the 1930s recovery.

Chart 6.A1 compares base velocity to a long-term interest rate as in chapters 4 and 5. The chart notes the points for 1933–41 in relation to the long-term position of the curve. Base velocity declined as interest rates declined. Both reached the lowest values in recorded United States history.

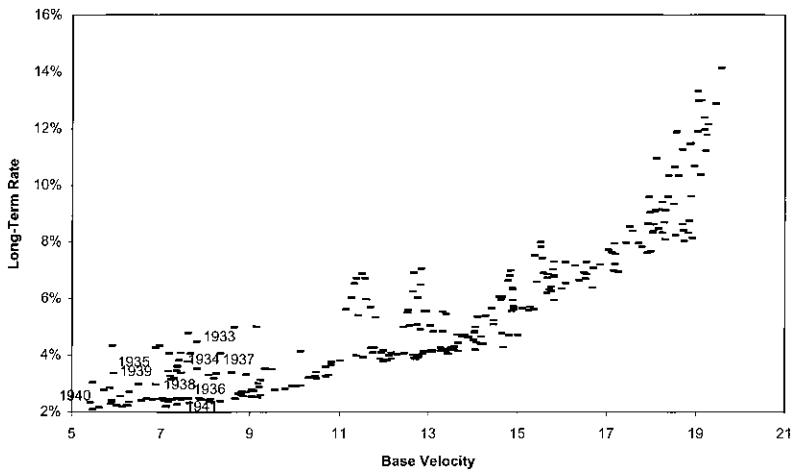


Chart 6.A1 Base velocity versus long-term Treasury bond rate, 1919.1 to 1995.2.

Table 6.A1 Relation of Money Growth to Real GNP Growth and Inflation
(*t*-statistics in parentheses)

	DEPENDENT VARIABLE			
	REAL GNP GROWTH (1934.1–1941.4)	REAL GNP GROWTH (1923.1–1941.4)	INFLATION RATE (1923.1–1941.4)	INFLATION RATE (1923.1–1929.3*)
Real M ₁ growth	0.54	0.72		
Lagged one quarter	(2.13)	(3.61)		
Nominal M ₁ growth			0.17	0.36
Lagged one quarter			(2.64)	(2.56)
Inflation		0.53	0.07	
Lagged one quarter		(5.13)	(0.36)	
AR(1)		-0.44 (2.51)		
R ²	0.10	0.28	0.45	0.18
DW	2.60	2.20	2.11	2.08

*Used to forecast 1929.4–1941.4, chart 6.16.

Under Treasury Control, 1942 to 1951

The period from 1942 to March 1951 divides almost equally into years of war and years of peacetime expansion. For Federal Reserve policy, the period can be treated as a whole, a repeat with different details and a different outcome of the experience during and after World War I. Once again the Federal Reserve put itself at the service of the wartime Treasury, and once again it had difficulty extricating itself from the Treasury's grasp after the war. And again it took almost as much time to free postwar monetary policy as to fight the war.

The Federal Reserve summarized its "primary duty" in wartime as "the financing of military requirements and of production for war purposes" (Board of Governors of the Federal Reserve System 1947). In practice, this meant continuation of the historically low interest rates carried over from the 1930s. Principal efforts to control spending and inflation fell to administration tax policy and, during wartime, to price and wage controls and the rationing of several commodities. The Federal Reserve supplemented these policies mainly by regulating credit used to purchase consumer durable goods. Wartime allocation of materials and conversion of factories to military production restricted the supply of durable goods; consumer credit controls aimed to restrict demand at the controlled prices. After the war, Congress removed controls (1947), but it soon restored them (1948). In the early postwar years, the Federal Reserve used margin requirements to limit securities purchases. Credit controls proved difficult to administer and ineffective against inflation.

Eccles described his work in wartime as "a routine administrative job. . . . [T]he Federal Reserve merely executed Treasury decisions" (Eccles 1951, 382). When his term ended in February 1944, he offered to resign but

agreed to remain if the president would commit to consolidation of banking regulation and supervision under a single agency. His reappointment as a member of the Board ran to 1958, as chairman to 1948.¹

The Treasury relied more heavily on taxation than in World War I. Tax receipts rose from less than \$9 billion (7 percent of GNP) in the 1941 fiscal year to more than \$45 billion (21 percent of GNP) in 1945, but expenditures rose more. Public debt increased by \$200 billion in the same four-year period (approximately 25 percent of GNP). Secretary Morgenthau's passionate attachment to low interest rates meant that in practice the Federal Reserve's "primary duty" was to market the debt at prevailing interest rates and, as in World War I, assist in the periodic war loan drives.² To carry out this policy, beginning in April 1942, the System fixed ceiling rates on government securities at 0.375 percent for Treasury bills and 2.5 percent for long-term bonds, with intermediate rates on intermediate maturities. This pattern of rates became a main source of difficulty. With all rates expected to remain fixed, banks, financial institutions, and the public increased profits by buying higher-yielding long-term bonds and selling short-term bills in the market, where they were acquired by the System.

The war ended with wartime rates still in place. As in 1919, the Treasury was reluctant to let rates change, first because it wanted to float a Victory Loan, later because it was unwilling to increase the cost of debt service. Unlike 1919–20, no one at the Federal Reserve was willing to challenge the Treasury's position. Eccles gave three reasons. First, like the Treasury, he was concerned about the budgetary cost. Economists in and outside government cited the large outstanding debt, the higher cost to the Treasury, and potential losses to bondholders from higher interest rates as impediments to the use of orthodox policies. Eccles shared this view. Second, higher interest rates would increase bank earnings, an outcome consid-

1. The president's wartime powers included authority to reorganize government agencies. According to Eccles, Roosevelt agreed to consolidate the banking agencies but soon afterward rejected Eccles's proposal. Eccles did not resign. Eccles's service dates from 1934, but he was reappointed to a twelve-year term in 1936 after reorganization. Since he had not served a full term, he could be reappointed for fourteen years. The other members at the time were Governors Ronald Ransom, John K. McKee, Ernest G. Draper, M. S. Szymczak, and Rudolph M. Evans.

2. There is no evidence supporting Toma's (1997) argument that the low-interest policy was intended to maximize the government's seigniorage. Under the rules adopted in 1933, the Federal Reserve did not transfer any surpluses to the Treasury to compensate for its subscription to the initial stock of the Federal Deposit Insurance Corporation. This rule changed in 1947 to the present rule, under which the Federal Reserve pays 90 percent of its net earnings to the Treasury. A reader familiar with Secretary Morgenthau's excessive concern about small changes in interest rates in the 1930s, when debt issues were relatively small (chapter 6), would not seek another explanation for wartime interest rate pegs when the size of debt issue increased by about 20 percent of GNP.

ered politically unacceptable. Third, Eccles believed there was no political support for higher interest rates. He was unwilling to make the case, certain he would lose to the Treasury, and skeptical that inflation could be controlled without raising interest rates so high that a postwar depression would be likely.³

An unspoken fourth reason was also present. The dominant view of professional economists at the time was that the task of monetary policy was to promote budgetary finance. Fiscal or budgetary policy was believed to have much more powerful effects on prices and economic activity than changes in the quantity of money or interest rates. In addition, many economists believed the war would be followed by a return to unemployment and slow growth, as in the 1930s. This view was based in part on historical precedent—most wars had been followed by recessions—but even more on Keynesian analyses showing that private spending would be too small to sustain full employment (Samuelson 1943).

Woodlief Thomas, of the Board's senior staff, set out the prevailing view on the role of money. His essay emphasizes the role of unmeasured magnitudes such as "availability" and "turnover" as more important influences on the economy than money. Changes in money did not cause changes in output or aggregate income (Thomas 1941, 324–25). The Federal Reserve had limited influence on the stock of money (304–5), and the stock of money was less important than its rate of turnover, or velocity of circulation (330).

Nevertheless, the Federal Reserve had statutory responsibility for monetary control. Because it could be blamed for inflation, it became increasingly restive under tight Treasury control. It claimed that restrictions on interest rates converted the Federal Reserve into an "engine of inflation." Morgenthau's resignation in 1945 did nothing to change the Treasury's stance. His successors, Fred M. Vinson and John W. Snyder, were no less concerned about maintaining the wartime pattern of interest rates.

Fears of a postwar depression soon disappeared as a reason for low in-

3. Eccles repeated this belief many times. One example is his 1946 testimony on the continuation of price controls after the war ended. On that occasion, Eccles testified that "it would be quite unsatisfactory, it seems to me, to try to meet the present problem by what was considered the usual or the orthodox way of dealing with inflationary forces, which was through increasing the discount rate, raising interest rates. Now, the reason for not following this course is that it would increase the cost of carrying the public debt, which is already very high, and it would likewise increase the earnings of the banking system which are also high. Such a policy would be a very unsatisfactory way to deal with this problem. I am sure that the Treasury would have considerable objection, as Congress and the public would, to increasing the interest burden on the Federal debt for the benefit of the banking system" (House Committee on Banking and Currency 1946, 183).

terest rates, but other reasons remained. Although Eccles continued to oppose confrontation, he was not passive. He favored raising reserve requirements, mandating that banks must hold a secondary reserve of Treasury bills, higher tax rates to produce a budget surplus, selective credit controls, and during the transition, price and wage controls.

At first there was little opposition within the System to many of these ideas. After the transition, Allan Sproul, president of the New York Federal Reserve bank, began to advocate a more active monetary policy. Although generally reluctant to clash openly with Eccles and the Treasury or reopen the 1920s split between the New York bank and the Board, Sproul became the principal spokesman for a more independent monetary policy. When Eccles's term as chairman ended in 1948, Sproul's influence increased under the new chairman, Thomas B. McCabe.

Little changed until two events altered the political balance. First Congress, under the leadership of Senator Paul Douglas, opposed the Treasury's position. Second, the start of the Korean War, in June 1950, heightened public concern about renewed inflation. The result was an agreement with the Treasury in March 1951, known as the Treasury–Federal Reserve Accord (the accord), that permitted the Federal Reserve to implement a more independent policy.

In fact, early postwar monetary policy was far from an “engine of inflation.” By the end of 1948 prices were falling, and long-term interest rates were below the Treasury–Federal Reserve maximums. The decline in prices was soon followed by a decline in output and a mild recession. Chart 7.1 shows growth of output and inflation from 1942 to 1951. The large spike in inflation in third quarter 1946 (and some of the increase in the previous two quarters) reflects the removal of wartime price and wage controls in that quarter.

Reliance on selective controls, to limit general price level increases, shows the System's inability or unwillingness to use more general measures. But it also reflects the lingering effects of the real bills doctrine. Buyers of durables could borrow in ways other than the particular way that controls restricted, just as buyers of stock had done when the Board tried to control stock purchases by restricting credit to the stock market. Discussions at the time did not explain how inflation—a sustained rate of increase in a broad-based price index—could be controlled by limiting the use of credit to purchase particular goods and services.⁴ To prevent “spec-

4. As late as 1980, the Carter administration imposed selective credit controls seeking to end a general inflation.

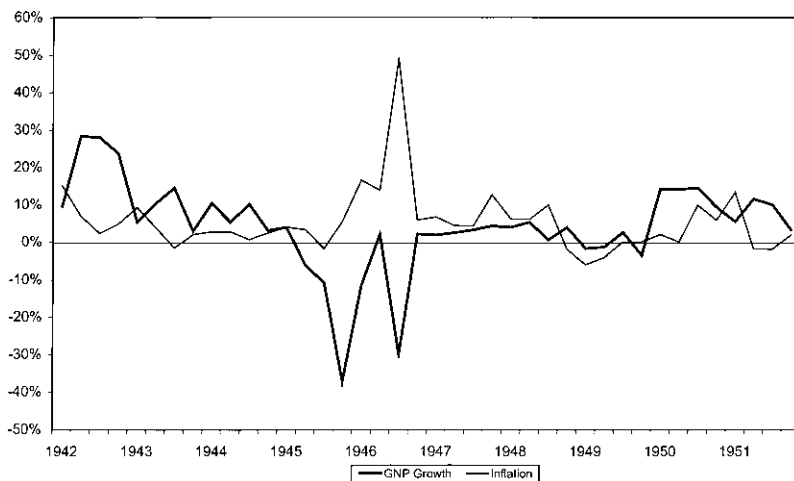


Chart 7.1 Inflation and GNP growth, 1942-51. Growth rates measured as annualized quarterly rates of change.

ulative" accumulation of inventories of consumer goods, the Federal Reserve urged bankers to curtail lending to firms with rising inventories.

In June 1950 the United States went to war again. Spending to fight the Korean War brought nominal government spending back to its peak wartime level. President Truman chose to finance the war out of current revenues, so the cash budget had a surplus. After a brief spurt, inflation remained modest. Despite pegged interest rates, growth rates of the monetary base and the money stock were modest also, in part because gold outflows increased.

Korean War finance shows that wartime inflation can be avoided if policymakers choose to do so. President Truman's budget policy did not force interest rates to rise, and it did not require the Federal Reserve to increase money growth to prevent the rise. In the two years beginning June 1950, the monetary base rose about 7 percent, a 3.5 percent annual rate. In the same period the consumer price index rose 11 percent, but by far the larger part of the rise occurred as a one-time price level change driven on one side by fear of a return to wartime shortages when the war started and on the other by the expectation that money growth always increases to finance wartime deficits. When the administration chose a balanced budget, expectations of inflation collapsed.

The principal international financial event of the period was the attempt to reconstruct the international monetary system as a fixed exchange rate system and, at the end of the period, the start of the gold outflow from the

United States. At first the Federal Reserve and the administration welcomed the loss of gold as a necessary step in the reconstruction of a more viable international monetary framework. A decade later, concerns about the United States gold loss became the subject of an increasingly active discussion about the viability of the monetary standard based on gold and the dollar.⁵

The architects of the early postwar international monetary standard, the Bretton Woods system, believed that the failure of surplus countries to adjust was one of two major flaws in the interwar gold standard of the 1920s. The other was competitive devaluation, or beggar-thy-neighbor policies. The Bretton Woods Agreement established the International Monetary Fund as a public intermediary in the international monetary system. The fund's key features were (1) an agreement to lend and borrow to adjust "temporary" imbalances in international payments and (2) a structural adjustment arrangement to correct "permanent" imbalances by changing exchange rates while preventing competitive devaluations.

Countries with a "temporary" current account deficit could use the fund to borrow from countries in surplus. This provision sought to avoid the problem that the United States and France created by failing to expand and inflate in response to gold inflows at the end of the 1920s. Their decisions forced deficit countries to contract without triggering an equilibrating expansion in the surplus countries. Under Bretton Woods rules, deficit countries did not have to contract. They could borrow the funds accumulated by the surplus countries.

The structural adjustment provisions permitted countries to correct persistent or permanent imbalances by adjusting exchange rates. A major problem with this provision was that central banks and governments could not distinguish temporary from persistent imbalances *ex ante* or even for some time after deficits appeared. A related problem was that fund rules did not make it clear what should happen when the principal reserve currency country—the United States—ran persistent trade or current account deficits.

Reliance on gold as a principal reserve asset of the fund and the member countries gave the appearance of a gold-based system. This appearance probably strengthened the belief that inflation would remain modest and thus contributed to the slow adjustment of inflationary anticipations in the 1960s. In practice the system was based mainly on the dollar, and there proved to be no binding restrictions on the supply of dollars under the Bretton Woods system.

5. I return to this discussion, and proposals for change, in volume 2.

The principal designers of the International Monetary Fund were John Maynard Keynes of Great Britain and Harry Dexter White of the United States. Keynes spent the war years, until his death in 1946, at the British Treasury. White was an economist at the United States Treasury. In contrast to the 1920s, when Governors Benjamin Strong and Montagu Norman were the principal architects of the postwar international monetary arrangements, power and influence over international monetary arrangements rested firmly in the two treasuries. Here, too, central banks had a subsidiary role.

At the New York bank, John H. Williams became one of the principal opponents, so he was kept from membership on the United States delegation. The Federal Reserve never formally considered the Bretton Woods Agreement and was not asked to do so. As the system developed, however, Williams's proposal for an international system, based on the dollar, soon supplanted many of the features of the Keynes-White plan.

THE ADMINISTRATION'S WARTIME PROGRAM

There are both similarities and differences in the financing programs for the two world wars. Table 7.1 shows that interest rates remained lower and rose less in World War II, and the measured rate of inflation was lower also. Price controls distort the timing of price changes for the period. When controls were removed, in third quarter 1946, the deflator rose at a 45 percent annual rate, releasing most of the changes suppressed by wartime controls.

The first observation for each war is for the quarter in which the United States entered the war—second quarter 1917 and fourth quarter 1941. Second is the observation for the quarter in which the war ended—fourth quarter 1918 and third quarter 1945. Third is the observation for the post-war quarter in which wartime inflationary pressures began to recede, as measured by the rate of growth of the monetary base. Annualized rates of change for money and prices are computed from the first to the third date shown in the table.

Financing World War II was a much larger task. The cost of the war was substantially larger both absolutely and relative to GNP.⁶ Real GNP was approximately two and a half times greater in the later war, and the level of the deflator was similar in both periods, but government debt increased nearly ten times as much, as the table shows. The larger increase in debt occurred despite the larger share of taxes and faster growth of base money

6. Feinstein, Temin, and Toniolo (1997) put the cost of the two wars at 13 percent and 45 percent of United States GNP at the time. For Germany, they estimated the costs as 53 percent and 76 percent.

Table 7.1 Money, Prices, Debt, and Interest Rates in Wartime

DATE	MONETARY BASE (BILLIONS OF DOLLARS)	MONEY (M_1) (BILLIONS OF DOLLARS)	DEFLATOR	INTEREST RATE (SHORT-TERM, PERCENT)	PUBLIC DEBT ^a (BILLIONS OF DOLLARS)
<i>World War I</i>					
1917.1	4.8	16.4	26.2	4.12	1.2
1918.4	6.5	20.8	33.2	5.81	12.4
1920.3	7.3	2.5	40.7	7.97	24.3
Change (%) annual rate	11.6	10.2	12.5		
<i>World War II</i>					
1941.4	17.9	48.2	32.1	0.69	49.0
1945.3	36.3	101.8	36.9	0.75	258.7
1946.3	37.2	107.7	45.6	0.81	269.4
Change (%) annual rate	15.4	16.9	7.4		

^aEnd of preceding fiscal year (June 30). Bureau of the Census 1960, 720.

in World War II. Also, the Federal Reserve chose a different method of supplying reserves and supporting the Treasury market. In World War I, the Federal Reserve System did not have an open market policy. Banks obtained reserves by borrowing at the discount window using Treasury securities as collateral. In World War II, the System supplied reserves principally by open market purchases. Since the Federal Reserve supported a pattern of rates, it became the residual buyer. This left control of reserve changes to the banks' decisions, much the same as in World War I.

With long- and short-term interest rates comparatively lower in the 1940s, the demand for real money balances was higher. In World War I, base money, money, and prices rose at about the same rate, 10 to 12 percent. Real balances declined slightly. In World War II, base money and money rose at about the same rate (16 percent), but prices rose at less than half that rate, reflecting the rising demand for cash balances. The rise in real cash balances financed spending and inflation at the end of the war and therefore became a cause for concern.

Beginning in 1942, the government severely curtailed automobile production and took all residual production. Production of other durables was curtailed also; spending declined and saving increased. Part of the saving was held as money because higher mobility of the population increased the demand for currency (Cagan 1965).

Chart 7.2 shows the relation of base velocity to a long-term interest rate and highlights quarterly data from 1942 to first quarter 1951. The chart suggests that much of the quarterly movement in wartime and postwar velocity (the reciprocal of average cash balances) is consistent with the long-term relationship. Velocity was historically low, and average cash balances were correspondingly high, principally because long-term interest rates remained close to the 2.5 percent maximum.

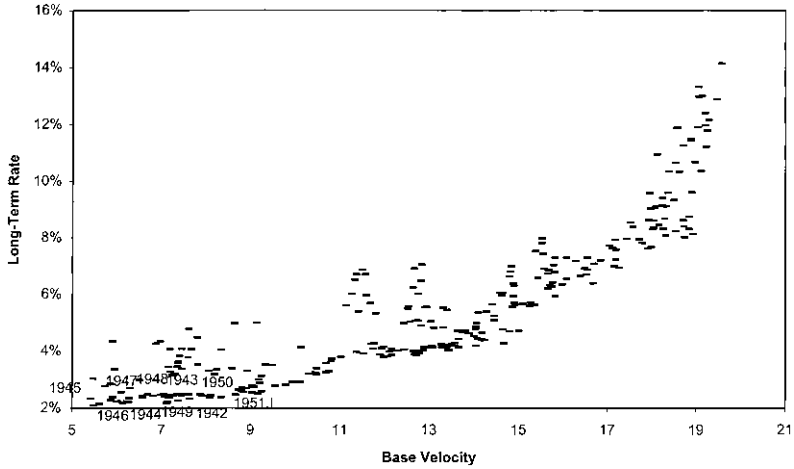


Chart 7.2 Base velocity versus long-term Treasury bond rate, 1919.1 to 1995.2.

Chart 7.3 looks at the war and postwar period on a finer scale. The positive relation remains, but the effect of the 2.5 percent interest rate ceiling is now visible. Observations at the ceiling rate, mainly in 1943 and 1944, suggest that the ceiling was binding in these years. Extrapolating from the linear relationship, the data suggest that without the ceiling, interest rates and velocity would have been higher and average cash balances correspondingly lower during part of the war years. For much of the period, however, the ceiling rate seems not to have affected money holding.⁷

The opposite side of the much larger rise in cash balances was the much smaller increase in the public's share of the debt. Morgenthau's Treasury urged individuals to purchase debt, but he was unwilling to pay them to do so. The Treasury issued series E war bonds at prices as low as \$18.75 per bond and war savings stamps for as little as 10 cents, which could cumulate to a bond purchase. The Treasury encouraged corporations, schools, and other institutions to sell bonds and stamps through payroll deduction and appeals to patriotism. These actions were not enough to offset the low interest rates paid on the debt. The nonbank public acquired a smaller portion of the debt in World War II than in World War I. Commercial banks acquired 40 percent of debt held outside the government and the reserve banks. Although many citizens and corporations pledged to buy bonds during bond drives, they sold many of the bonds to banks after the bond drive ended.

7. Base velocity is computed as the ratio of GNP from Balke and Gordon 1986 to high-powered money from Anderson and Rasche 1999.

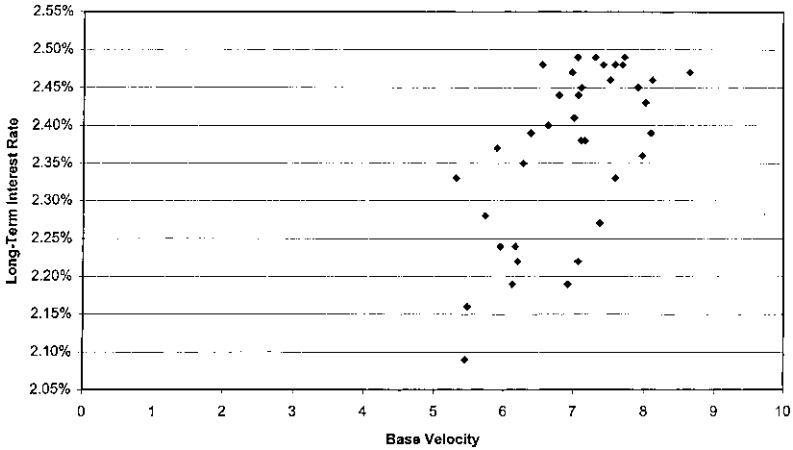


Chart 7.3 Base velocity versus long-term interest rate, quarterly, 1942.1 to 1952.1; not seasonally adjusted.

Secretary Morgenthau set three major objectives for war finance (Blum 1967, 14–15). He wanted to finance 50 percent of the war by direct taxation, to finance most of the rest by voluntary purchases of bonds, and to maintain low interest rates. He believed that low interest rates would minimize the cost of the war. He succeeded in his third objective, came close to his first, and managed to avoid most of the pressures from Congress and other parts of the administration calling for compulsory bond purchases.⁸

For calendar years 1942–45, total government spending was \$306 billion, revenues were \$138 billion, and GNP was \$740 billion. These periods correspond to the war years, with a few additional months of demobilization and reconversion to peacetime resource use at the end. Based on these data, tax collections were 45 percent of spending, only \$15 billion short of Morgenthau's goal.⁹

8. J. M. Keynes advocated a compulsory saving scheme as part of a British plan for war finance. Many of Keynes's followers in the United States wanted to adopt Keynes's program. Morgenthau opposed it, in part because the United States economy started the war with output far below capacity, in part because he was able to market the debt at historically low interest rates (Blum 1965, 297, 299). In World War I, the Treasury assigned a quota for banks' purchases. The quota was a minimum subscription for each bank (Sproul Papers, Monetary Policy, 1940–41).

9. Eccles (1951, 381) includes the prewar defense spending in his calculation. For July 1940 to December 1945 he reports spending as \$380 billion financed by \$153 billion of taxes (40 percent), and \$228 billion of borrowing and money creation. Nonbank investors acquired about \$130 billion but sold some of their bonds to commercial banks after the bond drives. Elsewhere, Eccles gives contemporary data for June 1940 to June 1946, the period including prewar preparation. Total cost was \$398 billion, 44 percent paid by taxation, 56 percent by borrowing and money creation (Board Minutes, November 26, 1947, 4).

Tax Policy

Morgenthau had little success getting Congress to approve his tax policy. Despite a Democratic majority in both houses, he did not fully meet his revenue goal or get his preferred tax policy. By 1944, relations between Congress and the administration became so strained that, with large majorities, both houses of Congress overrode the president's veto of a tax bill for the first time in United States history. The administration did not try again to change tax rates during the war.

The main sources of conflict were the level of rates and the distribution of the tax burden. Many congressmen favored a sales tax. Morgenthau opposed on equity grounds; the sales tax would put more of the burden on low-income earners, a group he tried to shelter. At the opposite end of the income distribution, Roosevelt favored a limit of \$25,000 on individual after-tax income, \$50,000 for families. This proposal had so little appeal that Congress did not consider it seriously.

The 1943 tax bill made a lasting change in the tax system by introducing withholding at the source. Before 1943, taxpayers paid taxes in March on the previous year's income. Withholding shifted most tax collection to the current year, a pay-as-you-go system for wage earners and some others. Withholding greatly simplified enforcement, as the number of taxpayers expanded to include 40 million to 50 million returns on incomes as low as \$600 a year.¹⁰

Morgenthau at first opposed the withholding plan because Congress proposed to forgive all 1942 tax liabilities (due in March 1943) when withholding began. His main objection was that, with progressive taxation and high wartime rates, high-income taxpayers (and wartime profiteers) would benefit most. He was able to limit tax forgiveness and introduce some progressivity. The bill forgave 50 or 75 percent of the lower of 1942 or 1943 tax liabilities. Withholding began on July 1, 1943.

Morgenthau recognized inflation as a tax on households. He claimed he preferred direct taxation to inflation, but he would not allow interest rates to rise.¹¹ However, he proposed some fiscal changes to reduce household income. One of his proposals would have raised the Social Security tax on

10. The proposal was advocated in 1941 by Beardsley Ruml, head of R. H. Macy's department store and chairman of the New York Federal Reserve bank. Hence it was often referred to as the Ruml plan.

11. Using the average values of the monetary base and GNP for the war years, the government taxed nearly 10 percent of the base through inflation. The base was about 5 percent of GNP and 15 percent of government spending, so the inflation tax on the base is about 0.5 percent of GNP and 1.5 percent of government spending.

labor income during the war, with the proceeds returned after the war, if needed, as unemployment compensation (Blum 1965, 313). Perhaps without fully recognizing the change, Morgenthau had become a proponent of countercyclical fiscal policy.

At the Federal Reserve Marriner Eccles saw the war as a major shift in demand that had to be met by substantial tax increases. In 1940–41 he agreed with the Keynesians who argued that, given the high unemployment at the start of the war, the country could increase both “guns and butter.” By 1942 he was concerned that the administration and Congress would be slow to recognize that the problem was no longer an excess supply of goods. There was an excess supply of money and excess demand for goods (Eccles 1951, 346–47).¹²

Debt Finance

Morgenthau foresaw that the war would require an unprecedented volume of borrowing. The Treasury and the Federal Reserve agreed on the desirability of ceiling rates of interest, high tax rates, and selling bonds mainly to the nonbank public. Morgenthau described relations with the Federal Reserve as “more harmonious during the war than they had ever been during the years of the New Deal” Blum (1967, 15). Board members shared this view.

Differences about substance remained, however (Board Minutes, April 9, 1942, 8). Eccles and some others preferred a mandated program—forced saving—to Morgenthau’s mainly voluntary bond purchase program. The Board offered proposals in each of the eight bond drives intended to increase sales to nonbanks, restrict speculation in bonds, and limit the role of banks to short maturities. The Treasury accepted few of these suggestions.

There were other differences about debt finance. Although the Treasury agreed on the aim of selling as many bonds as possible to nonbank investors during bond drives, it was less concerned than the Federal Reserve about whether the purchasers held the bonds after the drive. Getting the bonds sold at prevailing rates was its overriding interest.

Three main problems arose. First, with interest rates lower on short-

12. Eccles cites a conversation with Roosevelt in December 1940, just after Roosevelt had announced the lend-lease program to help Britain. Roosevelt understood that technically it made no difference to the economy whether we lent the British money or lent them goods. But he believed the public would favor lending goods but oppose lending money. “If we made a dollar loan to the British, it would seem to our people that we were giving the British money, of which we were short, instead of goods which were in surplus” (quoted in Eccles 1951, 348).

term than on long-term debt, the Treasury faced an upward-sloping yield curve. Bank and nonbank holders sold shorter-term securities and reinvested in longer-term bonds. Second, as in World War I, the Treasury permitted a “borrow and buy” policy. To ensure that bond drives were successful, banks lent money to finance bond purchases at interest rates below the bonds’ yield. Many banks agreed to buy the bonds from their customers after the drive. Since the buyers could profit by buying the bonds, they oversubscribed the new issue. This gave the appearance of public subscription but depended on bank financing. Third, Treasury certificates with one year or less to maturity were troublesome throughout. The Treasury first offered certificates in 1942 at a yield of 0.8 percent. The rate was above the rate required by the market, so prices rose to a premium. As the certificates approached maturity, they sold at a premium over Treasury bills. Banks sold them to the Federal Reserve at a profit. The Federal Reserve tried repeatedly to get the yield reduced to 0.75 percent on new issues or to shorten the maturity and lower the rate, but the Treasury would not change (Minutes, FOMC, March 1, 1944, at 11:40, 1).

Officially, the Treasury opposed the borrow and buy policy. In practice, it did little to prevent it (Eccles 1951, 361). As a result, nonbank purchasers acquired \$147 billion of government securities (including nonmarketable war bonds) but held only \$93 billion. Corporations subscribed to about \$60 billion in bond drives but increased their holdings only \$19 billion.

Commercial banks financed bond purchases by selling Treasury bills and other low-yielding securities to the Federal Reserve. With bill rates pegged and ceiling rates set on all other Treasury securities, the banks moved to the higher end of the yield curve. To limit bank purchases of long-term debt, many of the bonds were made “bank restricted.” Small and medium-sized banks complained that mutual savings banks and savings and loans could buy the restricted bonds and thus were able to offer higher returns to savers. In 1944 the rules changed to permit commercial banks to purchase restricted securities during bond drives up to 10 percent of their savings deposits (Board Minutes, December 7, 1943, 2–4). Overall, bank purchases were limited to \$10 billion during all bond drives. Bank holdings increased by \$57 billion, however (Eccles 1951, 362).¹³

As in World War I, debt finance was much less successful than claimed after the war bond drives. The monetary base doubled in the four years ending fourth quarter 1945, an 18 percent compound average annual rate

13. The Federal Reserve minutes for the period return repeatedly to the topic of “educating” the public about the importance of holding the bonds they purchased. The problem was not ignorance but knowledge of opportunities.

of increase. Purchases of Treasury securities account for almost all of the \$18 billion increase in the base.¹⁴

Eccles proposed a three-part alternative. First, he wanted more of the debt made ineligible for bank purchases. This limited the profits that non-banks could make by buying bonds at a favorable price during bond drives and reselling them to banks after the drive. Second, Eccles thought more of the debt should be in nonmarketable securities to supplement the (non-marketable) series E, F, and G bonds sold to individuals. The Treasury accepted part of this proposal, issuing a nonmarketable short-term bond. They did not issue a nonmarketable long-term bond, mainly because they did not want to pay the additional cost. Third, Eccles wanted to limit bank eligible issues to the residual amount required to finance the budget. He urged Morgenthau to sell banks only short-term securities with low yields. This “would have prevented the excessive profits which many banks were able to make” (Eccles (1951, 365).

To support Eccles’s suggestions, the executive committee of the FOMC voted to recommend a long-term program. On January 28, 1942, it sent a memo to the Treasury that proposed (1) tap issues (on demand) to absorb surplus funds of nonbank corporations; (2) a 2.5 percent rate on securities with fifteen or more years to maturity; and (3) flexible rates on shorter maturities, bounded between 0.25 percent and 0.5 percent for Treasury bills.

As on many subsequent occasions, the Treasury did not accept most of the FOMC’s suggestions. It was not interested in a long-term plan. Morgenthau preferred to remain opportunistic, and he was not concerned with rate flexibility or higher interest rates. He accepted only the fixed 2.5 percent maximum rate. At war’s end, he was proud of his achievement—financing more than \$200 billion at an average cost of 1.94 percent. In World War I, he noted, the average interest cost was 4.22 percent (Blum 1967, 30).¹⁵

In all, there were seven war bond drives and a Victory Loan drive between November 1942 and December 1945. Judging from discussions by the New York Federal Reserve directors and the open market committee, problems with “speculators” increased in the later drives. The bank put limits on the volume of discounting and issued warnings to member

14. As shown in table 7.1, the rate of base growth slowed in 1946. Morgenthau blamed “speculative practices” for the sales by nonbank investors. In contrast, Eccles recognized Treasury practices as the cause. Suspicious of bankers, Morgenthau argued that Eccles’s program (see text) would have raised interest rates, increasing the profits of banks and Federal Reserve banks (Blum 1967, 29).

15. Morgenthau was so pleased with his achievement that he concluded the Treasury should have a larger role in monetary and financial policy. He advocated returning the secretary to the Board of Governors (Blum 1967, 31).

banks not to participate in these activities (Minutes, New York Directors, November 16, 1944, 48; July 5, 1945, 8; October 25, 1945, 96).

The warnings did not reduce the undesired activities. The open market committee was reluctant to change course at the end of the war until the Treasury completed the last (Victory) bond drive in the fall of 1945. But it agreed unanimously to discuss with the Treasury "policies which should be adopted for the reconversion and postwar periods" (Minutes, FOMC, October 17, 1945, 5).

Price and Wage Controls

Unable to persuade the Congress to pass all its proposed tax increases, the administration turned to price and wage controls to prevent wartime inflation. In July 1941 the president asked for selective controls on prices, but the bill did not pass in the Senate. After the war started, Congress approved the Emergency Price Control Act in January 1942, authorizing selective controls.

In March the president appointed a committee to consider the inflation problem. The committee concluded that selective price controls would fail. It recommended controls on rents, profits, wage rates, and prices and a \$50,000 a year limit on incomes of corporate executives and professionals.¹⁶ Workers would have an incentive to increase income by working more hours (at overtime rates). Morgenthau opposed wage controls, but he favored limiting profits to 6 percent of invested capital (Blum 1965, 314).

In April and July 1942 the administration tried selective price controls. Prices rose at a 4.8 percent annual rate in that year's first three quarters. The administration considered that rate too high. The president requested authority to freeze prices and wages, warning Congress that if the bill was not passed by October 1, he would issue an executive order. The Stabilization Act gave the president broad authority to control prices and wages. A former senator, Justice James Byrnes resigned from the Supreme Court to administer the Office of Economic Stabilization. Controls remained until the fall of 1946, when Congress repealed the authority it granted in 1942.¹⁷

16. The committee also recommended compulsory saving and lower tax exemptions to absorb purchasing power. In the Treasury, Undersecretary Randolph Paul and Harry Dexter White also favored compulsory saving (Blum 1967, 43).

17. Two modest policy benefits during the war were the end of the wasteful policy of purchasing Canadian silver and a reduction of the purchase price for Mexican silver to 35 cents an ounce, slightly below the world market price. The reason for these changes was to release silver for wartime use in photography and armaments. The Treasury continued to purchase domestically produced silver at 71.11 cents an ounce, as required by law (Blum 1967, 12).

THE FEDERAL RESERVE IN WARTIME

In a prescient 1942 memo, the staff of the Philadelphia reserve bank analyzed the problem the Federal Reserve faced in wartime. Although the war was less than a year old, the bank's staff projected that by the end of 1944 the government debt would reach \$200 billion. Banks would hold between \$85 billion and \$100 billion; bank reserves would have to increase by \$14 billion to \$18 billion to support the purchases (Memo, Supply of Reserve Funds, Board of Governors File, box 1452, October 8, 1942). The memo concluded that open market purchases were the best method of supplying the reserves (*ibid.*, 7).

With discount rates at 0.5 percent and open market rates on Treasury bills below 0.375 percent, banks preferred to sell bills rather than discount. The main wartime decision of the Federal Reserve was to keep this structure unchanged.

Pegged Rates

On April 30, 1942, the Federal Reserve announced its commitment to purchase all ninety-day Treasury bills offered "on a discount basis at the rate no higher than 0.375 percent per annum" (Board of Governors File, box 1441, April 30, 1942). It did not fix rates on other government securities explicitly, but it established a pattern of rates that it maintained throughout the war and beyond. It held one-year rates at 0.875 percent. At the longest end, it held the rate on bonds with twenty-five years or more to initial maturity to a maximum of 2.5 percent, as noted earlier. During the war and early postwar period, the duration of the longest-term bonds declined, but the maximum yield remained fixed.

The announcement put maximum Treasury bill rates above the rates prevailing at the time. During 1941 and early 1942, the Treasury bill rate had increased gradually from 0.02 percent to 0.25 percent. At the long-term end, bond yields had increased from 2 percent in much of 1941 to 2.5 percent in January 1942. The announcement had no effect on the long-term yield.¹⁸

The Federal Reserve did not vote to fix yields on all securities for the duration of the war. Memos written in early 1942 are explicit about rates on

18. The Treasury's initial interest was not in an explicit peg. They asked the System to keep large excess reserves in the market, preferably by reducing reserve requirement ratios. When the Federal Reserve objected, the Treasury proposed the 0.375 percent bill rate. The FOMC approved the agreement unanimously. The agreement to support the "pattern of rates" was made in March. "The general market to be maintained on about the present curve of rates, but this does not mean special support for issues that may be out of line" (Minutes, FOMC, May 8, 1942, 3). The agreement provided for more flexibility than the Treasury allowed and much less than the FOMC anticipated.

the shortest and longest maturities. Conversations with bankers and other active market participants show some concern that the 2.5 percent long-term rate might be too low; Federal Reserve officials wanted to increase the prevailing 0.25 percent rate on short-term bills. But the uniform opinion was that “the cost of war is a social cost and its risks should be borne by the public at large, not by any one group, such as those who have bought government securities” (Letter Sproul to Bell, Sproul Papers, Monetary Policy 1940-41, March 16, 1942, 2). “The Treasury, representing the public at large, should assume the risk of a change in credit conditions.”¹⁹ (*ibid.*, March 10, 1942, 3).²⁰

Households would get nonmarketable securities that they could redeem at the Treasury at a fixed price. This decision avoided the problem of imposing losses on the general public, a concern based on experience after World War I. Banks would be large holders of marketable debt, so it would be “necessary . . . for the Federal Reserve and the Treasury to protect that market, not only during the war, but during the post-war period” (*ibid.*, March 16, 1942, 2). Sproul recognized that protecting the market meant that government debt would “have some attributes of a demand obligation.” The problem was to manage the debt “in the way least likely to contribute to . . . inflation” (2).²¹

A few days later, Sproul’s letter to Eccles summarized the agreement with the Treasury. At the short end, the Federal Reserve agreed to support the market “when the rate on Treasury bills reaches $\frac{1}{4}$ of 1 percent, and support[ing] with increasing strength as the rate approaches $\frac{3}{8}$ of 1 percent” (Sproul to Eccles, Sproul Papers, FOMC 1942, March 21, 1942). The general market would be kept “on about the present curve of rates but this . . . does not mean that we must hold the 2’s of 1951-55 or the 2 $\frac{1}{2}$ ’s of 1967-72, or any other issue, at par, or any other fixed price” (*ibid.*). The

19. This is a very different rationale than Eccles gave: “It would have been wrong for the government to pay increasing rates of interest for the use of the funds it helped to create” (Eccles 1951, 350). The same statement could be made at any time about any supply of base money. It expresses a preference for relying on inflation to tax wealth instead of relying on explicit taxation.

20. The memos do not mention that the benefits of victory would go to both future and current generations, justifying some sharing of the social costs through taxation to retire the debt after the war.

21. Sproul proposed interest rates starting at 0.375 percent for up to six months, rising by 0.25 percent to 1.375 percent at two and a half years, then by 0.125 percent to 2 percent at five years. The Treasury proposed a lower short-term rate and a steeper slope starting at 0.25 percent and progressing by 0.25 percent to 2.5 percent at five years. By June some in the System recognized that a fixed pattern of rates increasing with maturity gave holders an opportunity to “play the pattern of rates” by buying long, letting the price rise as maturity shortened, taking the profit, and then repeating the operation. The (unsigned) memo proposed letting rates fluctuate to reduce certainty (Sproul Papers, FOMC, June 1, 1942).

System maintained this position for a time, but it was unable to get the Treasury to agree.²²

Even granting that the Federal Reserve had no choice but to finance the war at fixed rates, it was a mistake to accept the prevailing structure of interest rates. That structure reflected market anticipations in April 1942 about future economic expansion and inflation. The positive slope of the yield curve, expressing rates by maturity of the debt, suggests that the market anticipated that output, inflation, and therefore interest rates would rise over time. The fixed pattern of rates was inconsistent with this anticipation, so it invited debt holders to sell low-yield securities and buy at higher yields. Since the peg made all government securities equally liquid, or nearly so, the Federal Reserve's decision was the cause of its principal problems for the next nine years. First, banks could lend to their customers for short periods at rates below the rates on long-term debt. As debts matured, bond prices rose to a premium. Holders sold, took capital gains, and purchased longer-term debt. Although the Treasury disliked both practices, it was unwilling to consider any changes in the structure of rates during the war. Second, banks followed the same pattern, selling bills with yields of 0.375 percent to the Federal Reserve and buying longer maturities with higher yields. By 1945 the Federal Reserve had acquired almost all of the outstanding bills: "They ceased to be a market instrument" (Eccles 1951, 359).

In the late 1930s, the Federal Reserve urged the Treasury to increase the supply of short-term debt. The Treasury refused. With the short-term rate fixed, the Treasury could now reduce interest cost by issuing a relatively large volume of short-term debt. At prevailing rates and policies, the market wanted more long-term debt. By fixing the structure of interest rates, the Federal Reserve sacrificed its ability to change the composition of the debt held by the public. Market demand dictated the amount and composition of its purchases and sales.

In 1944 some members of the open market committee began to shift their position. They asked the Treasury to increase bill rates to 0.5 percent by lengthening the initial term to four months (Minutes, FOMC, March 1, 1944, 5). Eccles opposed the request on the improbable grounds that large banks would use the additional revenue to absorb exchange charges on checks. Small banks would increase these charges, weakening the banking system (Board Minutes, March 8, 1944, 2).

22. In June the Federal Reserve repeated that the pattern of rates "does not involve fixed or pegged prices for individual issues, but means maintenance of prices *within a range which may include prices below par as well as above par*" (Sproul Papers, FOMC, June 27, 1942, 4). The Federal Reserve did not refer to this position in the postwar years.

Despite the comments about flexibility he made in 1942, Eccles favored the fixed rate structure throughout the war to reduce financing costs and to prevent owners of Treasury securities from profiting from war finance. He opposed a proposal to extend the maturity of the debt by selling more three- to four-year securities and fewer bills because “there was no reason why they [banks] should receive $1\frac{1}{4}$ or $1\frac{1}{2}$ percent” (Board Minutes, Meeting of the Federal Advisory Council, December 4, 1944, 9). “It was highly desirable that the proportion of outstanding Government debt in the form of bills and certificates (under one year) should continue” (11). He regretted only that banks did not buy more short-term securities. It was a mistake, he thought, not to restrict them to these short-term issues in 1941 (13). The banks had too much profit.²³

With its chairman firmly holding views of this kind, the Federal Reserve did not seek changes in interest rates during the war. Even if it had sought higher rates, it would have faced two obstacles. Morgenthau opposed any increase. And populists in Congress claimed the interest cost was too high. Congressman Wright Patman (Texas), a member of the House Banking Committee, denied that he wanted “printing press money.” He wanted lower interest rates: “If money must be created on the government’s credit, the taxpayers should not be compelled to pay interest on it” (Board of Governors File, box 141, July 1942).²⁴

The Board and the banks understood the inflationary consequences of pegging rates, but they did not oppose the policy during the war. Those most concerned about inflation urged higher income tax rates, sales or expenditure taxes, or compulsory savings to absorb purchasing power. To improve understanding of the problem and disseminate information more widely, Eccles urged the reserve banks to expand their research staffs and coordinate their efforts through a System committee (Board Minutes, March 2, 1943, 2–7).²⁵

Open Market and Other Purchases

With rates fixed, the FOMC had little to do. It approved new limits on the size of the account and authorizations to purchase and sell. It spent much of its time discussing problems associated with bond drives, banks playing

23. He said that since the banks had a franchise from the government to create money in the form of checks, the banking system was vulnerable to the trend throughout the world to socialize banking (Sproul Papers, FOMC, June 27, 1942, 17).

24. The quotation comes from a June 1942 letter to a Dallas newspaper signed by Congressman Wright Patman. The news clipping is in the Board’s files.

25. Eccles’s proposal called for a staff member at the Board “to direct the coordination of the work of the Board and the Federal Reserve Banks.” This brought a quick response from Allan Sproul of New York opposing direction by the Board.

Table 7.2 System Purchases of Government Securities, 1942–45

YEAR	PURCHASES	
	DOLLARS (BILLIONS)	PERCENTAGE CHANGE
1942	3.9	174.5
1943	5.8	86.5
1944	7.3	63.3
1945	5.4	28.7
Total	22.4	

the pattern of rates, and the possibility of lending to banks instead of buying securities or using repurchase agreements instead of discounts and outright purchases.

Banks held more than \$6.5 billion of excess reserves early in 1941. At first they purchased securities by reducing excess reserves. The decline was most rapid in New York, slowest at country banks.²⁶ By August, New York banks had all but eliminated their excess reserves (Minutes, FOMC, August 8, 1942). To provide reserves, the Federal Reserve removed all restrictions on the amount of short-term securities (bills and certificates) in the System Open Market Account by the end of 1942. Limits on the amount of longer-term securities remained.

Table 7.2 shows the rates of purchase from 1942 to 1945. By the end of the war, short-term government securities had become the Federal Reserve's principal asset. The pre-World War I problem of a portfolio insufficient to offset a gold inflow or, in the 1930s, excess reserves greater than the portfolio, would not return. Financing World War II left the Federal Reserve balance sheet and the monetary base dominated by the open market portfolio. This result was very different from the founders' plan; the System had become an indirect source of government finance.

It soon became a direct source as well. On March 27, 1942, the second War Powers Act authorized Federal Reserve banks to acquire direct or guaranteed obligations of the United States by purchase from the Treasury. Eccles supported the bill enthusiastically. At one point he suggested that the FOMC should view the change as a new method of distribution: "Instead of having to . . . price an issue at a figure which would attract heavy over-subscriptions, the securities could be taken by the System and sold to the market as it could absorb them" (Board Minutes, February 3, 1942, 4).

Other Board members accepted the change as a wartime measure

26. At the end of the war, excess reserves of all member banks were about \$1 billion. The low yield on Treasury bills and the small size of many country banks probably explain the sacrifice of pecuniary returns. The FOMC considered reducing the discount rate to encourage banks to increase borrowing and reduce excess reserves, but it did not act (Minutes, FOMC, August 3, 1942, 14–17).

needed to ensure that Treasury issues would not fail to find buyers at established rates and to furnish funds for short periods around tax dates. Sproul, who was at the meeting, did not oppose the amendment. He criticized the Board's failure to discuss the subject with the president before it was included in the War Powers bill, and he opposed Eccles's suggestion that the reserve banks distribute government securities. He accepted direct purchases as a temporary measure to help the Treasury around tax dates or in an emergency.²⁷

The change repealed a section of the Banking Act of 1935 that prohibited the System from purchasing government securities except in the open market. A few months later, the Board told the account manager to combine direct purchases from the Treasury with open market purchases in the weekly statement. The War Powers Act expired six months after the war ended; initial authority for direct purchases expired in December 1944. The Board requested renewal for two more years; later the authority became permanent.

Despite the low interest rates on short-term debt, war finance greatly increased earnings of the reserve banks. Net earnings rose from an average of \$11 million for 1937–41 to more than \$92 million in 1945. The Federal Reserve had been relieved of payments to the United States Treasury after 1933 in exchange for the capital provided to establish the Federal Deposit Insurance Corporation.²⁸ By September 1942, Vice Governor Ronald Ransom anticipated that the government would reinstate the franchise tax if earnings rose (Board Minutes, September 15, 1942, 2). He was correct but premature. Congress imposed a tax equal to 90 percent of annual net earnings in 1946. The tax offset a substantial portion of the interest payments on Treasury debt held by the reserve banks.²⁹

27. In the course of the discussion Eccles offered his interpretation of central bank independence: "The kind of independence a central bank should have was an opportunity to express its views in connection with the determination of policy, and that after it had been heard it should not try to make its will prevail but should cooperate in carrying out the program agreed upon by the Government. . . . [A]ny other kind of independence would be an impractical position which would result in the loss of authority and influence that it otherwise might have" (Board Minutes, February 3, 1942, 8).

28. The System paid a modest amount to the Treasury from 1936 to 1946 for interest received on industrial loans. The largest annual payment was \$327,000.

29. There were other lasting changes. The large increase in wartime debt and in trading led to changes in the market for government securities. The FOMC and the Board considered proposals to use the reserve banks instead of government dealers to make markets in government securities. The reserve banks opposed suggestions that the Treasury sell all government securities to the reserve banks, which would market the debt to the public. Instead, the New York bank agreed to license government security dealers. In exchange, the dealers agreed to provide detailed portfolio and transactions data (Minutes, FOMC, February 29, 1944, 6–8). Another change increased the roles of reserve bank economists at the FOMC.

Reserve Requirements

With the bill rate at 0.375 percent in 1942 and income taxable at high wartime rates, banks outside New York and Chicago did not bother to invest in bills or send excess reserves to correspondent banks. The Treasury wanted to reduce reserve requirement ratios for urban banks to release reserves for purchases of Treasury securities.

The Banking Act of 1935 did not permit the Board to change reserve requirements for only one class of banks. Congress approved the additional authority on July 7, 1942. The change was contentious within the System. The Federal Advisory Council opposed the change, and initially so did the Board. Eccles described the reduction as “a grave mistake” (Board Minutes, February 16, 1942, 2–3). Prodded by the Treasury, once the legislation passed, the Federal Reserve reduced required reserve ratios at central reserve city banks in three steps, from 26 percent to 24 percent on August 19, 22 percent on September 14, and 20 percent on October 3. Together the three reductions released \$1.2 billion, about 6 percent of the monetary base at the time.

The New York and Chicago banks bought Treasury bills, as expected. The principal effect of the change was not on reserves or the monetary base but on the earnings of the banks and reserve banks. With interest rates rigidly fixed, banks as a group determined the aggregate amount of reserves by buying or selling Treasury bills. Further, New York and Chicago banks could create more deposits and add more to earning assets per dollar of reserves or base money. Contrary to Eccles’s aim, the reserve banks had smaller earnings and the banks had more.³⁰

The three changes brought required reserve ratios for the two central reserve cities to equality with reserve city banks for the first time in Federal Reserve history. There were no further changes in reserve requirement ratios during the war. The only other wartime change removed reserve requirements on war loan deposits as an inducement to banks to buy securities by increasing Treasury deposits during bond drives.

Until the war, only New York had sent an economist to the meeting. During the war, all banks were invited to adopt this practice. Discussion at FOMC meetings continued to be dominated by Eccles, Sproul, and economists at the Board and the New York bank, however.

30. The Board did not fully understand the limited effect of the change. On April 9, 1944, it unanimously approved a letter to a Mississippi banker who had written to request a reduction in the reserve requirement ratio for country banks from 14 percent to 7 percent. The Board explained in part that “reserves supplied through open market operations . . . go in the first instance directly to the particular banks needing them” (Board Minutes, June 9, 1944, 4–5). The letter then went on to cite other reasons, including the greater ease of monetary control after the war. There was no mention of earnings.

Discount and Other Rates

Discount rates ranged from 1 to 1.5 percent when the war started. After some prodding from the Board, on April 11, 1942, the reserve banks agreed to a uniform discount rate of 1 percent. In addition to the basic discount rates, the Federal Reserve set a preferential rate for loans collateralized by short-term government securities and a rate on direct loans to military contractors made under its authority to lend to individuals and businesses. The latter provision, a depression measure, was used to finance production of war materials. The amount outstanding on June and December reporting dates never exceeded \$35 million (lent in 1936). During World War II, the total outstanding was about \$10 million. Almost all the loans were for one year or less (Board Minutes, 1976, 492).³¹

Analysis at the Philadelphia reserve bank correctly noted that banks would obtain reserves at lowest cost and would hold debt with higher rates and longer terms to maturity. With discount rates above Treasury bill rates, discounting remained small. The memo criticized preferential rates for loans collateralized by government securities. Preferential rates would not affect the volume of borrowing, only the collateral used to borrow and the maturity of bank-held debt (Board of Governors File, box 1452, October 8, 1942, 7-10).

The Philadelphia bank's memo was critical of preferential discount rates on other grounds also. The memo rejected the real bills doctrine: "The experience with preferential rates in the last war and the postwar period on the whole was not satisfactory. The general conclusion of Reserve officials and analysts is that the particular paper used to secure an advance has no relation at all to the use that the bank will make of the funds it secures" (*ibid.*, 9).

Despite this correct analysis, the Board adopted a preferential discount rate of 0.5 percent for discounts secured by short-term governments. The main argument for the preferential rate was that it would induce banks to hold more short-term bills instead of higher-yielding bonds. George L. Harrison said that it would be easier to eliminate the preferential rate, when it was time to reverse policy, than to increase the general discount rate (Board Minutes, October 7, 1942, 9).³²

31. The New York Federal Reserve bank set the rate on direct loans to war contractors at 4 percent to 6 percent. The Board wanted the rate reduced to from 2.5 percent to 4 percent. The compromise was to lower the rate schedule to from 4 percent to 5 percent (Minutes, New York Directors, May 7 and June 4, 1942).

32. Harrison, former governor of the New York bank, was a member of the Federal Advisory Council. His memory of 1919-20 was faulty. The Treasury was willing to increase the general discount rate before it was willing to raise the preferential rate. See chapter 3.

Harrison underestimated the Treasury. In June 1945 Sproul proposed an increase in the preferential rate to 0.75 percent. All the presidents concurred, but the rate remained at 0.5 percent (Minutes, FOMC, June 20, 1945, 9). The following month, the New York bank directors asked to eliminate the preferential discount rate. The Treasury remained unwilling, so the rate stayed (Minutes, New York Directors, July 19, 1945, 20).

Bankers grumbled occasionally about Treasury tax and interest rate policies. When the opportunity arose, members of the Federal Advisory Council argued for higher rates on short-term securities to get banks to hold more of them. The most strenuous plea came from a member who argued that banks could not be expected to finance the war if they were “‘bled white’ through the maintenance of low interest rates and application of high taxes” (Board Minutes, April 9, 1942, 13).³³

Selective Credit Controls

Unable to control money or interest rates, the Board turned first to controls on consumer credit and later to controls on real estate, stock market, and other forms of lending and borrowing. Some of these actions were taken to show that it was “doing something” to control inflation, some in the belief that it had to use existing authority before Congress would grant additional powers, and some at the urging of other agencies.

The Board adopted regulation W to reduce the demand for durable goods. The original order required a 20 percent down payment and limited loans to a maximum of eighteen months. Wartime revisions and amendments extended the range of goods covered, raised the required down payment, and reduced the maximum term.³⁴ Experience with regulation established once again that efforts to control a complex economy produce unforeseen consequences leading to both extensions and exclusions from

33. Between 1941 and 1945, member bank income after taxes rose from \$390 million to \$788 million, about a 50 percent increase in real terms. (Since prices were controlled, the price index is biased downward. Using the 1945 price index, the gain is 60 percent; using 1946, after controls were removed, the gain was 43 percent.) To help the Treasury sell debt to the public, the Board discussed lowering the maximum rate that commercial banks could pay on time deposits from 2.5 percent to 1.5 percent. Eccles, Ransom, and Leo Crowley (chairman of the FDIC) favored the change, but it was not made. One reason is that banks feared they would lose savings deposits to nonbank thrift institutions, a problem that returned in the 1960s.

34. By spring 1942, the list included new and used goods, shoes, hats, and haberdashery. Monthly charge accounts were covered also. The regulations became so detailed that the Board agreed to exempt the Boy Scouts and railroad employees required to use a precision watch (Board Minutes, June 29, 1942, 9; August 12, 1942, 1).

earlier regulations.³⁵ Since credit is fungible, restrictions on one type of credit shifted demand to less regulated forms and encouraged innovation to circumvent regulations.³⁶

By 1943 the Board began to discuss extending credit regulation to include real estate, securities, and traded commodities. Eccles explained to the reserve bank presidents that “the Board was not seeking the authority . . . but was willing to accept it” (Board Minutes, June 29, 1943, 21). Eccles preferred to increase taxes and forgo additional regulation, but he accepted the new responsibility to retain credit control under the Federal Reserve System: “Some of the Presidents indicated agreement with Chairman Eccles’s attitude and expressed doubt as to the ability of any agency successfully to discharge the responsibility” (22).

Enforcement differed across the country because each reserve bank chose the extent of enforcement. Vice Chairman Ransom complained at one point that the Board had chosen a middle course between strict and lax enforcement. Strict enforcement “would antagonize the people whose support was necessary,” and lax enforcement would foster the “impression that the System did not care whether the provisions of the regulation were observed” (*ibid.*, 23).

Years later, W. Randolph Burgess summarized matters: “Looking back at the experience with the control of consumer credit, it would be very hard to make a case that what was done . . . was useful, and it certainly made a great deal of work for a great many people, at a time when there was a shortage of manpower and a heavy surplus of irritating red-tape and procedures to interfere with essential war work” (Letter Burgess to Sproul, Sproul Papers, Board of Governors, Joint Committee on Economic Report, October 7, 1949, 2).

Common stock prices had fallen a total of more than 20 percent from 1939 to 1941. Stock prices rose 20 percent in 1942 but remained below their 1938 value (Ibbotson and Sinquefeld 1989). In March 1943 the Board began discussing increases in margin requirements on securities. The volume of trading had increased to about one million shares a day, making

35. The Board had to decide such weighty matters as Should reupholstered furniture be treated like new furniture? Should loans for funeral expenses be exempted? Medical and dental expenses? (Board Minutes, August 12, 1942, 1).

36. Studies of the effect of selective controls on housing and durable goods find no evidence of their effectiveness. For housing, see Kane 1977 and Meltzer 1974. For durables, see Hamburger and Zwick 1977, 1979. These studies apply to later periods, but their findings are applicable to the war. A principal finding is that credit controls have clear effect on the form in which lenders extend credit, but there is no evidence of an effect on the allocation of resources or total spending.

some of the staff uneasy. Earlier, the Board had issued regulations T and U to set margin requirements as authorized by the 1934 Securities Exchange Act. Some staff members urged a preemptive strike against speculation, but the Board decided not to act (Board Minutes, March 15, 1943, 2–4). Prices continued to rise. By the end of 1944, the stock price index was almost 40 percent above the 1936 peak.

On February 5, 1945, the Board increased margin requirements to 50 percent. Eccles argued that there was no evidence of excessive use of credit in the stock market, but the Board approved the increase to show that it was concerned about future inflation (Board Minutes, February 2, 1945, 3–9).

Three weeks later, Eccles reported that the Economic Stabilization Board had suggested a 100 percent margin requirement. Eccles saw no need for the change, but Chairman Vinson of the Stabilization Board thought that Congress would not authorize new powers to control inflation until existing powers had been used. Eccles suggested that Vinson send a letter to the Federal Reserve asking for the increase in margin requirements (Board Minutes, February 23, 1945, 7–8). Vinson sent the letter, but the Board delayed a decision.

By a vote of five to one, the Board agreed to let Eccles tell the Economic Stabilization Board that the System favored an increase only to 70 percent. Governor John K. McKee opposed because the government's anti-inflation program was incomplete, and not much credit had been used for purchasing and carrying securities (Board Minutes, May 3, 1945, 7–8).³⁷

The Federal Advisory Council agreed unanimously that speculation in real estate and stocks should be discouraged, but it saw little evidence of inflationary pressure in asset markets: "Farm lands are about where they were in 1913. . . . There has been a good deal of speculation in the larger apartment buildings and hotels and in some kinds of commercial buildings, but even there the prices are below the cost of reproduction. Stock prices are not above the 1936–37 levels, in spite of the fact that in the interim most corporations have added very materially to their assets" (Board Minutes, May 14, 1945, 2).

By late June 1945, with the war almost over, the Economic Stabilization Board agreed to recommend credit controls on real estate, higher margin requirements on stock transactions, and a longer holding period for capital gains. It considered an increase in the capital gains tax rate. It could not

37. John K. McKee was appointed to the FOMC in February 1936. He served ten years, leaving in April 1946.

decide whether new construction should be exempt from real estate controls. Eccles believed that the new credit controls would be ineffective and should not be used unless Congress passed a tax increase (Board Minutes, June 21, 1945, 18–19).

Pressed by the administration, the Board voted to increase margin requirements on new purchases of securities to 75 percent effective July 5. The Board also required that the proceeds of security sales be used to bring the margin on the whole portfolio toward the new requirements before cash could be distributed to the owner. Governor McKee again opposed the increase.

The new requirements were unpopular with the public and with many bankers and securities dealers. In September the Federal Advisory Council urged the Board to consider returning to a 50 percent margin. Eccles thought it was premature to consider a reduction. Effective January 2, 1946, the Board increased the margin requirement to 100 percent; all transactions had to be for cash.

Other Wartime Changes

Rapid growth of the Federal Reserve's portfolio and the monetary base, and a small gold outflow, lowered the System's gold reserve ratio toward the legal limit—40 percent of notes in circulation and 35 percent of deposits at Federal Reserve banks. By mid-1944 the System's gold reserve ratio had fallen to 55 percent (from 91 percent in November 1941).

The FOMC minutes first mention the problem in May 1944. The committee voted to reallocate Treasury bills in the System account to prevent the ratio at any reserve bank from falling below 45 percent. Members agreed to buy Treasury bills from the reserve banks with low ratios and to change the allocation of open market purchases (Minutes, FOMC, May 4, 1944, 14–15). Several banks sold Treasury bills to other reserve banks for gold certificates, and the Federal Open Market Committee revised the securities allocation formula to adjust for differences in gold reserves.

The System's gold reserve ratio continued to fall. In July the executive committee considered asking Congress to reduce the ratio to a uniform 25 percent against notes and deposits. Eccles favored eliminating the requirement, but the committee thought the public was not ready to remove all ties to gold. The executive committee voted to put off any decision until after the election.

Legislation introduced in January, and passed in June, lowered the gold reserve requirement to 25 percent and extended the "temporary" authority, first granted in 1932, to use government securities as collateral for Federal

Table 7.3 Gold Reserve Ratios, June 1945 (percent)

BANK	RATIO	BANK	RATIO
Boston	24.9	Chicago	65.3
New York	50.1	St. Louis	28.8
Philadelphia	25.4	Minneapolis	22.9
Cleveland	32.6	Kansas City	31.0
Richmond	38.2	Dallas	22.0
Atlanta	44.9	San Francisco	59.4

Source: Minutes, Executive Committee, FOMC, June 20, 1945, 5.

Reserve notes.³⁸ The FOMC responded by lowering from 45 percent to 35 percent the gold reserve ratio at which the individual reserve banks would cease to participate in open market purchases. Table 7.3 shows that even after the legal change, several of the reserve banks did not meet the requirement.

Eccles attempted to coordinate the research functions at the reserve banks under the direction of the Board's research division. The issue had arisen first in 1936, after the Banking Act of 1935 became law. It arose again in 1943, under the guise of having a "steering committee" to give direction to research work. The reserve banks resisted and, on both occasions, prevented the Board's staff from acquiring authority over the banks' staffs (Sproul Papers, Memorandums and Drafts, December 17, 1943). Eccles tried again, claiming that the Board had the right to approve persons appointed to supervisory positions in the banks' research departments, but he did not prevail over the protests of the banks' officers and directors (Minutes, New York Directors, August 17, 1944, 267).

To supplement wartime price controls, the government ordered coupon rationing of gasoline, food, shoes, and other consumer goods. Purchasers presented coupons along with cash to complete transactions. Processing ration coupons became the responsibility of commercial banks and Federal Reserve banks beginning in January 1943.

The army decided early in 1942 to move Japanese and Nisei living in the western states into camps. After the administration approved the order, Japanese and Nisei had to leave their homes and businesses. The Treasury had responsibility for protecting the property they left behind. The

38. When the bill was introduced, Senator Elmer Thomas wrote asking the Board to append his bill authorizing all banks and other financial institutions to carry government obligations at par value. It declined (Board Minutes, January 26, 1945, 2). The Board also requested repeal of the Thomas amendment authorizing the president to issue \$3 billion of currency (Board Minutes, March 15, 1945, 202). At about this time, Congress considered a proposal to have the General Accounting Office audit the Federal Reserve, as it had done in the System's early years (Minutes, New York Directors, February 5, 1945, 170). This issue returned many times.

Federal Reserve banks administered the program for the Treasury (Blum 1967, 3-4).³⁹

POSTWAR PLANNING

Planning postwar economic policies began long before the war ended. Interwar experience convinced many businessmen, economists, and others that it would be unwise, and probably unacceptable, to return to the high unemployment rates and instability that characterized the interwar period. Keynes's *General Theory* (1936) seemed to provide an economic rationale for activist government policies to expand or slow domestic economic activity.⁴⁰ His plan for international monetary cooperation, prepared during the war, made a major contribution to the development of the postwar Bretton Woods institutions. Earlier, in his *Treatise on Money* (1930), he had made the case for international monetary reform, based on a more flexible gold standard. These topics moved to the forefront in planning for the postwar world.

Discussion of postwar planning shows significant changes in policy views since the 1920s. Two changes eventually altered the role of United States monetary policy. First was the commitment to economic stabilization. This commitment was a long step away from the Federal Reserve's denial in the 1920s that its actions affected the price level or the pace of economic activity. Second was the primacy given to domestic over international considerations. The proponents of these changes assigned a very modest role to monetary policy and the Federal Reserve. As the perceived influence of monetary policy changed in the 1950s and 1960s, full employment and domestic stability became dominant policy concerns by the 1960s. Although not fully recognized at the time, the heightened emphasis given to domestic concerns in many countries was incompatible with plans for an international monetary system based on gold and fixed exchange rates.

Domestic Plans

In spring 1943 the System began to study postwar reconversion. One set of issues was transitional. For example, when the military canceled contracts, small and medium-sized firms would need loans to convert to peacetime

39. The unique private-public structure of the Federal Reserve left unresolved whether property such as the Board of Governors building was taxable by the District of Columbia. The District agreed to treat the property as government property provided each of the reserve banks disclaimed ownership (Minutes, New York Directors, January 13, 1944, 21).

40. In fact Keynes (1936) says very little about activist policies. Keynes's support for such policies antedates his book and is more explicit in his policy tracts. See Meltzer 1988.

production just as regulation V loans to finance military procurement ended. The System appointed a committee to study transitional lending (Board Minutes, April 29, 1943, 5–7; June 20, 1943, 5–7). In May 1944 the Board authorized a series of studies of postwar policies. A sample of the ideas gives the flavor of many economists' opinions at the time.

The Board's economic adviser, Emanuel A. Goldenweiser, recommended the "continuation of wage and price controls, rationing and allocation, as well as licensing exports . . . [as] a prime condition of a successful transition from a war to a peace economy" (Board of Governors of the Federal Reserve System 1945, 1:3). Goldenweiser proposed that the government offer employment to any unemployed worker to sustain consumption. He favored keeping selective credit controls, margin requirements, and "all the powers over the general volume and cost of money that they have had in the past, and they should have additional authority over member bank reserves" (1:15). The "additional authority" is probably a reference to a secondary reserve requirement of securities to prevent banks from selling Treasury bills to the reserve banks.

Unemployment was a main concern. The second study in the Board's series warned of another 1929 collapse and unemployment of 6 to 8 million during reconversion to peacetime (*ibid.*, 1:18–49).⁴¹ Postwar experience turned out very differently. Reconversion occurred quickly. After a brief adjustment, economic activity rose rapidly. Unemployment remained low.

Like Goldenweiser, Eccles believed that price controls should be retained until postwar output increased enough to satisfy demand. He testified that "price controls, rationing, curbs on consumer credit or stock market credit, and similar devices, admittedly deal only with effects and not with basic causes of inflationary pressures" (House Committee on Banking and Currency 1946, 171).⁴² Nevertheless, he believed that an opportunity to control inflation was lost with repeal of the excess profits tax in 1945, termination of the War Labor Board, and failure to increase the capital gains tax at the end of the war (Board Minutes, November 19, 1945, 10–11). He did not mention that these wartime measures distorted allocation and slowed investment. Nor did he recognize that price and wage controls caused many low-priced goods to disappear and encouraged producers to lower quality as a substitute for raising prices. Similarly, wage controls encouraged both labor

41. There is nothing in the studies about the need to restore monetary control by eliminating the interest rate peg. Volume 8, devoted to Federal Reserve policy, is given over mainly to a historical review of past options.

42. "To the extent that we can deal effectively with the money supply and production factors, we will be getting at the root causes of the inflationary problems confronting the country today" (House Committee on Banking and Currency 1946, 171).

“hoarding” and shortages and the substitution of noncash benefits for cash payments.⁴³ Neither he nor his staff recognized that deregulation and correct price signals would speed the transition and reduce waste.⁴⁴

Congress did not concur. It responded to the general dissatisfaction with wartime controls, rationing, and black markets by removing most controls by fall 1946. The immediate effect was a short-lived surge in the reported price index, as reported prices adjusted to reflect hidden or deferred changes (see chart 7.1 above). Consumer prices rose at a 29 percent annual rate between June and November, with the largest rise in July. By January 1947 the monthly increase had fallen to zero.⁴⁵ After these adjustments, price levels were 33 percent above the level at the start of the war, a 6.5 percent annual rate of increase.

Lauchlin Currie, on the White House staff, and Keynesian economists at Commerce, Treasury, and other agencies believed that a severe postwar depression was likely. They bolstered their argument by showing that private spending would not expand enough to replace military spending as a source of employment. Much of the shortfall was a consumption “gap”—the difference between predicted consumption spending and spending consistent with full employment. And because the consumption gap would be large, private investment would remain low and unemployment high.⁴⁶ Beginning in 1944, Keynesian economists urged gradual release of materials from military use to smooth postwar readjustment. The military opposed the change while the war continued, and nothing was done. Interest in peacetime conversion rose when the European war ended in April 1945. The National Resources Planning Board advocated a comprehensive social welfare program, pollution abatement, public transport systems, and other government programs.

Nothing in Keynesian analysis favored government spending instead of

43. World War II wage controls, and tax deductibility, produced a long-term inefficiency—health care benefits paid by employers who deduct the cost. This distortion increases the demand for health insurance and limits opportunities for individual workers or families to choose the health insurance they prefer.

44. Eccles had a mixed view of price and wage controls. He supported the call for controls in 1942, but he saw them as at best a supplement to taxation that removed private command of resources. At the same time, he seems aware of the conflicts set off by controls—whether costs could be controlled as effectively as, or more effectively than, prices, problems such as setting rents, concerns about excess profits, and so on. See Eccles 1951, 370–72. Morgenthau favored controls on prices but not on wages. He said that labor was not a commodity, so wages should not be treated like other prices.

45. Price controls expired in June 1946. Congress voted for rapid decontrol, but President Truman vetoed the bill, so controls ended when they expired. In early August, Congress renewed controls (but not food subsidies). This was followed almost immediately by meat shortages. Almost all controls were abolished by executive order on November 11, 1946.

46. This section is based on Jones 1972.

tax reduction as a way for government to influence the transition from war to peace. Largely as a matter of belief, administration economists and their outside advisers favored government spending.⁴⁷ System economists were divided.⁴⁸

President Roosevelt adopted part of the Keynesian program. His last State of the Union message to Congress set a goal of 60 million postwar jobs. At the time, there were 55 million people in the civilian labor force and an additional 11.4 million in the armed forces, but some of these were women who were expected to leave the labor force after the war. The statement was seen as a loose commitment to “full employment.”

Roosevelt’s statement was soon followed by a proposed Full Employment Act that became the Employment Act of 1946.⁴⁹ The original proposal recognized a person’s right to employment and the government’s responsibility to provide full employment. To achieve this end, the proposal

47. Principal among them were Seymour Harris (1943), Alvin Hansen of Harvard, and Paul Samuelson of MIT (1943). Others such as Herbert Stein of the Committee for Economic Development preferred lower taxes. Stein’s influential essay became the basis for policies advocated by the Committee for Economic Development, a business-sponsored group.

48. At a meeting of the Board and the presidents to discuss the Board’s studies of postwar problems, John H. Williams was highly critical of a study by Richard Musgrave, a member of the Board’s staff. The study showed that the budget would not be balanced if government spending remained low. The argument, based on a Keynesian model, proposed that the government absorb the excess savings. Williams countered that Musgrave had neglected the crowding out of private spending. Some government spending makes “private business work better, but when you get up to this level, you are bound to ask what these expenditures are doing to the private economy. It is inevitable that it will take its place to an increasing degree” (Board Minutes, March 2, 1945, 5). Williams’s remarks anticipated major controversies about the effects of government spending, deficits, and debt in the 1960s and 1970s. Williams added, “[Economists] are interested in large and even growing public expenditures. I think there is a lot to be looked into on that point before we accept it as a guide for postwar policy” (Board Minutes, March 2, 1945, 6). Seymour Harris (1943) wrote: “These [Keynesian] economists are impressed with the failure of the capitalism of the twenties to provide full employment and are impatient with economic theory that fails to discuss conditions of disequilibrium and underemployment. Keynesian influences will be especially evident in the parts of the volume devoted to the discussion of full employment and fiscal policy” (5). In the same volume Paul Samuelson (1943, 53) wrote: “All our findings lead to the conclusion that there is a serious danger of underestimating the magnitude of the problem of maintaining continuing full employment in the postwar period.”

49. See Murray 1945. The standard reference to the act is Bailey 1950. The bill was pushed by Leon Keyserling. Later George Terborgh of the Machinery and Allied Products Institute rejected the Hansen-Samuelson argument. “Nothing in the purely economic or technical situation indicates that private investment will have to be propped up by public investment not desired for its own sake. Indeed, the situation is so favorable for a boom after the inevitable transition period” (Sproul Papers, Board of Governors, Correspondence 1943–44). The quotations are from a speech by Terborgh, 14–15. One of the first members of the Council of Economic Advisers and its second chairman, Keyserling had been a legislative assistant to Senator Robert Wagner of New York, one of the sponsors. Keyserling was a principal developer of “the Fair Deal,” President Truman’s economic program. See Brazelton 1997.

called for some national planning: a National Production and Employment Budget would forecast the state of the economy and the levels of employment and output consistent with full employment. The president would recommend actions needed to close any “gap” between expected and full employment.

Discussion of the bill shows the large shift in opinion that had occurred in a decade. The bill had three Republican senators as sponsors and more than one hundred sponsors in the House, including Congresswoman Clare Booth Luce, a prominent conservative and the wife of a prominent publisher. Few in Congress criticized the commitment to an expanding economy or the idea that government spending could affect the economy. The right to a job and a commitment to full employment were more contentious. Opponents pointed to the risk of inflation, the possibility of continuous budget deficits, and the possible use of the act to promote “national planning,” price controls, or other restrictions on freedom.

The act that emerged was a compromise, but it gave more to the opponents than to the original proponents.⁵⁰ Gone were the commitments to full employment and mandatory computation of the “gap.” The legislation called only for “maximum employment, production, and purchasing power,” a phrase that was undefined, therefore open to whatever interpretation an administration or Congress might put on it. Gone also was a legislated commitment to forecasts of economic activity, although forecasting became standard procedure in all administrations.⁵¹

The act created a Council of Economic Advisers in the Office of the President to help the president decide on economic policy. The intention may have been to keep the council as a professional body, free of politics. In practice the council, as a staff agency, had a weaker position than many of the current and future line agencies representing business, labor, environmental, educational, consumer, and other interest groups. The role of the council has varied with the president’s interest in receiving its advice and the relationship between the council’s chairman and the president.⁵²

The Board’s reaction was generally positive and supportive of the origi-

50. For a contrary view, see Keyserling 1972. According to Keyserling, the act allowed economic planning but was not carried out because of the unwillingness of government (and Keynesian economists) to propose income redistribution.

51. Forecasters’ failure to foresee rapid postwar recovery instead of a return to high unemployment did not strengthen their case. See Stein 1990, 202. On the inaccuracy of economic forecasts, see Meltzer 1987.

52. The Reagan administration considered abolishing the council because of differences between one of its chairmen and other presidential advisers over budget deficits. Since the council was authorized in the Employment Act, demission required legislation. The administration chose not to raise the issue.

nal bill. Woodlief Thomas, assistant director of research at the Board, read the bill as an attempt to “legislate the Keynes-Eccles-Hansen-Beveridge theory of economic stabilization” (Memo Thomas to Ransom, Board of Governors File, box 198, February 12 and 4, 1945). Thomas saw enactment of a particular economic theory as a danger, but the act did not do that. The bill, he said, was “a statement of goals, not an outline of policies” (*ibid.*).

Eccles had favored countercyclical use of fiscal policy since the early 1930s. He came to Washington early in the New Deal to promote that policy. In a letter to Senator Robert Wagner, he accepted the objectives of the bill but emphasized the primary role of the private sector in providing employment. He urged Wagner to substitute for full employment “maintaining economic stability at as high a level of employment and production as can be continuously maintained” (Eccles to Wagner, Board of Governors File, box 198, June 16, 1945). Although he discussed the Federal Reserve, he did not mention monetary policy as a tool for reaching the objectives of the act.

Neglect of monetary policy was not an oversight. The conventional view among economists at the time was that monetary policy had, at most, modest effects on output and prices.⁵³ These beliefs justified the passive monetary policy that the System chose mainly for political reasons. When conventional views changed in later years, the Federal Reserve accepted major responsibility for moderating recessions and controlling inflation.

International Plans

Planning for postwar international monetary cooperation began before the United States entered the war. Section 7 of the lend-lease agreement, under which Britain and others obtained military supplies and equipment “on credit,” provided that the United States could waive postwar repayment if the British agreed to eliminate trade “discrimination” and reduce tariffs. Discrimination was not further defined, but the objectives it expressed included elimination of the prewar system of imperial preference that bound Britain to its empire and favored British exports.

Avoidance of bilateral agreements and imperial preference was a major goal of the State Department. Secretary of State Cordell Hull favored a multilateral system centered on “most favored nation” clauses that gave each signatory the lowest tariff rate agreed with any other country. The British

53. This position dominated research at the time. See Villard 1948 and Ackley 1961, and for a Federal Reserve view see Thomas 1941. For a contrary view see Friedman 1956 and Warburton 1966. Assigning a more powerful influence to monetary policy would have required the Federal Reserve to accept more responsibility for the Great Depression, but it would have moderated, or even prevented, the Great Inflation after 1965.

accepted section 7 out of wartime desperation. They did not like it (Presnell 1997).

In the course of negotiations leading to the lend-lease agreement, Keynes broadened the terms of reference to include finance and exchange rates. The two treasuries then took the lead in negotiations, shifting emphasis from trade issues to finance. By September 1941 Keynes had developed a proposal for an international clearing union that could create a currency for member central banks to use in settling payments imbalances. After adjustment, Keynes's proposal became the British government proposal in April 1943, when formal bilateral discussions began.

Keynes (1924) had developed the basic analysis much earlier. Each country acting alone can achieve either stable prices or a fixed exchange rate but not both. To achieve both, there must be international cooperation or agreement. The gold standard is one type of agreement; each country accepts the rules of the standard, defining currency value in grams of gold, agreeing to buy and sell gold at a fixed price, and allowing money and prices to rise or fall with gold movements. If member countries followed these rules, exchange rates would remain fixed and inflation or deflation would be limited to changes around the world price level, the latter set by world demand for and output of gold. Large productivity shocks might disrupt countries' efforts to maintain employment and stable prices, but prices and output would eventually adjust as required by the fixed exchange rate.

The rules, however, required procyclical policies—allowing gold inflows to inflate the economy during expansions and to accept contraction, unemployment, and deflation when gold flowed out. With the growth of industrialization, labor unions, and the spread of the voting franchise, voters and governments were less willing to follow such rules in the 1920s. Many proposals to eliminate or reduce procyclicality had been made, but none had been adopted.⁵⁴

In December, a week after the United States entered the war, Morgenthau asked Harry Dexter White to “prepare a memorandum on the establishment of an inter-Allied stabilization fund” as the basis for postwar international monetary arrangements (Blum 1967, 228–29).⁵⁵ Morgenthau

54. Chapter 4 discusses attempts in the United States to enact Irving Fisher's proposal for a “compensated” gold dollar and to establish domestic price stability as the principal policy goal.

55. White was director of monetary research and later assistant secretary of the treasury. The United States proposal that became the basis of the International Monetary Fund is often referred to as the White plan. Keynes's plan called for a clearing union to adjust current account balances of debtors and creditors. White envisaged a permanent fund that could lend to debtor countries. White's version was the basis of the Bretton Woods Agreement.

thau's diary suggests that, although the United States had insisted on title 7, he had no more than a vague idea about expanding the prewar Tripartite Agreement to avoid competitive devaluation.⁵⁶

The British were particularly interested in preventing a return of their interwar problem, when efforts to expand their economy by lowering interest rates were followed by a current account deficit and an outflow of gold that reduced the money stock and forced contraction and deflation.⁵⁷ White, and others at the United States Treasury, also favored a more flexible system. He too proposed a middle way between fixed and fluctuating rates with rules for lending and borrowing. Exchange rates would be fixed but adjustable; countries with a balance of payments surplus (like the United States in the 1920s) would lend to countries with deficits (like Britain in the 1920s). Unlike Keynes's plan, the new international institution could not create money.

The plan envisaged that deficit countries would not be forced to contract and deflate for balance of payments purposes. They would maintain imports from the rest of the world instead of reducing purchases and spreading contraction. To enforce lending, member countries agreed to impose costs on surplus countries that would neither expand imports nor lend to countries in deficit. Thus deficit and surplus countries alike would benefit from increased flexibility.⁵⁸ Both Keynes and White limited their proposals to financing trade and current account deficits. To the extent that they considered lending and borrowing on capital account, it was the responsibil-

56. Blum (1967, 228) speaks of "a kind of New Deal for a New World" and avoiding past difficulties caused by "private bankers, pursuing selfish ends" (229). Gardner 1956 is a comprehensive history of the origins of the fund. Several papers in Bordo and Eichengreen 1993 are a useful supplement. I limit my discussion principally to Treasury and Federal Reserve responses and actions. Keynes visited the United States in fall 1941 and possibly discussed his plan informally before White began work.

57. Keynes's dislike of the classical gold standard and what he called *laissez-faire* was no longer heretical in Britain by the 1940s. The established view was that the maldistribution of gold had made the system untenable. The accepted conclusion was that Britain should manage domestic policy to maintain full employment (Ikenberry 1993; Presnell 1997). Fluctuating rates were anathema to bankers and policymakers. An influential study by Nurkse (1944) concluded that fluctuating exchange rates caused destabilizing speculation in exchange rates and the prices of traded commodities. Nurkse's argument and evidence were later successfully challenged by Friedman (1953), but Nurkse's view remains widely held by bankers and governments.

58. This benefit could be achieved if all fluctuations were temporary, or cyclical, so that members could borrow in recessions and repay in recoveries, but the authors did not specify how to distinguish cyclical or temporary changes from permanent changes. Countries were allowed to devalue up to 10 percent without approval by the fund, and by more than 10 percent with prior approval. Devaluation was to be used to adjust to a "fundamental" disequilibrium. The fund was never able to define "fundamental" or to enforce the requirement that countries could not devalue by more than 10 percent without agreement.

ity of the proposed International Bank for Reconstruction and Development, later called the World Bank.⁵⁹

Countries could pursue the domestic policies of their choice, a main British aim and another major departure from classical gold standard rules. Countries could correct policy errors by changing the exchange rate, with the consent of the new agency, the International Monetary Fund. The fund would also prevent multiple currency practices, discriminatory bilateral arrangements, and competitive devaluations. Eventually countries would maintain current account convertibility, a main aim of the United States.

Many in the banking community and the Federal Reserve wanted to return to the gold standard. White dismissed these proposals: "There isn't the slightest chance of getting other countries to return to the gold standard" (White to the Board and Reserve Bank Presidents, Minutes, FOMC, March 2, 1945, 20). The only chance for agreement was to combine stability of exchange rates with the flexibility to change them with the fund's approval. Other countries would agree to this mixture of stability and flexibility if it was part of an agreement that gave each country some assurance that it could borrow in an emergency: "We must give them time to balance their payments in such a way that they will not hurt the rest of the world" (25). Adjustment might take two, three, five, or even ten years.

The Reserve Board began to consider the Keynes and White plans in May–June 1943. Their first concern was the amount of new bank reserves that the United States would have to create. To eliminate all restrictions on current account financing, as Keynes proposed, required an expansion of \$25 billion to \$30 billion of United States base money. An expansion of this magnitude would double the amount of base money then outstanding. Board members wanted either power to control the domestic effect of such a large increase or a limit on the size of the increase (Board Minutes, May 29 and June 1, 1943). The Board also favored a provision, suggested by the Canadian representatives, that if the amount of foreign exchange balances at the fund increased beyond a preset limit, the member would gain voting power (*ibid.*, June 1, 1943, 4). This would permit a surplus country to even-

59. White explained to the Federal Reserve Board that the World Bank would be responsible for capital transfers. "Many of the loans will be risky and there will be some losses. That is one of the reasons why we insisted that the Bank be an international bank rather than to take the risks by ourselves. We felt that the benefits would be world-wide and that other countries should bear part of the risk" (White to the Board and Reserve Bank Presidents, Board Minutes, March 2, 1945, 17). The Bank was also expected to remove the impediment to economic development arising because risk-averse private lenders restricted lending to developing countries or charged excessive risk premiums. Although no evidence was presented, this conclusion was widely held.

tually limit borrowing and expansion of its money stock. The British would not accept this proposal. They remembered the policies of surplus countries (the United States and France) in the 1920s and did not intend to repeat the experience.

As the plan developed, the Board's discussion of substantive issues ceased. Board staff participated actively in meetings organized by the Treasury, but few of the issues they raised came before the Board. The Board never considered the merits of alternative proposals and objections to the plan by leading bankers and the New York reserve bank.

The Board's consideration of the proposals that became the Bretton Woods Agreement is remarkable for the failure to discuss substance. This was not its initial intention. On March 7, 1944, Governor Menc S. Szymczak proposed that the Board approve the joint statement of a committee of international experts provided the Board would participate in the selection and control of the United States representative to the fund (Board Minutes, March 7, 1944, 1).⁶⁰ The Board did not act. The following day the Federal Advisory Council, meeting with the Board, supported the principle of exchange rate stabilization under an international agency but mentioned no details. A week later, Szymczak asked whether the Board wanted to suggest changes in the plan.⁶¹ There was "general agreement . . . that if a plan were to come into existence it would not be possible for the Board to propose any fundamental changes" (Board Minutes, March 13, 1944, 2). The only decision was that a majority of the Board wanted "a voice in the selection of the American member of the board of directors" (3). "Reference was made to the fact that discussion of the plan up to this point had been strictly on a staff level and that none of the interested heads of agencies of the Government had in any way committed himself to what had been done" (4). The Board agreed to wait and not take a position until other agencies did. It instructed Goldenweiser, one of the Board's representatives at the technical discussions, to say that the Board's representatives did not speak for the Board.

60. Menc S. Szymczak, who served from 1933 to 1961, was a professor of business administration at DePaul University in Chicago when he was appointed to the Board. He had been active in Chicago area banking and had served also as comptroller of the city of Chicago. He was the Board's expert on international economics and participated in some of the Treasury meetings preparatory to the Bretton Woods Conference. Later he served as director in charge of rehabilitation of the German economy, on leave from the Board. His long service is explained by appointment to a twelve-year term in 1936 followed by a fourteen-year term beginning in 1948. He resigned six months before his term expired (Katz 1992).

61. Before the meeting, each of the members received a copy of the Joint Statement of Experts, a synthesis of the Keynes and White plans, and a statement of the positions taken by the Board's staff in the discussions.

This was either subterfuge or myopia. The Treasury was moving rapidly toward agreement on the plan. Morgenthau called a meeting in mid-April to discuss next steps. Eccles reported to the Board that Morgenthau had asked whether the Board would make a commitment to the plan. Eccles said no, the discussions had been at the staff level, and "it was understood that no commitments had been made or were expected at this time. I said it had been my understanding that the principals would meet and consider the report of the technicians, after which there would be an opportunity to discuss the matter, and that no such meeting had been called" (Board Minutes, April 18, 1944, 2). White, who was present, did not agree. The conference "would not go outside of the statement of principles" (1).⁶² The Board hesitated, neither endorsing nor opposing the plan.⁶³ Instead it adopted a statement saying that "no governments are committed by action of the technicians. It now becomes necessary for the executive branch of the Government to consider the proposal of the technical experts and to determine what course of action in this matter should be undertaken and ultimately what program should be recommended to Congress" (Board Minutes, April 24, 1944, 2). The Board voted five to one to approve the statement. McKee abstained because he said the statement had no value.

Late in May the president announced an international conference to begin July 1 at Bretton Woods, New Hampshire. Governor Szymczak told the Board that, on June 15, technical experts from twelve countries would meet to prepare the conference agenda. Eccles, who was not present at the Board meeting, had agreed to be a member of the United States delegation. Some of the Board's staff would serve as members of the conference staff.⁶⁴

The Board members agreed that the main issue they faced was how the Board wished to counsel Eccles as their representative (Board Minutes, May 31, 1944, 3). Governor McKee asked for a meeting with the reserve bank presidents to hear objections from President Sproul and to discuss the plans "point by point" (3).

The meeting was held on June 6, but the "point by point" discussion did

62. Goldenweiser was present also. He told Eccles that agreement with the statement of principles meant a commitment to a major part of the plan.

63. This was not true of the New York bank. Sproul was opposed, and his vice president, John H. Williams, had made several public statements in opposition. The New York board of directors voted unanimously in October 1943 and June 1944 to endorse the position taken by Sproul and Williams (Minutes, New York Directors, June 19, 1944, 208-9). At Morgenthau's request, Eccles agreed to suggest to Sproul that Williams desist from criticism.

64. Szymczak reported that White had agreed that John H. Williams could come as an assistant to Eccles if Eccles wished. Later he insisted that Williams could participate only if he accepted the Joint Statement of Experts as the basis for discussion. He was sure Williams would not agree to the statement.

not occur. The main reason was that Eccles was now a member of the United States delegation, and the conference was only a few weeks away. Eccles did not attend the meeting; it was chaired by Vice Chairman Ransom, who opened the meeting by limiting discussion “to the question of how to make the international fund serve the best interests of this country, including the Federal Reserve System, rather than the question whether the international fund should be created or some other mechanism devised” (Board Minutes, June 6, 1944, 2–3). This limitation prevented Williams and Sproul from proposing an alternative. Governor Szymczak proposed removing additional topics from discussion. The meeting should discuss issues that had not yet been decided at the technical level, how the proposed arrangement would affect the United States economy and Federal Reserve operations, and how to raise the United States contribution to the fund. This was opposite to the position he had taken a few months earlier.

The most substantive discussion came after Goldenweiser distributed copies of the plan agreed to by United States, British, and Russian experts. The opening paragraph said in part: “No government is formally committed. In practice, the governments are committed, except that Congress can refuse to ratify” (Board Minutes (June 6, 1944, 4)).⁶⁵ Sproul responded that “the plan as indicated is the wrong way to approach the problem” (8). He recommended that the conference concentrate on the immediate postwar problem of providing borrowing and lending arrangements for the transition from war to peace. Ransom replied that the international conference would not consider alternative proposals. It would be limited to discussion of the prepared joint statement. Sproul’s reply summarized what had happened. He was now faced with the outcome of “the procedure which had been followed of discussions at the technical level, with no commitments . . . leading inevitably to the position where, without having expressed its views or having been able to develop its point of view, the System would be committed to a program on which it was stated there was to be no variation except as to details” (9). Sproul threatened to oppose the program when it came before Congress.⁶⁶

65. The proposal Goldenweiser distributed contained many of the provisions in the final agreement. The fund would have \$8 billion from countries in the United Nations. Country quotas would be paid 25 percent in gold. Quota sizes had not been set. The fund was limited to financing trade; capital movements were explicitly excluded from fund lending. Exchange controls on current account were to be removed in three to five years, but capital restrictions were permitted.

66. Williams asked whether all countries agreed at the technical level. Goldenweiser replied that he knew only about England and Russia. He agreed that the fund “was wholly inadequate” for the postwar transition. It would have to be part of a program of lending and relief (Board Minutes, June 6, 1944, 11).

Those who spoke in favor of the plan did not discuss it. They spoke in favor of international cooperation and the need for monetary stability. Sproul and Williams, supported by Governor McKee, wanted to limit agreement to a transitional arrangement. Most of their arguments did not attack the plan directly; they argued that it was not appropriate at that time.

Sproul, Williams, and many bankers disliked the plan partly for the lack of attention to transitional problems. They saw, correctly, that the fund's resources were inadequate for the task of reestablishing an international payments system. At the time of the Tripartite Agreement, they had accepted the principle that exchange rates had to be set collectively. For the longer term, they preferred a system, like the Tripartite Agreement, based on gold and fixed exchange rates. They viewed the British commitment to full employment as inconsistent with stable exchange rates. They were skeptical about Britain's willingness to end imperial preference, and they believed that Britain's transition to peacetime stability would take more than three years. Although Sproul and Williams did not express their distaste for an international organization, they must have seen the plan as a further weakening of New York's influence on international economic policy.⁶⁷

A central concern of the opponents was often implicit in their remarks. The agreement reversed a central principle of the classical gold standard. Countries on the gold standard had to adjust domestic policies to maintain their exchange rate. The agreement allowed international policy to adjust to domestic policy. If a country adopted a full employment policy that was incompatible with its exchange rate, it could borrow from the fund to cover its current account balance or, if the problem persisted, it could devalue. This central principle was acceptable to the British and the Americans, so much of their negotiation was concerned with how the principle would be carried out in practice. This involved the size of the fund, how much could be borrowed, what happened if a country's surplus became large relative to the fund, and so on.

Williams addressed part of the transitional arrangement at the meeting: "This is a stabilization plan with all the stabilization measures left out" (Board Minutes, June 6, 1944, 16). The British press, he said, was exultant: "Lord Keynes is said to have said that this plan is the opposite of the gold standard. If this is so, I think that we should declare that this cannot be the opposite of the gold standard" (16). Later he added: "The essence of monetary stability is to stabilize the major currency and all else flows from that.

67. Williams's proposal tried to solve the transition problem by permitting different speeds of adjustment to convertibility. At first the United States, Britain, and a few others would adopt stable exchange rates. Other countries would have more time to adjust. At the time, as much as 50 percent of all trade was denominated in pounds sterling.

If you do that, it is much easier to permit of exchange controls and exchange rate variations for the younger countries. That does not really affect stability" (17).

Alvin Hansen replied that countries were unwilling to deflate. Without the plan, the international system would lack discipline. The issue was internal, not external, stability. Turning to the unmentioned concerns about British postwar policy, Hansen was hopeful. The plan, he said, "would exercise moral restraint against unsound policies" (*ibid.*, 20).⁶⁸

Karl Bopp (Philadelphia) pointed out that if the fund had existed in the 1930s, it would not have prevented any devaluation that took place. But he favored international cooperation. Unlike Williams, he believed that exchange rate adjustment was important because it was unlikely that countries would set postwar exchange rates correctly.

The meeting concluded without reaching agreement on the plan or discussing most of its provisions. Those present agreed only on the importance of the System's being consulted on the choice of the United States director and having reports sent to the chairman of the Board of Governors as well as the secretary of the treasury and the secretary of state.

At the June 19 meeting, with McKee absent, the Board unanimously approved Eccles as the Board's representative at the conference and gave him full discretion to act for the Board. In an attempt to silence Sproul and Williams, the Board agreed that "public expressions of differences of opinion within the System would tend to impair effective representation at the international conference and to destroy any influence that the System might have" (Board Minutes, June 19, 1944, 8).

The meeting at Bretton Woods lasted three weeks. At its end, forty-four countries agreed to the plans for the International Monetary Fund (IMF) and the World Bank. In contrast to the 1920s, representatives of the United States and British treasuries ran the meeting. Central bankers had a modest role.⁶⁹ In contrast to the League of Nations agreement, the United States

68. In correspondence with Jacob Viner, Keynes wrote that he favored price stability as a goal and was skeptical of the alleged advantages of devaluation. The main occasion for devaluation, he wrote, was when efficiency wages increased relative to wages abroad. Viner replied that the wage criterion "accepts the business agent of the powerful unions as the ultimate and unlimited sovereign over monetary policy." See Meltzer 1988, 241.

69. Morgenthau led the American delegation. It included Fred M. Vinson, Dean Acheson of the State Department, Harry Dexter White, and four members of Congress. Eccles was the only representative of the Federal Reserve, but Edward E. Brown, president of the First National Bank of Chicago and chairman of the Federal Advisory Council, was a member. Senator Robert A. Taft was omitted because he was opposed. The British delegation, led by Keynes, also included only one representative of the Bank of England. Williams refused to accept the restriction that his comments remain within the framework established by the proposal, so he did not attend.

delegation included key members of Congress. White's assistant, Edward Bernstein, described the work of the conference as modest: "Everything of importance had been discussed and settled in the two years of discussion before the Conference" (Black 1991, 47).⁷⁰ This refers more to the IMF than to the World Bank. The bank agreement was much less developed before the meeting because there was less controversy about the main provisions, and no agreement about the bank would have been approved if countries had not agreed on the fund.⁷¹

The Federal Reserve Board's principal effort after the conference was to include an international financial council in the bill authorizing United States participation in the fund and the bank.⁷² The proposed council, with the Board represented, would supervise, approve, or reject decisions by United States representatives to the bank and the fund before any action could be taken. The Treasury agreed to an informal arrangement but would not include the council in the legislation.⁷³

70. Bernstein served as chief technical adviser of the United States delegation and chairman of the Committee on Unsettled Questions. Later he became the IMF's first director of research.

71. At one point Morgenthau (Blum 1967, 432) thought that a single board of directors should coordinate the work of the fund and the bank. Proposals of this kind reappeared many times.

72. Eccles and the Board also attempted to silence the proposal's critics at the New York bank. On September 19 Eccles read a statement that he proposed to give to the presidents. The statement reviewed the discussions held the previous spring, then concluded: "The public expression of an adverse attitude, if any, on the part of any of the Federal Reserve Banks and their officers would be likely to impair the usefulness of the System in relation to the problems growing out of the conference" (Board Minutes, September 19, 1944, 6). Eccles explained that by attending the conference he had committed the Board to support the plan. Only McKee argued against the statement. He could accept a statement saying that no one could speak for or against the agreement, but not a one-sided statement. The Board approved the statement with McKee voting against. When the Board met with the Presidents Conference, the statement was the last (eleventh) item on the agenda. Eccles read the prepared statement. Sproul responded that on an issue of this importance, until it became law, "he had a duty to express his views and that if . . . such an expression [was] damaging to the System then he would have to decide whether to leave the System, but he could not agree with the view that the officers of the System from here on should be muzzled" (Board Minutes, September 22, 1944, 31). President John N. Peyton (Minneapolis) supported Sproul. Eccles retreated. He thought it would harm the System, but they were at liberty to express conflicting views.

73. The Board obtained assurance from White that he would discuss the Board's request with Senator Wagner, chairman of the Senate Banking Committee, and other committee members. Since the proposal originated with the American Bankers Association, Morgenthau regarded it as additional evidence that the Federal Reserve represented the bankers. He had held that view for some time, so it did not take much to convince him (Blum (1967, 428). The Board's effort was an attempt to restore some of the System's responsibility for international monetary policy. At the same meeting, the Board voted to end the Treasury's Exchange Stabilization Fund, scheduled to expire on June 30, 1945. The Board asked that the Stabilization Fund terminate when the subscription to the International Monetary Fund became due.

The Board's resolution supporting ratification of the agreements included a provision asking Congress to create the council. It did not condition its support on the creation of the council, and it revised its earlier statement to remove the explicit reference to its membership on the council. The council "would not only advise the American governors and directors on the Fund and the Bank of its views with respect to the financial and monetary policies of the United States" but would also be authorized to act for the United States in matters that required approval under the agreements.⁷⁴ The Board approved the resolution, with Governor McKee abstaining (Board Minutes, March 21, 1945, 1-5). To reduce bankers' resistance, the Treasury supported the proposal.

The System remained divided on the proposal for the fund. Except for McKee, the governors supported the plan. At the New York bank, Sproul and Williams favored the bank but opposed the fund, usually stating their opposition as a matter of timing, not principle. Other presidents remained undecided or neutral. White attributed opposition or ambivalence to the influence of the American Bankers Association, which opposed both the fund and the bank.

In its haste to pass the bill, so as to show the international commitment of the United States before the San Francisco meeting to create the United Nations, the House did not ask Board members to testify. On June 21, Sproul and Williams testified at the Senate hearings.⁷⁵

74. Congress gave the Treasury main responsibility for the bank and the fund. The United States executive directors are assistant secretaries of the treasury. The secretary is the United States delegate, and the chairman of the Board of Governors is his alternate.

75. Board members were enraged. On September 25 they discussed voting to censure Sproul. Their counsel advised them that they did not have a case. They knew his intention in advance and had authorized his right to appear more than a year before (in September) when the Board had tried but failed to silence the opponents. The Board then discussed statements by Chairman Beardsley Ruml, of the New York bank, and his use of this position as a platform from which to criticize the Bretton Woods Agreement. Eccles said that Ruml should not be reappointed when his term expired. Eccles also thought that the Board should dismiss John H. Williams because his "part time job [as vice president and research director] left him free to make public statements." They agreed only to prepare a statement of policy about public statements by bank officials (Board Minutes, September 25, 1945, 7-10). The Board prepared a letter to Chairman Ruml stating that Sproul's actions were "inappropriate and unwise." The Board "could not countenance" that degree of independence. Nothing could be done about the past, but in the future they must function as a system. The governors could not agree, so they voted to have Eccles speak to Sproul (Board Minutes, October 16, 1945, 3-4).

In December, Eccles reported on his conversations with Sproul and Ruml. Sproul replied that the directors of the New York bank would not accept the Board's position. Sproul made no commitment to be bound by the Board's positions. Eccles replied by threatening not to renew his appointment as president. Sproul repeated that he would not commit to a different position (Board Minutes, December 7, 1945, 4-7). Then Eccles discussed Williams's part-time appointment and his freedom to express his views outside the bank. Again, Sproul dis-

OBJECTIONS TO THE INTERNATIONAL MONETARY FUND

The Board's concern was out of keeping with the New York spokesmen's testimony. Both Sproul and Williams favored the World Bank and international cooperation. They did not explicitly oppose the fund; they opposed starting it at a time when there was no hope of restoring multilateral trade.⁷⁶ Their testimony went beyond their support for the fund. Williams, especially, proposed an alternative.

Their principal concern was Britain. The British still had imperial preference and were signing bilateral clearing agreements, contrary to the spirit of multilateral clearing. They could not redeem sterling balances, so these balances would overhang the fund. Sproul and Williams did not object to exchange controls on capital movements, but they doubted that controls on trade and payments would be removed in the foreseeable future. This violated the agreement and, of greater concern, increased the demand for dollars as the principal convertible currency. The fund would gain inconvertible currencies, lose dollars, and fail. Initially, the fund would hold only \$2.75 billion, so the risk of running out of dollars was high.

Exchange rate flexibility was also a concern. The agreement permitted devaluation, so exchange rates were not really fixed. A country could follow social or economic policies leading to "fundamental disequilibrium," then devalue its currency "if it seems to advance its interests" (Senate Committee on Banking and Currency 1945, 305). Further, the agreement was very explicit about the obligations of creditor countries, much less so about debtor countries. Since countries could devalue, they could force the adjustment on others instead of accepting it themselves. Countries would not agree on whether a devaluation was to gain competitive advantage or to respond to a "fundamental problem."

Williams was concerned particularly about Britain's large export sector and its precarious financial position.

The gist of the agreement is that if this country will create and maintain the conditions necessary for multilateral trade in a free exchange market, England will undertake, after a transition period of 3 to 5 years during which ex-

agreed. He was unable to control Williams's public statements. This did not satisfy Eccles, so he threatened not to renew Williams's appointment.

Eccles was no more successful with Ruml than with Sproul. Ruml agreed only that he would stay within the policy statements made by the Board; he said he would state his views on other public issues.

76. Sproul's Senate Banking Committee testimony is in Senate Committee on Banking and Currency 1945, 301-17. Williams's is in *ibid.*, 318-34. Eccles tried to prevent the testimony. He told Morgenthau that "he did not think the Banks should be asked to express their views on the Agreements, particularly since at least one of the Banks was opposed" (Board Minutes, February 23, 1945, 4).

change controls and bilateral currency arrangements are permitted, to relinquish her controls and join a multilateral exchange system. The agreement, however, carefully states that, even after the 5-year period, the member country shall be the judge of whether the conditions are right for relaxing its controls. (*Ibid.*, 323)

Williams argued, also, that the proposed system was more complicated than necessary. He advocated a “key currency” approach, with the dollar and the pound as the key currencies. Once Britain restored convertibility, other countries could fix their exchange rates to one of the key currencies. The main problem at the time was the British transition and the large volume of inconvertible sterling balances left from the war.

Both Sproul and Williams questioned whether the United States should enter the agreement when there was great uncertainty about what Britain and others would do and when, if ever, they would do it.⁷⁷ White’s statements that adjustment loans might be made with five or ten years’ duration suggested that he too believed the transition would be long and difficult.

Potential dangers are not the same as flaws. Opponents who favored delay faced two major obstacles: the belief that, after the interwar experience, the United States had to show that it would support a multilateral approach and the conviction that the best time to get agreement was now. White did not disagree with many of the criticisms. He argued that reopening the agreement would not produce a better agreement.

Williams’s strongest argument was that in three to five years Britain would not be ready for multilateral trade and the elimination of current account restrictions. He estimated that the British war debt was \$12 billion and rising, and that the country faced current account deficits of \$1.2 billion to \$2 billion a year for many years after the war. These arguments lost some of their persuasive power when the United States later agreed to a \$3.75 billion loan to make the transition succeed.⁷⁸ But Williams was right about the difficulties Britain would have in the postwar period. He erred

77. “A set of vested interests and a network of discriminatory trade and currency practices will have grown up which it may prove difficult to break down” (Senate Committee on Banking and Currency 1945, 323). “The agreement may institutionalize exchange controls” (306). Bankers and others opposed the agreements because they gave away United States gold and supported deficit finance abroad, and because Keynes supported them. The American Bankers Association, and other bank associations, testified in opposition (James 1996, 64–65).

78. The French also borrowed \$800 million to help in the transition. This loan came from the Export-Import Bank, so it did not require congressional approval. William McChesney Martin Jr., head of the Export-Import Bank and later chairman of the Board of Governors, opposed the loan. The Treasury insisted, and the loan was made (Black 1991, 56).

only in being insufficiently pessimistic about British policy and prospects and the problem of maintaining convertibility. The pound did not become a fully convertible currency until 1979.

Major newspapers supported New York's position and either opposed the agreement or wanted major changes. Senator Robert A. Taft (Ohio) led the opposition in Congress. Taft saw the World Bank in much the same way as Morgenthau described it to White at the start of negotiations—a new type of deficit finance, an extension of President Roosevelt's New Deal into a new class of problems to the benefit of other countries (Blum 1967, 429).⁷⁹

On June 8 the House approved the agreement by a wide margin. Ratification by the Senate was more difficult. The Treasury worked for passage by offering rosy forecasts and minimizing the difficulties of transition from war to peace (*ibid.*, 436). Late in July, the Senate approved the agreement by a two-thirds majority.

The British loan agreement, signed in December 1945, imposed many of the restrictions Williams wanted. After the loan's ratification in July 1946, Britain agreed to ratify the Bretton Woods Agreement. It agreed to make the pound convertible within a year and relinquished the long transition to convertibility permitted under Bretton Woods. Trade discrimination against the United States had to end by December 1946.⁸⁰ In return, the United States lent \$3.75 billion at 2 percent interest, repayable over fifty years beginning in 1951 and settled lend-lease obligations of approximately \$17 billion for about 4 percent of the claim. Since the loan was fixed in nominal value, United States inflation eased repayment; British inflation and devaluation increased the cost.

The Bretton Woods Agreement Act directed the Treasury to pay the \$2.75 million subscription to the International Monetary Fund in installments. The Exchange Stabilization Fund contributed \$1.8 billion of the profit on the 1934 revaluation of gold. The Treasury paid the remaining \$950 million in dollars and non-interest-bearing notes, payable from tax

79. Blum (1967, 427) lists the *Wall Street Journal*, *New York Times*, *World Telegram*, and others as opponents. Morgenthau believed that criticism of the fund was misplaced. The fund would be open only to countries capable of keeping exchange rates stable, and its loans would be only for short-term trade finance. (429). Proponents included the national labor unions, the Independent Bankers Association, and most economists.

80. The fund began operations in March 1946 under the leadership of Camille Gutt, a Belgian. Britain removed restrictions, as promised, in July 1947, followed by the postwar British exchange crisis in August. Under the "scarce currency" clause of the IMF agreement, the British could continue trade discrimination if the fund declared the dollar "scarce." A main reason for the early postwar discussion of the dollar shortage was to have the dollar declared "scarce." The clause was never invoked.

revenues. The \$950 million was an ordinary expenditure. To fund the \$1.8 billion, the Treasury transferred \$1 billion in gold to the IMF and, in February 1947, sold \$800 million in gold certificates to the Federal Reserve.⁸¹

Despite the emphasis on trade and avoidance of discrimination in the lend-lease agreement, countries did not adopt a trade agreement at the Bretton Woods Conference. In fact, the British delegation was under orders not to discuss trade policy, so the conference limited its statement to a recommendation favoring cooperation in trade matters. However, the British loan agreement also committed the British to participate in a trade conference. This was a major change from Keynes's policy of separating trade and payments, then neglecting trade. The conference, held in Havana, Cuba, from December 1947 to March 1948, brought back the conflict between the United States, at the time the proponent of open, multilateral trade, and the British, still attached to preferential arrangements with its empire.

The conference agreed that preferences would end within five years, but the agreement had so many exceptions that the United States Congress would not approve it. The Truman administration withdrew the agreement, and it was never ratified (Presnell 1997, 227). Instead, countries adopted the General Agreement on Tariffs and Trade (GATT), negotiated separately. Originally a transitional arrangement, GATT became the post-war trade organization until it was replaced by the World Trade Organization fifty years later.

The International Bank for Reconstruction and Development (World Bank) created much less controversy at the Bretton Woods Conference. The consensus was that private international lending would remain small after the many loan defaults in the 1930s. The plan was that the World Bank would lend directly and encourage private capital lending by guaranteeing part of the loans. John McCloy, the first governor, thought the bank would concentrate on reconstruction of wartime damage, then close (Dominguez 1993, 377).

The bank started slowly. The Marshall Plan took over much of its original task of reconstruction. By the 1980s, private capital movements had increased. Contrary to the belief under which the bank was organized, most postwar financial problems in developing countries came about because of too much lending, not too little, particularly short-term lending.

81. The Treasury issued \$1.75 billion of special non-interest-bearing notes to the IMF, in effect borrowing back and deferring payment of part of its subscription. It then used the \$800 million balance obtained from issuing gold certificates to retire \$500 million in debt from the reserve banks and \$300 million to offset an outflow of gold in January (Fforde 1954, 194). These operations neutralized the effect on the monetary base.

The bank specialized at first in loans to developing countries and technical assistance. Countries soon learned to offer the bank projects with the highest expected return. Although aware that money is fungible, the bank made few efforts to assess its role in financing or learn about the marginal projects that its loans permitted countries to undertake.⁸²

Summary on Postwar Planning

Early Keynesian models based their predictions of postwar depression, and a return to prewar unemployment rates, on estimates of consumer spending. Some market indicators gave a different forecast. For example, measures of risk, such as the spread between Baa and Aaa bonds, fell below 1 percent in 1944 and continued to fall as the yields on riskier bonds declined. By early 1946, the spread was below 0.5 percent, the lowest value reached by the series up to that time. There is no sign in these or similar data of an expected return to depression, unemployment, and bankruptcies.

Investors remained cautious, however. Wars have typically been followed by depressions. Stock prices fell in 1946 as profits declined. For the next five years, capitalization of profits remained low relative to past (or future) experience. Chart 7.4 shows the relation of corporate profits to market capitalization, the inverse of the capitalization rate. The relatively low capitalization rate (high value of the ratio) from 1947 to 1951 suggests that wealth owners did not anticipate continuation of robust profit growth.

In the event, the Keynesian models were inaccurate, the bond market forecasts correct. There was no postwar depression. Instead, the United States had a sharp eight-month recession as war plants closed or converted to peacetime production. The National Bureau of Economic Research dates the peak of wartime expansion to February 1945, two months before the end of the European war and six months before the end of the Asian war. By November the economy began to recover.

Though brief, the recession produced a large drop in output. Strikes for higher wages added to the loss. Industrial production fell 38 percent, but the peak unemployment rate reached only 4.3 percent of the labor force (Zarnowitz and Moore 1986).⁸³

Internationally, the World Bank and the International Monetary Fund

82. Later the bank broadened its scope to include poverty reduction, environmental concerns, women's rights, and other projects popular with contemporary political groups in the United States. Keynes had feared that locating the bank in Washington would expose it to pressures from United States domestic politics. James (1996, 72) quotes Keynes's comment that the United States wanted to move control of international economic policy from Congress to the new institutions where it had a large voice.

83. For 1945 as a whole, production (1992 = 100) fell from 25.9 to 21.2, a drop of 18 percent. The wartime peak in industrial production came in 1944 and was not surpassed until 1950.

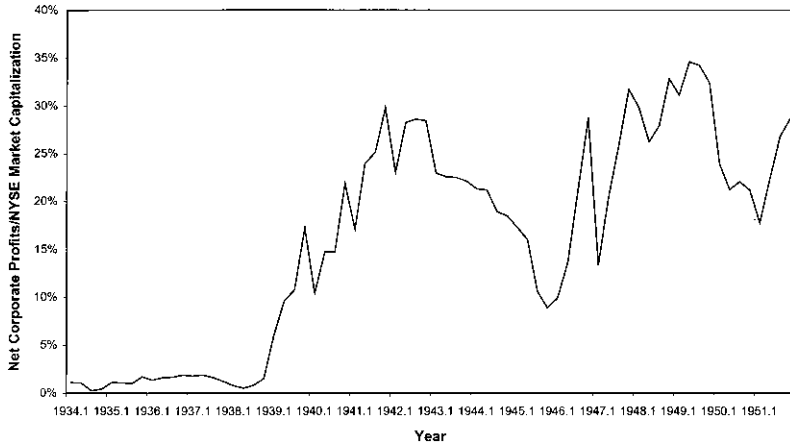


Chart 7.4 Net corporate profits to New York Stock Exchange market capitalization. Net corporate profits from National Bureau of Economic Research, 1934–38; Bureau of Economic Analysis, 1939–51.

did very little to smooth the transition from war to peace (Presnell 1997; Bernstein and Black 1991). As Williams and Sproul had insisted, the fund and the bank could not cope with the transition. After Roosevelt's death, Morgenthau and White resigned. The new secretary, Fred M. Vinson, recognized that the fund had limited resources. The British loan and, by 1948, the Marshall Plan provided sufficient capital transfer to Western Europe to permit these countries to import both nondurables and the capital equipment needed for reconstruction. The United States operated unilaterally, outside the institutions it had worked to establish.

James (1996, 60) summarizes the failure of the Morgenthau-White international economic policy and the substitution of a policy that recognized the reality of American power.

The U.S.S.R. withdrew. In the United Kingdom and the United States bitter conflicts were fought out over the ratification of the Bretton Woods Agreement. The United States adopted more and more a dollar-centered view of the world, more compatible with a different intellectual tradition than that which had led to Bretton Woods. Over the next two decades, the United States often in practice behaved as if a dollar exchange standard had been created in 1944. . . . The United Kingdom clung desperately to the role of the pound sterling as an international currency and, as a consequence, became an obstacle to economic liberalization.⁸⁴

84. Morgenthau and his aides worked hard and made several concessions to get the USSR to join the International Monetary Fund. Russia did not join until after the collapse of the Soviet Union in the late 1980s.

One of the anomalies of the period is that the American Bankers Association and most large New York banks vigorously opposed the IMF agreement. They could not, and did not, foresee the evolution of the fund. In the 1980s and 1990s, one of the fund's main tasks was lending to countries experiencing capital outflow to permit them to service debts to large banks in New York and other financial centers.

POSTWAR POLICIES, BELIEFS, AND ACTIONS

Fred M. Vinson left the Treasury after a year to accept appointment to the Supreme Court. His replacement was John W. Snyder, a Missouri banker and friend of President Truman who had served during wartime in several government agencies. Snyder remained secretary until the Eisenhower administration took office in January 1953.

Economic policy remained under the control of the Treasury. On the fiscal side, at the war's end, government purchases, mainly military spending, declined from \$97.3 billion to \$29.9 billion in the four quarters ending in second quarter 1946. Tax rates remained close to peak wartime levels. After a short postwar recession the economy grew, so tax receipts stabilized and the budget had a surplus.

After World War I, the budget shifted from a \$13 billion deficit in 1919 to a \$500 million surplus in 1921. The larger effort in World War II produced both a larger deficit and a larger swing—from a \$54 billion deficit in fiscal 1945 to surpluses of \$700 million in fiscal 1947 and \$8 billion in fiscal 1948. Part of the surplus was used to reduce tax rates in November 1945 and April 1948. The highest income tax rate in World War I was 66.3 percent on an income of \$1 million. By 1922 that rate was 55 percent, and a few years later, 24 percent. In World War II the highest rate, 90 percent at \$1 million, fell to 84 percent in 1946–47 and 77 percent in 1944–49. Thereafter the rate rose to 87 percent during and after the Korean War.⁸⁵

Despite pegged interest rates, pent-up demand, and fiscal stimulus from lower tax rates, inflation remained in the 4 to 6 percent range (deflator) through most of 1947 and 1948. By 1949 prices were stable or falling. This is one of the very few times in the postwar years to date that the price level declined.

Treasury operations were a main reason for reduced money growth and lower inflation. The Treasury used the proceeds of the Victory Loan in 1946

85. The 1948 act permitted income splitting, so it reduced the rate applicable to many married, high-income taxpayers. The act, passed over President Truman's veto, increased the standard deduction and reduced rates for all taxpayers by \$5 billion, about 11.5 percent of receipts.

Table 7.4 Postwar Changes in Composition and Distribution of Government Debt

CHANGE IN COMPOSITION ^a (BILLIONS OF DOLLARS)		CHANGE IN DISTRIBUTION ^b (BILLIONS OF DOLLARS)	
Bills	-4.9	Government agencies	10.3
Certificates	-12.0	Federal Reserve	1.0
Notes	-16.0	Commercial banks	-28.3
Bonds	-10.2	Corporations	-7.4
Nonmarketables		All others	-0.6
Treasury special issues	10.9	Total	-24.9
Saving bonds	7.0		
Total	-25.2		

Source: Board of Governors of the Federal Reserve System 1976.

^aFebruary 1946 to February 1949.

^bDecember 1945 to December 1948.

and its surpluses in 1947 and 1948 to retire debt.⁸⁶ Gross public debt reached a local peak at \$279.2 billion in February 1946. In the next three years, gross debt declined about 10 percent, \$28 billion. Table 7.4 shows the change in the distribution of the debt by type of securities and by ownership.

One of the Treasury's aims was to reduce the debt held in the banking system. As the table shows, it succeeded by selling the Victory Loan, consisting of securities ineligible for bank purchase, and by retiring notes and certificates held mainly by banks. The Victory Loan placed nearly \$11 billion (net) with nonbank holders.

The administration retired outstanding debt after reducing spending in 1946, 1947, and 1948 and running \$13 billion in cash budget surpluses, mainly in the 1947 and 1948 calendar years.⁸⁷ The surplus, an excess of Treasury receipts over expenditures, reduced the public's money balances. Using the surplus to retire debt held by the public restored those balances. Reducing debt held by commercial banks increased bank reserves and permitted banks to increase loans. Table 7.5 shows the changes in bank assets during this period. The most deflationary policy retired debt held by the reserve banks. This policy reduced the monetary base and did not restore the public's money balances.

86. The Victory Loan raised \$21 billion between December 1945 and February 1946. Gross public debt declined \$20 billion from February through December 1946, so the net effect was to cancel the Victory Loan. As in the text, the reduction was mainly in notes and certificates, held mainly by banks, so the combined effect shifted debt ownership from banks to nonbank holders. The Treasury's effort to sell bank-ineligible securities was less successful than the text suggests. During the Victory Loan, commercial banks purchased \$7 billion in the market, almost all of it from nonbank investors.

87. The Treasury also sold \$11 billion of nonmarketable special issues to its trust accounts to fund its obligations, and the public added \$7 billion to its holdings of government savings bonds.

Table 7.5 Member Bank Loans and Investments, December 1945 and 1948
(millions of dollars)

	TOTAL LOANS AND INVESTMENTS	TOTAL LOANS	TOTAL INVESTMENTS
December 1945	107,183	22,775	84,408
December 1948	95,616	36,060	59,556
Change	-11,567	13,285	-24,852

Source: Board of Governors of the Federal Reserve System 1976, 60-61.

Market yields changed very little during the period. After a short-lived decline to 2.08 percent during winter 1946, yields on long-term bonds remained between 2.15 and 2.25 percent until late in 1947. Thereafter, yields rose slowly toward 2.45 percent. These yields give no hint that the public anticipated sustained inflation. Growth of the monetary base and money suggest that inflation would remain low. Table 7.6 shows that, after an initial surge that includes the removal of price controls, the rate of inflation slowed in 1948. By the end of 1948, prices were falling. All of the 5.8 percent inflation in 1950 came after the start of the Korean War. During the years of low inflation and falling prices, the monetary base and money fell. Treasury debt retirement, not Federal Reserve policy, was the main influence on monetary growth and inflation. The Federal Reserve urged the Treasury to pursue deflationary policies, but it had little influence on decisions.

Since the Treasury used its surplus to retire debt, it had less reason to be concerned about interest rates. In similar circumstances in the 1920s, Secretary Andrew Mellon pressed the Federal Reserve to avoid actions that lowered rates. Secretaries Vinson and Snyder were more concerned about rolling over maturing obligations, so they continued to insist that wartime interest rates be maintained.⁸⁸

Unlike the bond market, the government saw a threat of inflation. President Truman called a special session of Congress in fall 1947 to restore price and wage controls, renew consumer credit controls, and introduce controls on commodity speculation. The Federal Reserve asked for secondary reserve requirements, a new power.⁸⁹ Congress did not approve any of these requests at the time, but in August 1948 it restored consumer credit controls on installment loans for one year to show its concern about inflation at election time. Although installment credit had not increased rapidly, the Board reimposed regulation W effective September 20, 1948.

88. When bond yields fell to 2.08 percent in the winter of 1946, Chairman Brown of the Advisory Council asked Eccles whether the Treasury was concerned that rates were far below the ceiling. Eccles replied that the Treasury had no financing in prospect and so was unconcerned (Board Minutes, April 24, 1946, 11).

89. The Federal Reserve proposal is discussed in the next section.

Table 7.6 Budget Surplus, Growth of Monetary Base, Money, and Prices 1946–51 (fourth quarter to fourth quarter)

YEAR	MONETARY BASE (%)	M ₁ (%)	CONSUMER PRICES (%)	CASH SURPLUS (BILLIONS OF DOLLARS)
1946	1.6	4.8	16.6	0.05
1947	1.0	4.8	8.5	5.66
1948	-1.6	-1.2	2.9	8.02
1949	-1.5	-0.1	-2.1	-1.30
1950	0.1	4.3	5.8	0.45
1951	4.1	5.0	5.8	1.23

Source: Surplus from *Federal Reserve Bulletin*; consumer prices is for all items, 1982–84 base, from Department of Labor.

Prices rose after the start of the Korean War in June 1950. The twelve-month change in consumer prices increased from -0.5 percent in June to 5.8 percent in December. President Truman disliked budget deficits; he proposed to fight the war with a balanced budget. In September Congress increased individual and corporate income tax rates and levied some new excise taxes on durable goods purchases. In January 1951 an excess profits tax passed Congress, retroactive to July 1950. An additional round of tax rate increases for individuals and corporations passed in October 1951. The net effect, as shown in table 7.6 above, was to continue surpluses in the cash budget despite the large increase in military spending. Total outlays rose \$30 billion from 1950 to 1952 (calendar years), an increase of 71 percent. Revenues rose almost as much, so the budget had a surplus in 1951 and a modest deficit in 1952.

President Truman's determination to finance the war by taxation may have convinced the public that the wartime price increases were a one-time change, not the start of sustained inflation. Although measured inflation rates were more than double the interest rate on long-term Treasury bonds, rates on long-term bonds remained below the 2.5 percent ceiling. Between late June and December 1950, the long-term rate rose only from 2.34 percent to 2.39 percent. Short-term rates rose slightly more—from 1.17 percent to 1.37 percent on new issues of Treasury bills. Growth of the monetary base remained low throughout. These data suggest that the Federal Reserve's concern about inflation was misplaced. Its error, repeated by many economists at the time and subsequently, was a failure to distinguish one-time price level changes from the sustained rate of change that constitutes inflation.

The period provides evidence on the role of money in inflation. The surge in the price level was nonmonetary; recalling wartime shortages, rationing, and allocation of scarce materials, consumers and producers bought goods and ordered larger inventories. Prices rose, but base money

growth remained low or negative. Within a few months, the price level stabilized.

The dominant view in the academic profession and the Board of Governors was that the price increases were evidence of inflation, but that monetary policy could do little to prevent inflation.⁹⁰ Eccles's strong belief was that the budget was a much more important instrument for responding to depression or inflation. Unlike many of the Keynesian economists who had joined him in urging larger deficits during the 1930s, Eccles urged budget surpluses after the war. He forecast postwar inflation, not depression, so he recommended tax increases at every opportunity and supported other policies including maintenance of price and wage controls and consumer credit controls until peacetime production was restored (Eccles 1951, 409).⁹¹ The Board's staff and its members reflected the views of contemporary economists, as they had in the past and would in the future. They minimized or denied the effect of money growth on inflation. Such views now seem extreme, but they dominated professional writing in the 1940s and 1950s.⁹²

A central belief at the time was that the large wartime increase in government debt had rendered traditional monetary policy useless. Banks did not borrow from reserve banks, so discount policy could not be effective. Eccles described the discount rate as "largely irrelevant" because banks could sell government securities (*ibid.*, 420): "A moderate rise in yields on government securities would not prevent and would only slightly restrain banks from selling securities in order to make loans. On the other hand, an increase in rates large enough to exercise effective restraint on banks may have to be too great or too abrupt to be consistent with the maintenance of stable conditions in the government securities market" (420).

90. "The notion that inflation is a monetary phenomena and that it can be prevented by refusing to allow the quantity of money to increase is to mistake a symptom for a cause" (Robinson and Wilkinson 1985). See also Kaldor 1982.

91. The Board formally disapproved of tax reduction in 1947 and notified the president (Board Minutes, June 9, 1947, 1-2). Eccles also proposed, and the Board agreed unanimously, to recommend to President Truman that he sign the Taft-Hartley Act. The Board recognized that labor relations was not its field but agreed that strikes and labor unrest would disrupt production and raise prices. The letter was approved and sent (Board Minutes, October 17, 1947, 1-5).

92. Three sources will suggest how broadly these views were held in the academic community. Henry Villard (1948) was commissioned by the American Economic Association to survey monetary theory. The paper was published in the association's *Survey of Contemporary Economics*. The Committee on the Working of Monetary System (1959), known as the Radcliffe Committee, denied any role for a policy of monetary control in Britain. As late as 1965, the American Economic Association's *Readings in Business Cycles* has no role for money (Gordon and Klein 1965). Citations of popular textbooks such as Ackley 1961 or of econometric models of the period provide additional evidence.

Eccles had always chafed under Morgenthau's control of interest rates and monetary policy. In the 1930s the Treasury had exercised control by threatening to use the Exchange Stabilization Fund and other Treasury accounts to buy securities. Eccles and the Board believed they were in a weak position to pursue an independent policy or counter the Treasury. The Federal Reserve held a small securities portfolio relative to the gold inflows, so it had no way to control the monetary base had it chosen to do so. These problems vanished with the wartime growth of debt and the Federal Reserve's portfolio. Now the argument was that the large debt made traditional monetary policy tools and techniques useless.⁹³

Further, market-determined interest rates would confront the Treasury with "an impossible debt-management problem" (*ibid.*). The Treasury would be at the mercy of the market and subject to chaotic swings in interest rates. Therefore Eccles restricted his recommendations for monetary policy and debt management to modest increases in short-term rates on bills and certificates, more reliance on selling debt to the public, and new powers to control bank reserves. Since the Federal Reserve owned most of the outstanding Treasury bills and (pegged) long rates exceeded short rates, the main effect of a rise in the bill rate would be the increased interest cost as the bill rate rose and other rates moved in response.

The New York Federal Reserve Bank, and many bankers, held a different view. Directors of the New York bank began pressing for higher rates on Treasury certificates late in 1944. In December they arranged to meet with Secretary Morgenthau to convey their views (*Minutes, New York Directors, December 28, 1944, 112*). In January 1945 they discussed the difficulty of maintaining the existing yield curve (pattern of rates) when holders were free to shift from one maturity to another (*ibid.*, January 18, 1945, 139).

Allan Sproul, president of the New York bank, spoke out against the prevailing view. In a December 1946 speech he argued publicly that small changes in interest rates would have beneficial effects by changing bond values and by introducing uncertainty about future market rates. Uncertainty would remove the belief that reserves could be obtained on demand without loss of principal. He believed this would have a modest effect on

93. This belief in the impotence of monetary policy was so widely held that it is rare to find a memo suggesting the opposite. One such memo, by Walter Salant, warned that the swing in opinion since the 1920s went too far. Monetary policy was not totally impotent, Salant wrote, and experience did not support total impotence. Drawing on Currie 1934, he argued that policy had not been easy during most of 1929–33 or in 1937–38. He concluded with a double negative: there is no reason to believe that monetary policy "cannot exert a significant expansive influence" (Salant 1948, 8). The memo, dated May 21, concerns mainly policy in recession. At the time, Salant was on the staff of the Council of Economic Advisers. He sent me a copy of the memo.

the banks' decisions to expand. Sproul did not claim that monetary policy could have more than a secondary role in controlling inflation, but he wanted to adjust market yields to reflect the change from war to peace and the increased risk of inflation (Sproul 1947).

At times Sproul pressed for a policy change. He was one of the first to urge the Treasury to relax the ceiling on long-term interest rates. In 1950, before the Korean War renewed concern about inflation, he told his System colleagues: "There cannot be a purposeful monetary policy unless the Federal Reserve System is able to pursue alternating programs of restraint, neutrality, and ease. . . . The terms of Treasury offerings for new money, and for refunding issues, must be affected" (Board of Governors File, box 1433, April 4, 1950).

Vinson remained at the Treasury about a year. His successor, John W. Snyder, knew very little about monetary or fiscal policies. Morgenthau's staff continued to serve Vinson and later Snyder. Its priority was minimizing the current budget cost of financing the debt.⁹⁴ Further, by maintaining the pattern of rates the Treasury staff kept control of interest rates away from the Federal Reserve. Though nominally an independent agency, the Federal Reserve remained under Treasury control.

Issues and Views

In May 1947 the Board unanimously approved the text of a long letter that Eccles sent to Thomas B. McCabe.⁹⁵ McCabe had expressed concern about inflation and Federal Reserve policy. Eccles's reply shows the ambivalence that characterized policy at the time. Concern about inflation had to be balanced by concern that an effective policy would require a steep rise in interest rates.⁹⁶ "It was not possible by any practicable means, except higher taxes, to contract either current income or accumulated buying power in the form of liquid asset holdings" (Eccles to McCabe, Board Minutes, May 28, 1947, 7).

94. Eccles describes the clash with Snyder as arising from conflicting responsibilities, not personalities (Eccles 1951, 421). Casimir Sienkiewicz, who worked in the System from 1920 to 1947, is less charitable. He described the Treasury as under the control of its staff. "Mr. Snyder did not really know very much about the problem he should have been coping with" (interview with Casimir Sienkiewicz, CHFRS, March 18, 1954, 3).

95. At the time, McCabe was chairman of the Philadelphia Federal reserve bank. In 1948, he succeeded Eccles as chairman of the Board of Governors.

96. "Every member of the Open Market committee is aware of the disastrous consequences that would follow if the system were to attempt to force rates up to levels that would be effectively restrictive on private borrowing" (Board to McCabe, Board Minutes, May 28, 1947, 8). The letter spells out the "disastrous consequences" as substantial losses on bank (and other) portfolios, increased cost to the Treasury, and loss of any freedom of action by the Board, a reference to the political consequences the Board most feared.

The issues at the time were in several respects a replay of earlier issues in a different context. Contemporary writers, within and outside the Federal Reserve, expressed concern about whether monetary policy could operate with a large debt. This concern was both economic and political. A rise in interest rates sufficient to stop inflation would lower bond prices below par (initial offering price), imposing losses on all holders. Reserve officials and some senior staff could recall the political response in 1920–21 to higher interest rates and the public's losses on war bonds.⁹⁷

Vestiges of the real bills doctrine remained. Board members feared that speculative credit would increase: "It is too much to expect that further increases in bank credit will be confined to productive loans, the more likely outcome, in the absence of repressive measures, will be an increase in speculative credit" (Minutes, FOMC, October 14, 1947, 4). Under the real bills doctrine, speculative use of credit would be evidence of inflation. Even the New York reserve bank, which had rejected the real bills doctrine in the 1920s, expressed concerns about "speculative purchasing and carrying of securities" and opposed loans for that purpose (Minutes, FOMC, June 10, 1946, 10).

Eccles's reasons for opposing an increase in interest rates are a mixture of economic and political considerations that seem inconsistent. He too referred to 1920–21 and argued that rates could not be changed until the public supported the move (*ibid.*, 10–11). At times he opposed an increase in interest rates because a small increase would have little effect.⁹⁸ But he also claimed that the effect on the prices of government bonds would be too great.⁹⁹

Eccles's economic views seem confused. In the 1930s he saw no reason for Federal Reserve action because monetary policy was ineffective when interest rates were low in a recession. In 1946, a period of anticipated ex-

97. "Mr. Evans stated that he was opposed to increasing the rate on certificates because the burden of such an increase would fall on the farmers, and the small businessmen, and the taxpayers. He recalled the situation after World War I, when the Federal Reserve was blamed for increasing interest rates, tightening credit, and causing a fall in prices, and he said that in some places the Federal Reserve system was still held responsible" (Minutes, FOMC, May 2, 1947). Rudolph M. Evans served as a member of the Board of Governors from March 1942 to August 1954. He held the "agricultural seat" after the resignation of Chester C. Davis in April 1941.

98. "Chairman Eccles did not think that a higher rate of interest—unless it was a very much higher rate—would have any substantial effect in curbing the demand for credit for private purposes" (Minutes, FOMC, June 10, 1946, 10).

99. A partial resolution of the apparent inconsistency is that there was a large debt outstanding, so a small change in interest rates would have a larger effect on private wealth than heretofore. Williams used the same argument, however, to claim that a small change "would have a greater retarding effect than in the past" (Minutes, FOMC, June 10, 1946, 13).

pansion, part of his argument was that policy would have little effect unless the Federal Reserve undertook large-scale operations and raised interest rates substantially. He saw no way of stopping an expansion of private credit by rate action except by rates high enough to seriously affect the government securities market, and if such action were taken by the System "it would be received in much the same way as action to increase rates was received following the last war" (*ibid.*). But he also claimed that using the modest budget surplus to retire Treasury debt had increased bond interest rates in fall 1946. He urged additional retirements and favored rate increases on (nonmarketable) savings bonds to encourage purchases and reduce redemptions¹⁰⁰ (*Minutes, FOMC, October 3, 1946, 13, 17*).

Differences of opinion between New York and the Board were similar to the differences in 1928–29. New York, under the leadership of Allan Sproul, periodically pushed for higher interest rates. The Board preferred alternative methods of controlling credit. As in 1928–29, the Board was more concerned about the political response to higher interest rates and the effects on commerce and agriculture. Hence it favored control of specific uses of credit instead of more general policies. The Board's political concern is clear in the letter to McCabe: "If the Secretary of the Treasury were confronted with any such consequences as would be produced by the System's abandonment of support of the Government bond market, he would no doubt take the issue directly to the President who, in turn, would take it to the Congress if the Open Market Committee remained adamant. There can hardly be any doubt as to what the result would be" (*Eccles to McCabe, Board Minutes, May 28, 1947, 9*).¹⁰¹ During the rest of his term as chairman, Eccles held to this view. In his memoir, he recognized that he erred in not taking a more independent position (*Eccles 1951, 425*).

The Federal Reserve's failure to act raised legal as well as political issues. The Board's counsel advised "that the System would not be relieved of responsibility because the Treasury did not want the System to take action which it [the Board] believed . . . should be taken" (*Minutes, FOMC, January 23, 1946, 12*). Without political support, the Board believed it had to take the legal risk.

100. The reasoning is wrong. Debt retirements raise bond prices and lower interest rates, not the reverse.

101. This is a political argument, but the Board was also skeptical about the economic effects. The letter ends as follows: "Outside of the monetary cranks, no one at all informed on the subject would suggest that in the great complex of economic forces there is some simple monetary device that could preserve or restore economic equilibrium" (*Board to McCabe, Board Minutes, May 28, 1947, 10*). Eccles also expressed concern about large bank earnings if interest rates rose (*Minutes, FOMC, January 23, 1946*).

The Postwar Recession

An eight-month recession began in February and ended in October 1945. Data available at the time show a decline in nominal GNP of \$20 billion (9.7 percent) between the first and fourth quarters of 1945. Prices rose, and real GNP fell almost 14 percent.

Resources shifted to peacetime use. Government spending declined more than \$39 billion, nearly twice the decline in GNP, but spending on gross private capital formation rose from \$3.6 billion to \$15 billion in the same period. Private investment and consumption continued to increase and government spending continued to fall. By third quarter 1946, almost a year after the recession ended, private capital spending exceeded government spending for the first time since 1941.

Monetary actions were limited, so they had limited influence. Monetary base growth remained high during 1945 and fell with the budget deficit after the recession ended. Interest rates remained in a narrow range throughout the recession.

A major concern at the time was that readjustment to a peacetime economy would, via the Keynesian multiplier, bring a sharp decline in private consumption and investment. The data on nominal GNP and government spending suggest that the ratio of the two changes was about 1/2, far below estimates of the multiplier then in use.

First Steps, 1946–47

The Federal Reserve limited its initial postwar efforts to raising short-term rates on Treasury bills and certificates, ending the preferential discount rate for loans secured by governments, and asking for new powers. It wanted the Treasury to use its cash balance to reduce outstanding marketable short-term debt and issue more nonmarketable long-term debt to the public. During the war, the Treasury had sold nonmarketable series E bonds in small denominations to small savers and series F and G bonds in larger denominations. The public could buy and redeem these bonds on demand, but banks and financial institutions could not hold them. The System wanted to increase the amount outstanding and raise the limits on the amount a buyer could own (Board Minutes, February 18, 1946, 3–14).

Efforts to eliminate the preferential discount rate began before the war in Asia ended. In a letter to Vinson, who had just become treasury secretary, Sproul advised him that the System had two options under consideration. First was elimination of the preferential discount rate of 0.5 percent (for loans collateralized by government securities with one year or less to maturity). Second was an increase in the interest rate from 0.5 percent to

0.75 percent. The System's concern, he wrote, was the "abuses" that had developed. The use of bank credit to finance government security purchases and "great speculative" activity occurred "in an atmosphere somewhat reminiscent of the late 1920s" (Sproul to Vinson, Sproul Papers, FOMC, July 31, 1945, 1). The letter assured Vinson that the System would support the government securities market "into the indefinite future" and that the "Treasury would continue to borrow . . . at no more than the rates it is now paying" (1). The Treasury would not agree to the changes, so the preferential rate remained.

Sproul tried again in December 1945, after the Treasury had sold the Victory Loan. This letter repeated the earlier arguments and added new ones. The preferential rate was inflationary. It encouraged banks to expand credit and made it profitable for them to borrow from the reserve banks. Also, with the war ended and no further new borrowing likely, the earlier rationale was gone (Sproul Papers, FOMC, December 12, 1945, 2-3).¹⁰² Secretary Vinson's reply rejected the proposal. Throughout the winter, Vinson refused to accept the change, arguing that it would increase interest rates; the Federal Reserve repeated its arguments without success.

In late March, Sproul warned Eccles that the New York directors would vote to eliminate the preferential rate at the next meeting, April 4. Eccles asked for two additional weeks' delay because the Treasury had agreed to use part of its cash balance to retire \$4.8 billion of securities in March and April.

Further, to ease the Treasury's concern, the Board notified Secretary Vinson that it would keep unchanged the 0.875 percent rate on certificates when it approved the elimination of the preferential rate on certificates (Board Minutes, March 15 and April 12, 1946). Vinson objected that the reserve banks' action would raise interest rates. He continued to oppose the change.¹⁰³

The Treasury's position was more extreme than after World War I, when it insisted on no change in interest rates as long as it had to undertake large-scale financing. By spring 1946 the Treasury had current and prospective surpluses in its cash budget. It could now retire debt, but it continued to oppose even the slightest change in wartime monetary arrangements.

102. The quotations are from Sproul's draft. Eccles sent the letter to Vinson the following day.

103. Total member banks borrowing was about \$200 million to \$300 million at the time but had reached \$600 million earlier, the highest level since the early 1930s. The Treasury contributed to anti-inflation policy by running a surplus of \$754 million in fiscal 1946 and retiring debt of \$10 billion. The difference between the two is explained by costs of the IMF, World Bank, and veterans' loans not spent that year (\$3.9 billion), use of trust funds to purchase debt (\$5 billion), and sale of savings bonds (\$1.1 billion) to retire debt.

Treasury intransigence annoyed the Federal Reserve. In a strongly worded letter, the Board claimed that eliminating the preferential borrowing rate would stop further monetization of government debt without raising interest rates.¹⁰⁴ The Board assured him again that it would act to keep the certificate rate from rising (Board Minutes, April 19, 1946, 9). The guarantee of the 0.875 percent certificate rate irritated Sproul because it bound the System unconditionally (Memo, Sproul to Ruml, Sproul Papers, FOMC, July 19, 1946, 1–3).

On April 23 the Board approved actions by directors at New York, Philadelphia, and San Francisco to discontinue the preferential rate effective April 25. The announcement emphasized that the rate was a wartime measure and that the Board did not favor higher rates. Weekly average short-term rates in the New York market remained unchanged, but average discounts fell by \$100 million in the following week and, on monthly average, by \$300 million from March to May.

It had taken eight months since the end of the war to achieve this first, very modest change in wartime monetary policy. Another year passed before the System could raise the 0.375 percent bill rate. Moreover, the System continued to discount banker's acceptances at 0.5 percent.¹⁰⁵

Eccles told the FOMC that the Board was committed to the Treasury's interest rate policy until Congress and the public would accept higher interest rates. To gain support, he agreed to discuss the problem and the need for higher reserve requirement ratios and other new powers in the Board's annual report, so that the public would be aware of the Board's position. Sproul wanted to reopen the rate issue with Secretary John W. Snyder, who had just replaced Vinson. With respect to the new powers that Eccles wanted, Sproul noted that to be effective the System had to make credit less easily available and therefore more costly. Higher rates could not be avoided.

Sproul opposed an increase in reserve requirements on central reserve city banks.¹⁰⁶ His program at the time called for "some modest increase in short rates while maintaining the 2½ percent rate on long-term bonds."

104. Banks could still sell bills yielding 0.375 percent. The Federal Reserve was the principal and usually the only buyer.

105. The volume was small, however. Eccles questioned the manager (Robert Rouse) about the acceptance rate at the June 10 FOMC meeting. Sproul responded that the New York bank wanted to "go slow," a strange argument given his interest in raising rates. The rate was raised to 0.75 percent in July and 1 percent in August (Board of Governors of the Federal Reserve System 1976, 636). Sproul's argument recalls the New York reserve bank's policy of nurturing the acceptance market in the 1920s.

106. A letter to Eccles explained that, with interest rates unchanged, banks would sell securities to restore their ability to lend (Sproul to Eccles, Sproul Papers, Memorandums and Drafts, May 6, 1946). Eccles's reply argued that they had to use their existing powers or Congress would not grant additional ones. However, he argued also that the increase in require-

Other specific actions that he favored included using the budget surplus to retire long-term debt and increased sales of savings bonds and bank-restricted 2.5 percent long-term bonds.

Eccles disagreed about interest rates. It was not useful to overemphasize the importance of credit policy in discussions with the Treasury. He concluded a very lively exchange by repeating that “there was nothing that the System could do to unfreeze the rate structure, and that the best thing it could do would be to present the problem to Congress and point out . . . [that] the use of those powers under present circumstances [was] entirely inappropriate” (Minutes, FOMC, June 10, 1946).

The Board’s annual report for 1945 emphasized the “inherent limitations of the System’s existing statutory powers, under present conditions, or the inevitable repercussions on the economy generally and on the Government’s financing operations in particular of the exercise of such existing powers to the degree necessary to be an effective anti-inflationary influence” (Board of Governors of the Federal Reserve System, *Annual Report*, 1945, 1). Further, the Board argued that letting holders shift substantially into longer-term debt “would be undesirable because it would increase the cost to the Government of carrying the public debt” (5).¹⁰⁷

For the rest of 1946, the FOMC made recommendations to the Treasury for debt retirement and for new issues that would place more of the debt in private, nonbank hands. After the Board failed to get legislative approval of secondary (security) reserve requirements, it concentrated on legislation to increase maximum reserve requirement ratios, consumer credit controls, and margin requirements for purchasing and holding stock.¹⁰⁸

ments would force banks to sell short-term securities. They could then not sell these securities to increase bank loans (Eccles to Sproul, Sproul Papers, Memorandums and Drafts, May 17, 1946).

107. The Board proposed three changes in powers: authority to set a maximum amount of long-term debt (public and private) that a bank could hold relative to its deposits; power to set a secondary reserve of short-term securities that a bank must hold as a percentage of its deposits; and authority to increase reserve requirement ratios. The Board recognized that with excess reserves low, an increase in reserve requirement ratios would raise interest rates as banks sold assets. The Federal Reserve would acquire the securities to prevent higher rates. This is the first time I have found the Board clear on this point (Board of Governors of the Federal Reserve System, *Annual Report*, 1945, 8). Elsewhere the report recommended that the Treasury issue more nonmarketable debt, a recommendation the Board and Eccles made many times. The 1946 annual report repeats the same argument but omits reference to the cost of financing the debt when discussing the importance of lengthening the maturity structure of the publicly held debt (Board of Governors of the Federal Reserve System, *Annual Report*, 1946, 6).

108. In October the executive committee authorized the manager to engage in direct purchases and sales of United States securities with the International Monetary Fund and the World Bank. It rejected a request from the bank that the Federal Reserve stabilize the market for World Bank debt (Minutes, Executive Committee, FOMC, October 3, 1946, 10–11).

By October Sproul had become more cautious, citing a slowdown in business activity, the Treasury's debt retirement program, aggressive bank bidding for government bonds, and a rise in short-term rates of interest (Minutes, FOMC, October 3, 1946, 17). The last was "weak medicine" against inflation, but he was reluctant to be more aggressive with the economy weakening.

Meanwhile he proposed that the System prepare for its next moves—elimination of the 0.375 percent bill rate and 0.875 percent certificate rate. Increases in these rates would increase System earnings at the same time that Treasury borrowing costs increased. Since the System held most of the 0.375 percent bills, it could offset some of the Treasury's higher costs by restoring the franchise tax on earnings it had paid until 1933.¹⁰⁹ At the next meeting, in December, the executive committee decided to put Sproul's proposal into a memorandum for Secretary Snyder.

The Board considered three methods of paying interest to the Treasury: restoring the franchise tax; charging interest on Federal Reserve notes not backed by gold certificates; and eliminating charges for performing fiscal operations (Board Minutes, February 28, 1947, 38). A majority of the reserve bank presidents favored the franchise tax, provided the reserve banks maintained an adequate surplus. Eccles's concern was that a request for legislation would raise questions about the size of Federal Reserve earnings, the size (6 percent) of dividends paid to member banks, the amount of expenses, and the issue of ownership (39). Sproul responded that the questions could be answered, but he did not persuade Eccles.

The legal staff found an alternative. Under paragraph 4 of section 16 of the act, the Board could charge the reserve banks interest on their outstanding notes. After Eccles discussed the proposal with members of the House and Senate banking committees, the Board approved the tax in April.¹¹⁰ The tax was supposed to provide enough revenue to transfer 90 percent of the System's earnings to the Treasury.

Eccles and Sproul discussed the interest charge on notes with Secretary Snyder. Snyder agreed to the tax on note issues but delayed the increase in the 0.375 percent rate. Although Eccles argued that the decision about rates was the Federal Reserve's responsibility, the System did not act until the Treasury approved (Meeting, Executive Committee, FOMC, June 5,

109. Eccles proposed an alternative—exchange the System's 0.375 percent bills for a lower yielding bill. Sproul opposed giving the Treasury control of the rates paid to the reserve banks (Minutes, FOMC, October 3, 1946, 18).

110. Questions were raised about the Board's authority. The section of the act provided for the tax to restrict the note issue. Counsel ruled that the authority was broader, citing a 1920 discussion by Governor W. P. G. Harding.

1947, 4). Treasury Undersecretary Albert Wiggins explained the Treasury's hesitancy. A rise in the bill rate would cause existing certificates to fall in price.¹¹¹

On April 23, 1947, the Board voted to charge interest on the difference between the average daily amount of Federal Reserve notes outstanding and the average daily amount of gold certificates held by the reserve banks. Rates were not uniform at all reserve banks. New York and San Francisco paid more than twice the interest rate at St. Louis. In aggregate, the interest payments transferred 90 percent of the earnings of the reserve banks to the Treasury, about \$60 million at the time.¹¹²

It took nine months to go from first proposal to action. On July 3, 1947, the System withdrew its commitment to the 0.375 percent rate. Beginning July 10, the Treasury issued ninety-day bills at rising rates. By September the bill rate was 0.79 percent, close to the 0.875 percent yield on nine- to twelve-month Treasury certificates. The rate continued to rise, forcing reconsideration of the rate on certificates as Sproul had hoped.¹¹³ Two years after the war ended, the Federal Reserve had taken the first small steps toward market-determined rates on short-term securities, but with long-term rates pegged, bill rates had not increased enough to attract banks to hold them (Meeting, Executive Committee, FOMC, August 6, 1947, 6–9).

Regulations 1946–47

Through most of 1945–46 the System could not agree to take even small steps to increase interest rates. Yet it recognized its responsibility for inflation and knew that Congress and the public would hold it accountable. Unwilling to act effectively, or pessimistic about its ability to do so, it turned to regulatory actions.¹¹⁴

111. One member of the Board objected to the proposed increase in rates on certificates. It would have no noticeable effect on inflation. The banks would gain, and the System would be blamed for raising interest rates paid by farmers and small businessmen (Minutes, FOMC, June 5, 1947, 7–8).

112. This amount can be compared with the \$149 million paid as franchise tax from inception to 1932. Wartime inflation and the large increase in debt held by the reserve banks account for the change in order of magnitude. At the end of 1946, the reserve banks had a \$440 million surplus and capital of \$374 million.

113. In 1943 Congress amended the Federal Reserve Act to permit direct purchases of government securities from the Treasury up to a \$5 billion maximum holding. This power expired with the War Powers Act in March 1947. Congress renewed the authority as a temporary measure, later made permanent. At about the same time, at the Board's request, Congress repealed a section of the Emergency Banking Act of 1933 that gave the Treasury authority to regulate and prohibit banking transactions (Board Minutes, March 3, 1947, 3–6).

114. Some of the actions were entirely cosmetic. For example, when President Truman asked all departments and agencies to reduce spending so as to increase the budget surplus, Eccles proposed cutting the Board's expenditure and asked the reserve banks to do the same

RESERVE CITIES In August 1945 the Board approved a change in regulation D to require member banks with branches in reserve cities to maintain reserves based on the reserve city classification. This opened a long-dormant issue about the criteria for classifying cities as reserve cities. The Board could not at first agree on criteria, so none were adopted.¹¹⁵

The Board later chose two explicit criteria: the proportion of interbank demand deposits held at member banks in each city to total Systemwide interbank deposits or the proportion of interbank demand deposits at member banks to total demand deposits at member banks in the city. Designations would be renewed or changed every three years.¹¹⁶ The new rule took effect on March 1, 1948 (Board Minutes, December 19, 1947, 2–7). New York and Chicago continued as central reserve cities. All other cities with Federal Reserve banks or their branches continued as reserve cities.

CONSUMER CREDIT The president authorized regulation of consumer credit, under the Board's regulation W, by proclamation under the Trading with the Enemy Act of 1917. Six months after the war ended, many wartime restrictions and regulations expired. The Trading with the Enemy Act was permanent, but the grant of emergency powers to the president expired, and with it the authority to control terms and conditions for consumer credit.

President Truman endorsed continued regulation, and so did the Conference of Reserve Bank Presidents, in a divided vote (Board Minutes, October 4, 1946, 19). The Republicans controlled Congress after the Novem-

even though they were not part of the budget and, at the time, did not pay a tax to the Treasury (Board Minutes, August 2, 1946, 3).

115. The classification system was archaic, carried over from the National Banking Act when central reserve and reserve cities had held the principal reserves of country banks as correspondent balances. Under the Federal Reserve Act, banks continued to serve as correspondents, but most reserves were held at Federal Reserve banks. In discussion with the Federal Advisory Council, Eccles favored uniform reserve requirements for all banks, a position that was inconsistent with his efforts to get congressional approval of an increase in reserve requirements for central reserve city banks only (Board Minutes, May 20, 1946, 6). Some bankers opposed eliminating the reserve city classification because they claimed banks would lose correspondent deposits. There was nearly general agreement that the classification system had lost its logical basis. The problem was that no one could suggest an appropriate revision (1–7). In 1930–31, 1932, and 1934, the System considered basing reserve requirement ratios on activity. Congress turned down these requests. It returned to these proposals in 1945, when it considered three classes of deposits—interbank, other demand, and time. The revised system would count vault cash as reserves (Sproul Papers, Memorandums and Drafts, 1945, October 1, 1945). The System offered the proposal again in 1948, with ratios of 30, 20, and 7 percent for the three types of deposit (*ibid.*, April 22, 1948).

116. If all the member banks in a city chose to continue an existing reserve city classification, the Board agreed to maintain the classification.

ber 1946 election. They wanted to end all wartime regulation and controls. Many merchants who had to enforce controls agreed, but the Board wanted to retain controls, citing the need to control spending. It failed to recognize that aggregate spending could not be controlled by restricting credit for purchasing particular goods. Households could borrow in other ways.

The Board claimed that by restricting consumer credit regulation W limited total credit outstanding and thereby reduced total spending. Since the Federal Reserve would not raise interest rates and banks no longer held idle reserves, the Board omitted from its argument the step by which credit control reduced banks' demand for reserves and the monetary base at prevailing interest rates. Without a change in interest rates or reserves, controls did not change the amounts of money and bank credit.¹¹⁷

The reserve bank presidents had the job of enforcing regulation W. They claimed that enforcement would be easier if Congress authorized regulation instead of relying on an executive order. The Board's annual report for 1946 asked for such legislation. President Truman supported legislation, but he warned that if Congress did not legislate, he would vacate the executive order and allow authority for consumer credit regulation to lapse (Board Minutes, June 6, 1947, 22).

Congress ended controls in August, effective November 1.¹¹⁸ The Board sent a letter, approved unanimously, urging merchants to exercise self-restraint and reduce prices instead of lengthening credit terms to attract new customers. Data for consumer credit show no evidence of acceleration after controls ended.

SECONDARY RESERVE REQUIREMENTS At the October FOMC meeting, Woodlief Thomas of the Board's staff led a discussion of three op-

117. The Board confused relative and absolute changes in demand. "It has not seemed to the Board that any change in the regulation [W] would be advisable at the present time. With employment and incomes high and the supply of spendable funds excessive, credit beyond that now available would only waste itself in stimulating undesirable price rises and retarding needed price adjustments" (Board to T. Schlesinger, Board Minutes, May 13, 1947, 14-15). Schlesinger was vice president of Allied Stores Corporation. Other letters from congressmen and their constituents questioned the legality of peacetime regulation. In its 1946 annual report, the Board made its error explicit. "It [regulation W] can restrict excessive demands for credit by limiting the borrowing capacity of prospective purchasers of goods without operating, as general instruments of credit policy must do, by increasing the cost of credit to the Government or to industry" (Board of Governors of the Federal Reserve System, *Annual Report*, 1946, 8).

118. The Board's press release, a mixture of annoyance and economic error, is remarkable for its implicit criticism of Congress. "The continuance of strong inflationary pressures has confirmed the belief of the Board that this is no time for the relaxation of terms by banks, finance companies and installment dealers" (Board Minutes, November 24, 1947, 6).

tions for slowing or preventing inflation: permit a gradual further increase in short-term rates to observe whether credit demand slows; adopt a policy of controlling bank reserves, a return to earlier procedures; and push more vigorously for passage of the Board's legislative program. John H. Williams followed Thomas's discussion by arguing against control of money and credit. These methods "might operate to bring about a deflation through reducing production" (Minutes, FOMC, October 6, 1947, 7). As usual, Eccles opposed rate increases or control of reserves as ineffective. Sproul disagreed. He urged the System "to accommodate itself to the powers it already had and not continue to refer to powers that it might have had" (10). He urged also that the System not exaggerate the amount of bank credit expansion.¹¹⁹

The committee agreed on a six-point program that included increasing short-term rates to 1.125 percent by the end of the year (1947), raising discount rates and reserve requirements for central reserve city banks, and moral suasion to call bankers' attention to the dangers of rapid credit growth. The FOMC voted eleven to one to approve the program and authorized Eccles and Sproul to discuss the program with the Treasury. Governor Rudolph M. Evans opposed. He saw no evidence that higher interest rates would reduce credit expansion.

Eccles did not endorse the System's program when asked in November about recommendations to slow the rise in prices. His main proposal called for a secondary reserve requirement, originally proposed in the Board's 1945 annual report, that made all banks (including nonmember banks) hold a reserve consisting of government securities with less than two years to maturity. The FOMC would have authority to vary the requirement up to 25 percent of gross demand deposits.¹²⁰ His only other proposal was to reinstate consumer credit controls.

119. This was a response to Eccles's use of rising bank loans to make his case for control, neglecting sales of securities that limited total credit expansion. Eccles argued, also, that a further increase in interest rates would have little effect on the demand to borrow—another example of "elasticity pessimism" (Minutes, FOMC, October 6, 1947, 4).

120. Governor Draper opposed the plan. He had not received any advance notice, nor had other governors. There had been no analysis. He thought the plan was too drastic. Nevertheless, he voted in favor to make the vote unanimous (Board Minutes, November 5, 1947, 5). The reason for haste in presenting the plan was that Eccles had been asked by the White House to recommend policies for the president's speech to a special session of Congress. Bankers opposed the plan as "impractical, socialistic, and unnecessarily drastic" (Eccles 1951, 428). Snyder opposed and had the proposal replaced in Truman's message by a general statement favoring a reduction in credit. Snyder nevertheless agreed to support the Board's proposal for consumer credit controls (430–31), and to refrain from testifying against the secondary reserve plan. When asked his opinion, however, he said that "he didn't think it would work" (432).

Concerns about inflation were well founded at the time. A very large increase in the gold stock during the third and fourth quarters of the year temporarily raised the growth rate of the monetary base. From June to December, consumer prices rose at a 12 percent annual rate. The burst of inflation was short-lived, however. It ended before Congress could act on the president's proposals for new controls on consumer credit, commodity speculation, price and wage controls, stronger rent controls, and new powers for the Federal Reserve over reserve requirements. Congress did not approve any of the new controls.¹²¹

The arguments made by proponents and opponents of controls show the reasoning at the time. Bankers argued that there was no need for additional controls. At a meeting with the Board, the Federal Advisory Council rejected Eccles's argument that bank credit expansion was excessive. There was no evidence of excessive growth of money: "As bank loans have increased, the banks have decreased their investments" (Board Minutes, November 18, 1947, 3). In a sharply worded statement, the council pointed out that the growth of bank loans reflected demands by businesses and households, not speculative actions by the banks. It cited some of the many ways government policy encouraged borrowing: the Reconstruction Finance Corporation guaranteed risky loans; foreign aid programs raised farm prices and encouraged expansion; and mortgage guarantees for war veterans and others increased construction and mortgage lending. The council challenged the Federal Reserve to control bank reserves using the powers it had instead of seeking new ones, and it opposed the request for secondary reserves as impractical and as a transfer of power from individual bankers and their directors to the Federal Reserve.

The council's argument did not change Eccles's views. Testifying before the Joint Committee on the Economic Report a week later, he urged Congress to give the System additional powers. He told the committee that "there is no easy, simple, or single remedy. We are already in the advanced stages of this disease" (Board Minutes, November 26, 1947, 3).¹²² The problem was not just inflation. Ultimately, inflation would be followed by deflation: "The higher prices rise and credit expands, the greater the subsequent liquidation and downward pressure on prices is bound to be" (5-6).

This is an extraordinary statement for the head of a central bank. Not only did he fail to recognize his ability to prevent inflation using existing

121. Contemporary observers point out that the administration knew that Congress, under a Republican majority, would reject the program. The president wanted to blame Congress for inaction. Congress provided more stimulus by reducing tax rates in April 1948 and overriding the president's veto of the tax bill (Fforde 1954, 163-64).

122. The verbatim statement is part of the Board Minutes.

powers, he treated deflation as an inevitable consequence of the preceding inflation, just as the System had done in 1929–33. The new powers the Board had gained in 1933 and 1935 did not affect his analysis or argument. Although he asked Congress to restore consumer credit controls (*ibid.*, 7) and to establish secondary reserve requirements, the only general control he recommended was to adjust fiscal policy so as to use “the largest possible budgetary surplus” to retire government debt (6). He opposed the tax cut that the Republicans in Congress favored.

Although he favored using the budget surplus to reduce the money stock, the usual methods of monetary control could not be used, Eccles said, because (1) the cost of servicing the large outstanding debt would rise, requiring higher taxes; (2) the increase in interest rates would have to be very large, “substantially above the present relatively low levels” (*ibid.*, 10); (3) the Treasury would not know at what price it could sell its securities, and (4) there would be massive liquidation of government bond holdings, including series E, F, and G bonds held by households. Despite these dire consequences, he added, if Congress favored ending wartime policy, “we would welcome such an expression from the Congress” (9). This was hardly a likely outcome after his warnings.

Eccles’s statement had several errors. First, he neglected the effect of inflation on interest rates. The statement presumed that the structure of rates could be held indefinitely, with only a few additional powers. Second, he endorsed a comment by a New York banker that raising interest rates to control inflation would be highly inflationary. Removing the interest rate peg, he said, “would be the most dramatically inflationary move that could be made at this time . . . so catastrophic as to make present fears appear as one raindrop in a storm” (*ibid.*, 10). Third, after removing the peg, the System would remain powerless to offset increases in bank reserves from gold inflows.¹²³ Fourth, to control credit expansion, the System would have to sell securities in competition with private credit demands and gold inflows: “Private borrowers might outbid us for these reserves” (10).

Eccles used the experience in 1928–29 to bolster his argument: “We are convinced that the remedy of letting interest rates on Government debt go up on the theory that this would bring an end to inflationary borrowing is dubious at best, as has been demonstrated in past monetary history, notably in the 20s when high rates were unsuccessful in restraining specula-

123. This statement denies that the System could sterilize gold inflows, as in the 1920s. At best the statement is misleading. The System held more than \$22 billion in securities at the time, a sum larger than the combined monetary gold stock of all countries other than the United States.

tion in the stock markets, real estate, or otherwise" (*ibid.*, 12). This is a misstatement of history. The Board had opposed interest rate increases in 1928–29. Although Eccles had often said that a large increase in interest rates would be required to stop inflation, he had not previously based his case on the disaster scenario he sketched for Congress. Nor did he mention Sproul's contrary view.¹²⁴

Doing nothing was dangerous too, he warned. To make the case for a special security reserve requirement, Eccles exaggerated the risks of excessive expansion. He assumed that banks might sell half of the \$70 billion in government securities to the Federal Reserve. The increase in bank reserves would support a \$200 billion increase in credit and money, six times the increase in reserves.¹²⁵ The money stock, currency, and demand deposits would increase from \$112 billion to more than \$300 billion, and gold inflows would add an additional \$2 billion to \$3 billion to reserves. Further, he told the committee, other holders of securities could sell up to \$70 billion of securities to the Federal Reserve.

The Board's solution was to increase the demand for government debt by imposing a security reserve of up to 25 percent against demand deposits and 10 percent against time deposits. It would phase in the new requirement gradually. At the maximum percentages, Eccles said, the new requirements would reduce credit expansion by about 60 percent. Further, banks would reduce the supply of loans, so lending rates would rise without increasing rates on Treasury debt: "Hence, the cost of restraining credit would be borne by private borrowers who are incurring additional debt, and not by the government which is reducing its debt" (*ibid.*, 14). Eccles and the Board did not explain why banks would not sell debt and make loans if loan rates rose relative to rates on government bonds.

Bankers regarded the reserve banks as more concerned for their interests than the Board. To reduce bankers' criticisms, Eccles proposed giving the FOMC power to set secondary reserve requirements. He concluded by

124. After reading Eccles's proposal to the president, asking for a secondary reserve requirement, Sproul telegraphed: "It would be most unfortunate if in our zeal to acquire new powers which might not be granted we were unnecessarily to minimize the effectiveness of our present policy, exaggerate the role of monetary factors . . . and expose the System to the risk of being held responsible for not checking or remedying a situation due primarily to non-monetary causes. In the circumstances I want to reaffirm that as a member of the Federal Open Market Committee I cannot regard myself as in any way committed to what is proposed" (Sproul Papers, Memorandums and Drafts, 1947, November 13, 1947).

125. The money multiplier of six appears to be based on the average reserve requirement ratio with no allowance for a spillover from deposits into currency. At the time the average base money multiplier was about three.

submitting the Federal Advisory Council's statement opposing secondary reserves.

The Board approved Eccles's statement unanimously and voted to send a copy to all banks and banking supervisors. It also unanimously approved a lengthy reply to the Federal Advisory Council and voted to send a statement of its views to the Joint Committee on the Economic Report. The reply to the council argued that if interest rates increased, the System would have to supply more, rather than fewer reserves.¹²⁶

A puzzling feature about this period is that interest rates rose very little, a repeat of the experience during and after World War I. As inflation rose from 4 percent to more than 10 percent during the second half of the year, rates on prime commercial paper rose from 1 to 1.25 percent and rates on three- to five-year Treasury securities rose from 1.25 to 1.5 percent. Although long-term interest rates rose modestly in autumn 1947, long-term Treasury bonds were at 2.36 percent at the time of Eccles's testimony.¹²⁷

One partial explanation of the puzzle is that the public did not expect inflation to persist.¹²⁸ The "peg" on rates contributed to the lack of response, but despite the interest rate ceiling, money growth remained modest. For the year as a whole, the base increased less than 1 percent. The money stock rose slightly faster, 4.9 percent for the year.

The Federal Reserve recognized that using the Treasury's surplus to retire debt from the reserve banks reduced the stock of money. Hence, despite a \$2 billion increase in the gold stock, Treasury operations left the monetary base little changed for the year. As long as money growth remained low, the public was right to interpret the higher rates of inflation reported for July to September 1947 as temporary and unsustainable.

The Bretton Woods Agreement fixed the dollar to gold at \$35 an ounce. At the time, many considered this arrangement a type of gold standard, involving a commitment by the United States to a fixed gold exchange rate.

126. The reply argues that an "attempt to use those [the System's established] powers would increase sales of Government securities in the market by banks and others. If the System refused to purchase any more securities, bond prices would decline sharply. The threat of such a policy would induce a wave of selling. . . . The Reserve System would have to purchase securities in order to meet the drains on the Treasury, and new reserves would therefore be created" (Board Minutes, November 26, 1947, 22–23).

127. The Treasury sold securities from the trust accounts in May to raise long-term rates toward the ceiling. This annoyed the FOMC members because they had not been notified in advance.

128. Friedman and Schwartz (1963), suggest that the public expected postwar deflation. A related explanation is that on the margin, bondholders believed that inflation would be followed "inevitably" by deflation. Such explanations compound the problem. Why did expectations of a future deflation, at an uncertain date, overwhelm evidence of current inflation?

Although United States citizens could not buy gold from the Treasury, foreign banks could.¹²⁹

Further, by the fall of 1947 the United States government was committed to aiding European recovery by lending and transferring funds abroad. This limited the gold inflow at the time. With neither a budget deficit nor a large capital inflow to expand domestic money, the risk of persistent inflation may have seemed slight.

This explanation is partial. It can explain why rates on long-term securities did not reflect reported rates of inflation. It does not explain why short-term rates, adjusted for measured inflation, remained negative during and immediately after the war.

MARGIN REQUIREMENTS Stock prices rose rapidly at the end of the war. Urged on by the chairman of the Securities and Exchange Commission, the Board increased stock market margin requirements to 100 percent on future purchases effective January 21, 1946. Eccles explained to President Truman that “elements were present . . . which might result in a speculative movement exceeding even 1929” (Board Minutes, January 17, 1946, 2). He believed that raising margin requirements was a poor substitute for an increase in the capital gains tax or control of bank credit. In their absence, margin requirements would have a modest effect against speculative use of credit. The peak in stock prices and trading volume came in May. In February 1947, with the Standard and Poor’s index 16 percent below its peak, the Board reduced margin requirements to 75 percent. Trading volume remained between 25 million and 30 million shares a month, and the Standard and Poor’s index continued to decline until May.

The Board’s announcement, lowering margin requirements effective February 1, 1947, recognized that the adjustment to a peacetime economy was far along. Despite many strikes, industrial production rose rapidly in the second half of 1946. Ten million demobilized veterans found jobs. Shortages of most goods had ended.

Eccles favored a further reduction of margin requirements for banks, but not for brokers and dealers. He also favored a change in the law to eliminate all broker margin accounts and to leave regulation of banks’ margin loans to the bank supervisory agencies. The Board did not propose legislation, however. The new requirements remained in effect until March 30, 1949, when the Board reduced the margin requirement to 50 percent.

129. Surprisingly, Board and FOMC minutes make no mention of the commitment under Bretton Woods or its possible effect on inflation. The slow response of interest rates to inflation occurred again in the 1950s and 1960s. This is consistent with the view that, at the time, creditors believed inflation was temporary, although there is no direct evidence.

Beginning of Restraint

The October 1947 meeting was a turning point. Although Eccles had not presented the System's program in his testimony to Congress, the FOMC resumed discussion of higher rates. There was general agreement that the special session of Congress had created anxiety in the market. Bond yields had increased as banks reversed the way they played "the pattern of rates." They now sold long-term securities and, at the increased rates on bills and certificates, bought short-term securities.

The directive issued at the October meeting reflected the change at the Federal Reserve. Instead of referring to particular prices or interest rates to be maintained, the directive now called for "maintenance of stable and orderly conditions in the government securities market" and for "relating the supply of funds more closely to the needs of commerce and business." The new directive looked more to the economy and less to the Treasury market. It left open the meaning of "stable and orderly," but by referring to the "needs of commerce," it pointed the System back toward the 1920s and away from the years under Treasury control. And by referring to an orderly market, the FOMC tried to end its commitment to the pattern of rates. Only the commitment to the long-term rate remained.

The change was easier to state than to put into practice, but some changes were made. The Treasury agreed in November to use its surplus to retire Treasury bills held by the reserve banks instead of paying out cash to retire debt held by the commercial banks or the public.¹³⁰ The Board joined with other regulators to warn lenders and borrowers that "our country is experiencing a boom of dangerous proportions" (Board Minutes, November 21, 1947, 3). Its letter urged bankers to "exercise extreme caution in their lending policies" and to curtail loans for speculation in real estate, commodities, or securities.¹³¹ As in the 1920s, the letter did not advise banks how to identify such loans.¹³²

The December meeting took a more effective step. It agreed that long-

130. Between November 1 and June 30 the Treasury retired \$6.8 billion, of which \$4.9 billion came from reserve banks.

131. The warning was aimed especially at insurance companies to try to stop their sales of long-term bonds. Banks complained about competition from insurance companies in the loan market, claiming that they exercised restraint but insurers did not.

132. A further change brought an end to the practice of exempting Treasury war loan accounts at commercial banks from reserve requirements. The exemption was a wartime measure, taken in 1943 to increase banks' returns from bond sales. War loan accounts served as a depository for receipts from sales of Treasury new issues. Removing the exemption in 1947 forced a small increase in required bank reserves. A secondary effect was a reduction in the contractive effect of a shift in Treasury deposits from commercial to reserve banks.

Table 7.7 Bond Market Support, 1947-48

DATE	SYSTEM HOLDINGS (BILLIONS OF DOLLARS)		INTEREST RATE (%)	
	OVER FIVE YEARS	UNDER ONE YEAR	BONDS	CERTIFICATES
October 1947	0.4	21.5	2.27	0.97
March 1948	5.1	15.3	2.44	1.09

Source: Board of Governors of the Federal Reserve System 1976.

term yields should be allowed to rise to the 2.5 percent ceiling once the Treasury completed its January refunding. Governor Szymczak suggested letting bonds go below par, but the FOMC decided to hold bonds at or above par value until the Treasury agreed to a higher rate.

Also in December, Eccles opened a discussion of discount rates by reporting that the Board was now ready to consider an increase in rates.¹³³ Eccles favored 1.25 percent, above the rate on one-year certificates. Sproul favored 1.125 percent. On January 12, discount rates were set at 1.25 percent, the first change in almost six years. The 1.25 percent rate equaled the rate on securities held by banks that would mature in the next five years. Eccles wanted short-term rates at that level to encourage banks to hold short-term and sell longer-term securities.

The new program worked more quickly than expected. Banks, insurance companies, and other holders of long-term debt perceived these changes as a first step toward increased rates on long-term bonds. Bonds no longer seemed as riskless as before, so banks, insurance companies, and others sold bonds and bought bills and certificates. The Federal Reserve now faced the question, Should it allow bonds to go below par?

Its actions give the answer. Table 7.7 shows the large volume of System purchases of long-term debt, and sales of short-term debt, between October 1947 and March 1948. To support the market, the System purchased as rates fell. In addition, the Treasury bought about \$1 billion for the trust accounts.

The Treasury continued to run a surplus. Instead of holding the surplus (in war loan accounts) at commercial banks, the Treasury withdrew its balances to the Federal Reserve banks, then used them to retire short-term debt as it matured. The shift in Treasury balances from commercial banks

133. The issue was first discussed in July, after the increase in bill rates. The Board postponed consideration until rates on certificates rose. In October, after the Treasury accepted the 1.125 percent rate on one-year certificates, the Board considered raising discount rates to 1.25 percent. It decided to observe the response to the higher certificate rates before acting. The Board renewed discussion on December 5 and 19, but it again delayed action because of seasonal demands and to give the market time to adjust to recent changes in rates.

to the reserve banks reduced bank reserves, as expected at the time. The monetary base declined in the first two quarters of 1948.¹³⁴

The principal disagreement at the FOMC meeting was about how quickly tightening should proceed. Eccles was more aggressive than Sproul. He argued that the Treasury's cash position presented "an opportunity to exert enough pressure on the reserve position of member banks to curb to a substantial extent the volume of capital expansion that otherwise would take place, that such expansion was undesirable at the present time because of the shortage of labor and materials" (Minutes, Executive Committee, FOMC, January 20, 1948, 15). Sproul did not disagree on the desirability of reducing bank reserve growth, but he believed the committee should spread its effort over months rather than weeks. He suggested that Eccles wanted a bold program so that he could tell Congress that the System had used its existing powers and needed new authority (17).¹³⁵

The difference was not resolved at the January meeting, so the FOMC's letter to Secretary Snyder included both views, along with a recommendation to raise the certificate rate from 1.125 percent to 1.25 percent at the March refunding. The Treasury used a decline in commodity prices in February to postpone the rate change.

The decline in commodity prices concerned the FOMC also. At the February 27 meeting, Sproul interpreted the decline as a temporary correc-

134. Rouse's memo to the FOMC estimated that the shift in Treasury balances in the first quarter would reduce bank reserves by \$7.3 billion before offsets from gold inflows and other (estimated) changes (Minutes, Executive Committee, FOMC, January 20, 1948, 11). Rouse was the account manager. His report also shows the relative changes in bond prices at the end of 1947. Some long-term bonds fell as much as \$4.50. These were large changes. The Treasury accepted them, unlike Secretary Morgenthau, who had treated almost any price decline as a crisis. Rouse reported that almost all the bond price decline occurred on December 24, "when the new support level was adopted" (5). Later the Treasury blamed the Federal Reserve for the disturbance in the bond market.

135. Sproul made his argument for a gradual approach in a lengthy January 13 letter to Senator Taft. The letter responded to speeches Taft made criticizing monetary policy as too expansive. He emphasized the need to avoid depression while achieving deflation. In a prelude to the position Sproul and others took during the recession that started later that year, Sproul wrote: "We are all a little enchanted, of course, with the idea of a modest downturn which would relieve some existing pressures and forestall worse disturbances later. But no one has yet found a sure way of bringing just a little depression, and I think our present program of modest restraints involving a combination of debt management and credit policy is the best course to follow in trying to achieve that objective" (Sproul to Taft, Sproul Papers, January 13, 1948, 3). Sproul's letter may have convinced Senator Taft to choose a different target. Soon after, Taft chaired the committee that responded to the 1948 economic report. The response does not repeat the criticism. It blames inflation on the government's "huge programs" of foreign aid, public works, and domestic assistance and criticizes Eccles's proposals for credit controls, secondary reserve requirements, and price and wage controls (Joint Committee on the Economic Report 1948, 3-6).

tion, not the start of recession and deflation. Nevertheless he proposed a less restrictive policy than he had urged in the fall: no further reductions in the Treasury's war loan accounts at commercial banks; receipts from taxes held in the war loan accounts; continued run-off of System bill holdings at the rate of \$100 million a week; and reducing to eleven months the maturity of the 1.125 percent certificate issued in April, to signal that certificate rates would rise in June. The FOMC approved Sproul's program. Governor Evans voted no on the recommendation to raise certificate rates. Once again he objected that the rate increase would be ineffective against inflation and would increase bank earnings. He preferred the secondary reserve plan. Eccles explained that the purpose was to flatten the yield curve so that banks and others would stop playing the pattern of rates (Minutes, FOMC, February 27, 1948, 12-13).¹³⁶

For the first time, the committee agreed unanimously that it would not prevent interest rate increases even if some bonds went below par. "At the appropriate time" Eccles would advise Secretary Snyder that "the only commitment the System had made was, under existing and prospective conditions, to maintain the 2.5 percent long-term rate and not that it would support all issues of Government securities at par" (16).¹³⁷

By March, holders apparently had become convinced that the System would maintain the price of long-term bonds above par. Selling slowed, and System purchases ended. During 1948, long-term Treasury yields remained between 2.41 and 2.45 percent. Although still operating under the Treasury's strictures, for the first time since the 1930s the Federal Reserve had managed a sudden shift in market sentiment following a policy change. The Treasury had a smaller role, supporting the System's operation by purchasing for the trust accounts.

New Leadership

Leadership at the Federal Reserve changed after the war. Emanuel A. Goldweiser retired as research director in January 1946. Governor John K. McKee retired the following month, but he remained at the Board until his successor, James K. Vardaman Jr., arrived in April. Eccles's former assistant, Lawrence Clayton, joined the Board in February 1947. Vice Chairman

136. Although not yet confirmed by the Senate, chairman-designate McCabe was present at the meeting.

137. Since 1944, the System had licensed a limited number of dealers in governments to trade with the System. Small dealers, who were excluded, complained that their business was hurt because the Federal Reserve had become the principal buyer in the market. They claimed the conditions to become a licensed dealer were too burdensome. The executive committee decided to keep the requirements unchanged (Minutes, Executive Committee, FOMC, March 1 and April 21, 1948). No major change was made for many years.

Ronald Ransom died at the end of 1947. A month later, President Truman notified Marriner Eccles that he would not reappoint him as chairman when his third term expired on February 1, 1948. The new chairman was Thomas B. McCabe. Truman offered Eccles the vice chairmanship of the Board, and Eccles accepted.¹³⁸

President Truman gave no reason for removing Eccles as chairman. In his memoirs, Eccles made a strong circumstantial case that Truman wanted election year support of the Giannini family that controlled Bank of America and Transamerica Corporation.¹³⁹ There was ample reason for the Giannini family to want Eccles removed. The Federal Reserve had tried to obtain legislation to limit further expansion by their holding company, Transamerica Corporation.¹⁴⁰ After years of investigation, the Board began a proceeding under the Clayton Act to prevent Transamerica from expanding further. Eccles believed he had been removed in the expectation that the investigation would end.

Transamerica may have contributed to Eccles's dismissal, but there were other possible reasons. Eccles's relations with the banking industry had never been friendly. Bankers and Secretary Snyder strongly opposed his call for secondary reserve requirements. Despite Snyder's objections, Eccles testified in favor of his proposal. Moreover, he had become friendly with Republican Senators Robert A. Taft and Charles W. Tobey and critical of the administration's budgets. He openly favored increased taxation to prevent inflation. His working relationship with Secretary Snyder was never comfortable. It probably did not help that the Board raised discount rates and allowed bond rates to rise in December and January. These changes came at the same time that President Truman's budget message to Congress supported maintaining the pattern of rates on government bonds.¹⁴¹

138. McCabe was the chairman of Scott Paper Company. He had served as a board member and as chairman of the Philadelphia reserve bank. The Senate approved his appointment on April 12, and he took office as chairman on April 15, 1948. He served until March 31, 1951. President Truman did not announce Eccles's appointment as vice chairman. In April, Eccles withdrew his name in a sharply worded letter to the president (Eccles 1951, 442).

139. This summary is based on Eccles 1951, 434–56. Eccles's personal and family interest in banking in an adjacent region are part of the circumstances of the case. Eccles's book denies any connection, although he acknowledges that the charge was made at the time (1951, 454). On the other side, Secretary Snyder was a friend of the Gianninis, and the bank's general counsel had been counsel to a Senate committee that Truman chaired. Eccles's account of the events shows that he ignored several strong hints from Secretary Snyder to stop investigating Transamerica.

140. The proposed legislation was the Bank Holding Company Act of 1947. The legislation did not pass until 1956.

141. Eccles's testimony to Senator Douglas's subcommittee by letter in December 1949 suggests that relations between the Federal Reserve and the Treasury had deteriorated. Almost every meeting of the FOMC advised the Treasury on debt management policy, but the

Although his term as chairman ended on February 1, Eccles continued as chairman pro tem until McCabe took office on April 15. He continued to take an active role in System policy and later played an important role in removing the ceiling rate on long-term bonds. He left the Board in July 1951.

A Deflationary Interlude

The inflation rate slowed at the start of 1948. By year end prices were falling. Quarterly average values of the consumer price index show several quarters of deflation beginning in fourth quarter 1948. Inflation did not return until the start of the Korean War in June 1950.

At first prices fell rapidly. Early in 1950 the decline slowed. At the end of the deflation interlude, the consumer price index had returned to the level reached in first quarter 1948. Table 7.8 shows these data.

Both Treasury and Federal Reserve actions contributed to the deflation. The Treasury continued to use its surplus to retire debt from the reserve banks and to purchase debt for the trust accounts. This policy reduced the public's holding of government debt without increasing the monetary base.

Falling output soon followed falling prices. The National Bureau of Economic Research puts the economy's cyclical peak in November 1948 and the trough eleven months later, in October 1949. Industrial production (1992 = 100) fell about 9 percent from peak to trough. The unemployment rate reached a peak of 7.9 percent.

With the interest rate peg in effect, the Federal Reserve could not prevent inflation, but it was entirely capable of stopping deflation. The monetary base shows no sign of expansionary actions. Interest rates rose modestly as the monetary base declined. The rate on four- to six-month commercial paper, representative of short-term rates, increased by 0.5 percent in the year before the recession. It remained unchanged (at 1.56 percent) through July 1949, eight months after the cyclical peak.

As in 1921 and 1938, deflation had two positive effects. First the gold inflow increased. Between fourth quarter 1947 and the peak in Federal

suggestions were not often taken. Eccles recognized that the Federal Reserve had lost its independence: "It can hardly be said that the Federal Reserve System retains any effective influence in its own right over the supply of money in the country" (Eccles 1951, 460). Eccles offered three alternatives. The first continued prevailing arrangements. Credit and monetary restraint would depend on the Treasury's willingness to accept higher interest rates. The second expanded the Board's power over reserve requirements for *all* banks; he included secondary reserve requirements as one option. The third proposal restored independence. The Treasury would be required to consult with the Federal Reserve about debt management policy and interest rates. Eccles warned the subcommittee that interest rates would rise (Eccles 1951, 461-62).

Table 7.8 Money, Prices, Output, and Debt, 1947–50

DATE	BASE GROWTH	CONSUMER PRICES	REAL GNP	GROSS ^a DEBT	HELD BY		
					AGENCIES	RESERVE BANKS	PRIVATE OWNERS
1947.4	5.2%	7.4%	4.4%	\$255.7	\$34.4	\$22.6	\$198.7
1948.1	-14.7	0	4.0				
1948.2	-3.2	11.2	5.4	251.2	35.8	21.4	194.1
1948.3	-7.6	6.6	0.6				
1948.4	17.2	-7.1	4.0	251.7	37.3	23.3	191.1
1949.1	-12.8	-3.9	-1.7				
1949.2	7.5	0.6	-1.3	251.7	38.3	19.3	194.1
1949.3	-4.2	0	-2.6				
1949.4	4.3	-3.9	-3.5	256.2	39.4	18.9	197.9
1950.1	5.8	-1.1	15.0				
1950.2	-0.8	4.5	14.9	256.1	37.8	18.3	199.9

Note: Dollar amounts are billions.

^aGross public debt includes guaranteed securities. Data for debt are for June and December. Other data are quarterly averages at annual rates.

Reserve gold holdings—third quarter 1949—the gold stock rose 9.5 percent, slowing the decline in the nominal stock of base money.¹⁴² Second, falling prices raised the real value of the monetary base, creating an excess supply of real balances and a demand for goods and services.

CHANGES IN RESERVE REQUIREMENTS Early in 1948 the Board again considered an increase in a reserve requirement ratio to slow loan growth. At the time, reserve requirement ratios for reserve city and country banks were at their maximum values, 20 percent and 14 percent, respectively, but central reserve city banks, at 20 percent, were below their 26 percent maximum. The Board voted unanimously to raise reserve requirements at central reserve city banks to 22 percent, effective February 27.

The Board's staff estimated that the change would absorb \$530 million of reserves at New York and Chicago banks. This is an overstatement based on faulty analysis. The true estimate of the effect is approximately zero.¹⁴³ Banks sold government securities to acquire additional reserves and slightly increased borrowing. The main effect was a transfer of income (on government securities) from commercial banks to the reserve banks.

142. Earlier, the Board sent a letter to all reserve bank presidents requesting them to notify banks that they should discourage individuals and businesses from buying gold at premium prices. The letter was a response to rumors that the dollar would be revalued against gold (Board Minutes, July 22, 1947, 10).

143. The qualification allows for a secondary effect on the profitability of loan demand. Central reserve city banks had to hold higher reserves against the deposits created when making new loans. With interest rates unchanged, loans were less profitable. Market interest rates remained unchanged.

Since the Board had voted before the Federal Advisory Council met, the council did not oppose the February 27 increase. The members expressed concern, however, about the recent decline in commodity prices and the possibility of a recession. They wanted a halt to restrictive policy, maintenance of the 2.5 percent rate, no further increases in discount rates or reserve requirement ratios at central reserve city banks, and no additional powers for the Federal Reserve. The council thought "it would be a good thing if the situation could develop into a mild recession, but . . . the members of the Council felt that it might develop into a very severe recession if not into a depression" (Board Minutes, February 17, 1948, 9). Chairman Eccles agreed that "a recession at this time would be in the best interests of the country and that the longer such a development was delayed the greater would be the downward adjustment that eventually would have to come" (10).¹⁴⁴

The Board was eager to get the council to agree on a joint program to send to Congress, as in 1940. The bankers were reluctant, so their emphasis on the possibility of a deep recession may have been an expression of dissent.¹⁴⁵ Eccles argued that whether inflation continued or ended in recession, the Board and the commercial banks would be blamed for what happened. They had a common interest. He agreed that discount rates could not be raised, but his reason was not concern about recession. First the Treasury had to increase the coupon on the one-year certificate to 1.25 percent. That would not be done in current circumstances. Council chairman Edward E. Brown responded that banks were so "jittery" that a change to 1.25 percent might cause additional selling of government securities.

The next three years are a unique period in the use of reserve requirements as a policy instrument. The System made nineteen changes, up and down, in these ratios. Many were small. Table 7.9 shows the level of reserve requirements on February 1, 1948, and the adjustments in the next three years. The last column shows the weighted average, or effective, ratio. This ratio changed very little from year to year. The largest change, in 1950, resulted from a shift in deposits from demand to time accounts.

After the changes in reserve requirement ratios, banks increased their use of the discount window to adjust reserves. Discounting had started to revive during the war but remained below \$100 million, on a sustained basis, until August 1944. After 1946, discounts remained between \$100 mil-

144. The language shows how little had changed since the early 1930s. Recessions were still seen as the "inevitable consequence" of prior inflation. Although the Employment Act was now law, the Federal Reserve had not changed its analysis.

145. Although interest rate remained low, the bankers no longer complained about easy money as they did in 1940.

Table 7.9 Actual and Effective Reserve Requirement Ratios, 1948–51 (percent)

DATE	CENTRAL RESERVE CITIES		RESERVE CITIES		COUNTRY		YEAR	EFFECTIVE AVERAGE ^a
	DEMAND	TIME	DEMAND	TIME	DEMAND	TIME		
1948								
February 1	20	6	20	6	14	6	1948	15.71
February 27	22							
June 11	24							
September 16					16			
September 24	26	7.5	22	7.5		7.5		
1949								
May 1					15		1949	15.87
May 5	24	7	21	7		7		
June 30		6	20	6		6		
July 1					14			
August 1					13			
August 11	23.5	5	19.5	5		5		
August 16					12		1950	14.22
August 18	23		19					
August 25	22.5		18.5					
September 1	22		18					
1951								
January 11	23	6	19	6		6	1951	15.86
January 16					13			
January 25	24		20					
February 1					14			

^aBased on call report data for June 30.

lion and \$300 million. Discounts typically increased after an increase in reserve requirement ratios, reviving the adjustment pattern that Strong, Riefler, and Burgess had observed in the 1920s.

After February 1948, the Board and the FOMC discussed additional increases in reserve requirement ratios at New York and Chicago. Governor Evans was often the leading proponent. Eccles remained cautious, despite strong output growth and continued inflation early in 1948. The Board and the FOMC repeatedly urged the Treasury to increase the certificate rate to 1.25 percent, so they could raise the discount rate, but the Treasury ignored or rejected the advice and the rate stayed at 1.125 percent throughout the spring and summer.¹⁴⁶

146. An example of the Treasury's argument against raising the certificate rate from 1.125 percent to 1.25 percent is that "the Secretary [Snyder] felt that if the rate were raised at this time it would not be as effective as at some future time when, if inflationary pressures were increased, the rate could well be raised" (Minutes, Executive Committee, FOMC, May 20, 1948, 2). Snyder explained that the actual decision to reject the System's advice was made after discussions with "bankers from various parts of the country." A majority had told him to make no change (11).

The System remained divided over whether future inflation or deflation posed the greater risk. After the Treasury rejected its suggestion of a 1.25 percent certificate rate for the July refunding, Sproul and Szymczak looked to the September refunding. Eccles urged the committee not to act without Treasury agreement, but it ignored him and voted to permit an increase in short-term rates before the September refunding if inflation increased during the summer. It wanted to force the Treasury to raise the rate to 1.25 percent. This was a significant change, since the committee had earlier declined to increase rates until the Treasury agreed.

Spending for foreign aid began to rise, beginning with the Greek-Turkish aid bill in 1947 and the Marshall Plan in 1948. Looking forward, the members worried that the budget surplus would decline and with it debt retirement (see table 7.8 above). Effective action against inflation would end.¹⁴⁷ At the meeting of the Federal Advisory Council in April, the Board recalled the 1940 proposal to Congress, sponsored jointly by the council and the System, calling for a statutory increase in maximum reserve requirement ratios for all banks. The council was reluctant to increase banks' costs. It noted that there were both inflationary and deflationary tendencies at work, so it preferred to wait until the future became clearer. It urged the System to use existing powers by raising the discount rate or reserve requirements at central reserve city banks.¹⁴⁸

Several bankers spoke against the proposal to increase maximum reserve requirements. Their principal arguments were that a request to Congress for higher reserve requirement ratios would at once induce banks to shift assets from long- to short-term securities. If the proposal was adopted, banks would have more difficulty raising capital and would take more risk to compensate for lower earnings. Membership in the System would be discouraged, particularly if the higher reserve requirements applied to all banks, as the Board wished. They were particularly opposed to Eccles's recent testimony calling for higher cash reserve requirement ratios and a secondary securities reserve.¹⁴⁹

147. For fiscal years ending June 1947, 1948, 1949, and 1950, spending for national security and international affairs was (in billions): \$20.9, \$16.3, \$19, \$17.7.

148. The council showed signs of changing beliefs about the effectiveness of monetary policy: "Relatively slight changes in open market policy . . . can greatly influence bank operations, the security markets and business" (Board Minutes, April 27, 1948, 7).

149. Eccles had testified at a congressional hearing on April 13; he reported on the progress made against inflation but warned that the money supply was "excessive" and that proposed tax reduction would add \$5 billion to purchasing power and reduce future budget surpluses and debt reduction. Increased military spending added a new large source of inflation both directly and through its effects on private sector attitudes. A shift from budgetary surplus to "deficit . . . would eliminate the only remaining important anti-inflationary influence" (Board Minutes, April 2, 1948, 18, with transcript of Eccles's April 13 testimony). He

Chairman McCabe asked the bankers what they would do if inflation rose. They responded that, unlike the Board, they did not expect that to happen. However, they favored maintaining the 2.5 percent ceiling rate, partly out of concern that a fall in government security prices would lower bank capital (Board Minutes, April 27, 1948, 19).

The Board continued to prepare for an increase in the reserve requirement ratio at central reserve city banks. The main issue had become not whether the change should be made but when. A principal consideration was to find a time when the change would have greatest effect on inflationary psychology, but there was concern also to use existing powers. Congress had again rejected the request for additional powers, and one of the reasons given was that Board had not used its existing powers fully.

On June 1, 1948, the Board voted to increase to 24 percent the reserve requirement ratio at central reserve city banks, effective June 11. McCabe was absent, and Szymczak opposed the timing of the increase. He argued that New York and Chicago banks had no excess reserves, so the increase would simply shift \$500 million of government securities from banks to the reserve banks. McCabe wrote a letter that was read at the meeting urging the Board to delay the change for a month. He believed the change would be more effective if accompanied by a rise in the certificate rate (Board Minutes, June 1, 1948, 5–6).¹⁵⁰

To prepare for the 1948 election and give the appearance of decisive action, President Truman called a special session of Congress in August. He asked for price controls, rationing, rent control, an excess profits tax, repeal of the Taft-Hartley Act, and regulation of commodity markets. He also asked Congress to increase spending on Social Security and education, more government aid for housing, and increases in the minimum wage and farm price supports. The aim was to return to the wartime control program while redistributing income toward traditional Democratic constituencies. The Federal Reserve asked for renewed controls on consumer credit and higher statutory maximum reserve requirement ratios as part of the program.

asked again for new powers to increase reserve requirements at all commercial banks and secondary reserve requirements. He described the latter as “essential” in the event of larger deficits (20). None of his forecasts were correct.

150. Like Szymczak, McCabe argued that the banks would sell securities to the Federal Reserve, so there would be no effect on lending or inflation. This was a correct forecast, of course; in the two weeks following the effective date, New York and Chicago banks sold securities. Interest rates remained unchanged, and the monetary base (adjusted for the change in reserve requirements) continued to fall at about a 1 to 2 percent annual rate. The action was criticized in the press as an attempt by Eccles to push through an increase against the Treasury's wishes while McCabe was absent.

Congress rejected most of the program, but by joint resolution it approved renewal of consumer credit controls until June 30, 1949, and an increase in maximum reserve requirement ratios for member banks. In September the Board set minimum down payments of 33.33 percent for automobiles and 20 percent for other durables.

The president's proposals suggest the haphazard way the administration thought about the substance of economic policy. Proposals for higher wages accompanied a proposal for price control, and encouragement of home building accompanied controls to discourage purchases of household durables and furniture. The increased mortgage credit, if approved, would have substituted for consumer credit.¹⁵¹

On August 2 Chairman McCabe and Governor Evans testified on parts of the president's proposal. McCabe repeated the familiar arguments supporting legislation authorizing higher reserve requirement ratios. He referred several times to the problem of controlling inflation while maintaining the 2.5 percent rate, but he insisted that it should be maintained "to insure orderly conditions in that market, not primarily because of an implied commitment to wartime investors that their savings would be protected, nor to aid the Treasury in refunding maturing debt, but because of the widespread repercussions that would ensue . . . if the vast holdings of public debt were felt to be of unstable value" (House Committee on Banking and Currency 1948, 89).¹⁵² McCabe urged that the Board's powers be extended to include nonmember banks, but he offered no evidence of relative expansion by nonmember banks and gave more attention to increased lending at insurance companies than at banks.¹⁵³

Several times, members of Congress asked McCabe whether long-term rates had to rise for effective control of inflation. The Board had discussed

151. The administration, not the Board, initiated the decision to reimpose consumer credit controls (Board Minutes, July 20, 1948, 3). The Board sent Woodlief Thomas to participate in a meeting on July 23 at which the White House staff presented the details of the president's message to Congress. The Board authorized Thomas to say that the Board favored consumer credit controls, to last three years, and authority to increase reserve requirement ratios "in such form as it might wish." If required to be specific, Thomas was authorized to ask for ten percentage points for demand and four percentage points for time deposits above current maximum rates. He was told not to raise the issue of whether the change applied to all banks or only to member banks (Board Minutes, July 23, 1948, 6).

152. This statement is clearly disingenuous and misleading, since the Federal Reserve would not change the 2.5 percent rate without Treasury approval, and the Treasury was concerned about interest costs on the debt. McCabe recognized the Treasury's concern later in his testimony (House Committee on Banking and Currency 1948, 95).

153. The Board's proposal was part of the program for the special session of Congress in August 1948. The bill authorized state bank supervisors to enforce reserve requirements against nonmember banks. The Senate bill limited the change in reserve requirements to member banks.

the possibility that this question would arise at its July 30 meeting, but it did not reach a conclusion. McCabe did not want to confront the Treasury and tried to avoid the issue by saying that “it was vitally necessary to support the 2½ percent bonds” (*ibid.*, 101).¹⁵⁴

Chairman Jesse P. Wolcott and other members questioned McCabe and Evans about the reason for credit controls. McCabe tried to shift responsibility to Congress, suggesting that Congress should order an end to pegged rates. Wolcott demurred.¹⁵⁵ He challenged McCabe and Evans to explain how credit controls would reduce demand, pointing out that people could take out larger home mortgages to offset larger down payments on cars and other durables. Other members cited examples showing that credit controls did not curtail demand for durables. McCabe and Evans had no answers.

During the summer of 1948, the Board continued to press the Treasury to raise short-term interest rates on its refundings and to use its balances to retire Treasury bills. On July 16 McCabe gave Snyder the draft of a letter outlining the Board’s concerns. The Board again referred to its “statutory responsibility” to control inflation, warned of higher inflation ahead, and expressed concern that the Treasury had failed to increase the rate on certificates at the April and June refundings. The letter warned that credit demands remained strong and that insurance companies and other holders of long-term bonds were likely to sell as much as \$1.5 billion of such debt to the System in the second half of 1948. To offset these prospective purchases, the System had to be able to sell an equal amount in the short-term market.

The letter again proposed higher rates on certificates and higher discount rates. The Federal Reserve pledged again to support the long-term market, and it asked the Treasury to continue retiring short-term debt from

154. Congressman Jesse P. Wolcott was the committee chairman. “The Chairman: Then you mean . . . that it is going to be your continued policy . . . to buy Governments in the open market? Mr. McCabe: I would not say that it is our policy forever. I say for the foreseeable future. . . . The Chairman: That is to support our debt. Mr. McCabe: That is to support our debt; yes, sir. The Chairman: Then you are saying that it is necessary to continue inflation in order to carry the national debt? Mr. McCabe: I would not like to put it that way, sir” (House Committee on Banking and Currency 1948, 101).

155. “The Chairman: There have been orthodox ways of controlling it [credit] heretofore. . . . I do not know why we have to supplement those with consumer credit controls at the present time, anymore than we did before. Mr. McCabe: . . . [I]f it is the wisdom of this Congress that the Federal Reserve should not support the Government bond market, then I think Congress should so direct the Federal Reserve. . . . The Chairman: I do not think we are going to direct you not to support the government bond market. I do not think we are going to direct you to support the Government bond market at a particular figure” (House Committee on Banking and Currency 1948, 109).

Table 7.10 Minimum and Maximum Reserve Requirement Ratios, 1948

DEPOSITS	MINIMUM	MAXIMUM
<i>Demand</i>		
Central reserve city	13	30 (26)
Reserve city	10	24 (20)
Country	7	18 (14)
<i>Time</i>		
All member banks	3	7.5 (6)

Note: Previous maximum shown in parentheses.

the reserve banks. While awaiting the Treasury's response, the Board began to discuss a further increase in reserve requirements, to 26 percent, at central reserve city banks.

In July the annualized monthly rate of increase in consumer prices reached 15 percent, and the twelve-month rate reached 9.3 percent. The Treasury agreed to an additional 0.25 percent increase in the discount rate, to 1.5 percent, a 1.25 percent rate on one-year certificates, and an increase in the bill rate. In return, Snyder asked the Board to again reaffirm its support for the 2.5 percent long-term rate and to postpone a decision about reserve requirements until September (Letter, Snyder to Board, Board Minutes, August 10, 1948, 3). The Board promptly notified the reserve banks that they could raise discount rates. All banks voted for an increase. Open market rates on short-term securities rose. Two years after the war's end, the spread between short- and long-term rates was down to 1.25 percent.¹⁵⁶

Table 7.10 shows the minimum and maximum rates fixed in August 1948. These rates applied only to member banks and were temporary until June 30, 1949. Congress refused again to authorize the Federal Reserve to set reserve requirements for nonmember banks.¹⁵⁷

At the Board's August 24 meeting, Governor Vardaman announced that he intended to propose increases in reserve requirement ratios for demand and time deposits at the first meeting after Labor Day. McCabe spoke in favor of the increase as part of a more general program developed jointly with the executive committee of the FOMC. Vardaman and Szymczak preferred

156. The account manager, Rouse, explained how the market worked at the time. The Federal Reserve was the residual buyer at the end of the day. If it allowed prices on certificates or bonds to move by more than $\frac{1}{32}$, the market would offer all maturities to learn whether the support price had changed. This made it difficult to move to a more flexible rate policy. This description makes clear that the market was no longer confident that the peg would remain indefinitely.

157. Out of more than fourteen thousand banks in 1948, eleven withdrew from membership in 1948 and four in 1949. Admissions to membership were twenty-seven in 1948 and fifteen in 1949. More than two thousand banks had not agreed to par collection at the time, so they were not eligible for membership.

immediate action. Eccles was not present but sent a letter proposing increases, effective within the next two weeks, and expressing concern that, having been granted additional authority, the Board would hesitate to use it (Board Minutes, September 7, 1948, 7–14). The discussion reached an informal agreement that the Board would increase reserve requirements by two percentage points for demand and 1.5 percentage points for time deposits and would notify Secretary Snyder of its intention. The only formal decision was to postpone the vote until after the meeting of the FOMC executive committee the following day.

At that meeting, President Clifford S. Young of the Chicago bank gave the correct analysis: “The increase would not do much good as an anti-inflationary move because banks would only sell securities which the System would buy in order to give them the reserves to meet the increased requirements” (Minutes, Executive Committee, FOMC, September 8, 1948, 6). Sproul, on the other hand, thought the change was too big. It would “churn the market unnecessarily” as banks sold governments to meet the higher requirements (6). McCabe favored lowering the support price for long-term bonds to the 2.5 percent rate, a reduction of only \$25 on a \$1,000 bond, but Sproul opposed using the same argument that had been used against him—that such a move would “create apprehension as to whether the entire support program was going to be continued.” They would then have to buy large amounts (9).¹⁵⁸ McCabe urged a drop in other support prices with an announcement that the 2.5 percent rate would be maintained, but Sproul cautioned that they had done that successfully in December 1947 and could not repeat the promise a second time after imposing losses on bondholders in December. He wanted to be rid of pegged rates, and he disliked further commitments to support them, but he did not favor the small step McCabe proposed (10). Sproul also opposed McCabe’s suggestion that the bill rate be allowed to fluctuate more freely. With a fixed rate on certificates at 1.25 percent and the bill rate at 1.08 percent, there was little to be gained.

The Board met the same afternoon and voted unanimously to increase reserve requirement ratios, as previously agreed, for demand and time deposits. The staff estimated that the change would absorb \$1.9 billion in reserves. On average the system portfolio rose \$1.54 billion, and the gold stock rose \$130 million, canceling most of the restrictive effect. Banks and others responded by selling long-term and buying short-term securities.

158. A notable feature of these discussions is the unwillingness to pay a one-time cost to improve control and reduce certainty about the 2.5 percent rate. This problem remained long after the peg was removed.

Short-term interest rates remained unchanged, and the monetary base continued to decline.¹⁵⁹

New York now had a more important role than at any time since the 1920s. Sproul took the lead in shaping the September decision. McCabe deferred to Sproul's views, whereas Eccles had not.

The 1948–49 Recession

Industrial production fell in August and September, rose in October, then fell sharply in November. The consumer price index reached a peak in August, remained unchanged in September, and fell in October. The fall was precipitate, from a 15 percent annualized rate of increase in July to unchanged in September.

The Board and the FOMC were unprepared and at first did not respond to the recession. The only mention of a decline referred to an eventual, inevitable recession if inflation continued. At a meeting of the System Research Advisory Committee in late September, Woodlief Thomas, the director of research, forecast a substantial increase in expenditure and income and continued price increases (Sproul Papers, Board of Governors, Memorandums and Drafts, September 27, 1948). He urged actions to slow the expansion. The Board's staff forecast 10 percent growth of GNP in the last three quarters of 1948 and the first quarters of 1949 (*ibid.*, September 30, 1948).

The recession eventually forced the System to face facts it had tried hard to avoid; it could not control inflation and was reluctant to respond to recession. Consumer credit controls, changes in stock market margin requirements, or adjustment of reserve requirement, with interest rates unchanged, accomplished little. Interest rates and money growth were set by markets, not by the System.

Realization grew slowly and spread even more slowly. More than halfway through the recession, the Board and the FOMC continued to press the Treasury to raise short-term interest rates, despite sustained declines in industrial production and consumer prices. Two closely related reasons help to explain why policy was slow to change. First, the principals regarded the recession as temporary, and for many it was a welcome interlude. The problem of greater concern was long-term inflation. Second, market interest rates were at historical lows, so they believed policy was easy. No one mentioned the effect of falling prices on real interest rates, a repeat of behavior in previous periods of deflation.

159. The volume of security sales was so heavy that the manager had to make three requests to increase the ceiling on purchases during September.

The New York bank was more perceptive than the Board about the start of the recession. At the October FOMC meeting, John H. Williams predicted that the economy was about to enter a mild recession, while inflation “was in the process of wearing itself out” (Minutes, FOMC, October 4, 1948, 5). He favored additional increases in short-term rates and no change in long-term rates.

His comments about recession had no impact, perhaps because the FOMC welcomed a mild recession. The main topic at the meeting was an increase in certificate rates to 1.5 percent as soon as possible but before the January refunding. The increase would permit the Treasury bill rate to rise toward the certificate rate and increase commercial banks’ bill purchases. Sproul proposed that the Federal Reserve should present its plan to the Treasury without seeking approval or disapproval. Following the FOMC meeting, Sproul and McCabe met with Snyder, but they waited for approval and did not act. A month later, in mid-November, over Federal Reserve objections, Secretary Snyder announced that the certificate rate would remain unchanged through January. Short-term rates remained the same until May 1949.

Stymied by the Treasury’s reluctance to increase rates, the Board discussed a further increase in reserve requirement ratios but did nothing. Banks objected to the further increase as costly to them and ineffective against inflation.

President Truman’s reelection surprised many bankers, businessmen, and others. The Federal Advisory Council ignored the deflationary policy but blamed the election for “a very profound change in business sentiment” (Board Minutes, November 16, 1948, 2). The council reported that businessmen were concerned about an excess profits tax, higher corporate tax rates, and new price controls. It warned that these policies would slow the economy. The risk of recession had increased. There would be a pause; construction and expansion would slow. The length and depth of the slowdown depended on the administration’s programs.

Long-term bond yields fell after the election, at least partly in response to recession and deflation. Insurance companies had been heavy sellers before the election. They now began to buy, so the Federal Reserve reversed course, selling long-term and buying short-term securities.¹⁶⁰ The Treasury also changed its operations after the election. Instead of retiring bills from the Federal Reserve, it began to retire bills held by commercial banks.

160. Between May and November 1948, Federal Reserve holdings of governments with ten years to maturity increased by \$4.3 billion. In the next six months to May 1949, during the recession, its holdings decreased by \$2.3 billion.

The effect on the stock of debt was of course the same, but the monetary base and the money stock increased.

The FOMC discussed the Treasury's new procedure at its November 30 meeting and concluded that the Treasury was trying to reduce the outstanding stock of bills to the point where the rate could be set free. Although the FOMC preferred to keep pressure on bank reserves, it did not object that the new procedure increased reserves. It decided also to reduce the premium above par on long-term debt. There was no mention of recession.

After his reelection, President Truman asked the Board for its legislative program. The Board suggested several changes: (1) extend the temporary powers to raise reserve requirements and impose consumer credit control beyond June 30, 1949; (2) enact new legislation giving the Board power to regulate bank holding companies; (3) authorize the Federal Reserve to guarantee loans by banks to businesses; and (4) ease membership requirements by reducing capital requirements for branches of state banks (Board Minutes, November 30, 1948, 4-6). Later the Board modified its request. It asked to maintain new maximum reserve requirements only if they applied to member and nonmember banks. None of the proposals had much to do with inflation (or deflation), and none became law.

At its December 1 meeting, the Board reviewed material to be included in the president's economic report. The draft showed no awareness of recession or deflation. The principal recommendations called for a larger budget surplus, achieved by raising tax rates and reducing spending to retire debt at reserve banks (Board Minutes, December 1, 1948, 3-5). On the critical issue of the bond price support, the Board recognized "a serious dilemma," but it offered no new solution and did not recommend increasing long-term rates (5).¹⁶¹

The Board asked the reserve bank presidents to comment on consumer credit controls and reserve requirements. The presidents favored credit controls, and some wanted to make them permanent. A majority opposed further increases in reserve requirements. They reported that "banks continued to hold the view that the only effect of an increase was to transfer Government securities from the banks to the Federal Reserve banks" (*ibid.*, 6). They noted that bankers talked about withdrawing from membership, but none had done so.

161. Although the recession had started, the administration's budget ignored evidence of recession and deflation. The budget asked for higher taxes on profits and estates and a surtax on incomes, and it assumed continued growth. It requested more spending for defense and education. By mid-February, when Chairman McCabe testified on the budget, he recognized that a mild readjustment was occurring, but he continued to urge his legislative program to control inflation.

The Board responded by making two changes in its proposals for the State of the Union message. It proposed paying interest on the additional required reserves.¹⁶² And it limited its request for authority to regulate reserve requirements for nonmember banks to those that offered deposit insurance, thereby exempting the smallest, nonmember banks (Board Minutes, December 17, 1948, 5).¹⁶³

At the turn of the year, the FOMC continued to press gently for a 0.125 percent increase in short-term rates. One of the main objectives at the time was to reduce the spread between short- and long-term rates so that holders would have no incentive to play the pattern of rates. Sproul reported that the Treasury would resume its former practice of retiring debt from the reserve banks and, despite declining economic activity, was open to the idea of increasing short-term rates at the March and April refundings (Minutes, Executive Committee, FOMC, January 4, 1949, 5–7).

The January 1949 meeting was the first time the FOMC discussed how it could end support of the long-term market. Sproul proposed refunding outstanding long-term debt into higher-yielding issues that would not require support (*ibid.*, 8). The Treasury did not agree until 1951.

The Federal Advisory Council opposed the Board's legislative program. It reminded the Board that increases in reserve requirements had no effect on inflation. The council also opposed interest payments on reserves and extension of the Board's authority to include nonmember banks (Board Minutes, February 15, 1949, 3).¹⁶⁴

February's minutes show the first clear recognition that a recession had started. The council "was definitely of the opinion that the country was in a recession . . . that the business decline was spreading (*ibid.*, 3–4). McCabe challenged this view: "In spite of the decline in business activity, there was more optimism than had been expressed by the Council" (5).¹⁶⁵

162. The president's staff objected to including insured banks on the grounds that the recommendation was too "controversial" for the State of the Union message. The Board agreed to delete the sentence from the speech provided it remained in the Economic Report of the President (Board Minutes, December 22, 1948, 5).

163. Several Board members accepted payment of interest on reserves reluctantly. Governors Szymczak, Evans, Vardaman, and Clayton preferred a secondary reserve of securities but regarded that proposal as unacceptable to Congress.

164. State banks could convert to national charters, but national banks could not convert to state charters. The increase in maximum reserve requirement ratios may have stimulated interest in removing this restriction. The Board opposed the change unless Congress approved its request to place nonmember banks under its reserve requirements. The so-called membership problem continued to occupy the Board until the 1980s (Board Minutes, March 17, 1949, 2–4).

165. During the general discussion, Eccles responded that the increase in reserve requirements "did nothing more than immobilize reserves received by the banking system as

Council members demurred and used the recession to argue against the Board's program. In a statement reminiscent of Miller or Young in the 1920s, Eccles showed that he had forgotten why he came to Washington in 1933: "The business decline that was now occurring was an inevitable result of the unprecedented inflation during the past two or three years, that the longer the unbalance and distortion in the economy continued the more disastrous the deflationary adjustments would be . . . and that some adjustment was necessary and desirable [*sic*] if the economy was to return to a period of stability" (13–14).¹⁶⁶

A widening rift between the Federal Reserve and the Treasury developed at the March 2, 1949, FOMC meeting. Secretary Snyder's letter, responding to the committee's request for an increase in short-term rates, stimulated an active discussion during which several members gave their views. Three issues were in contention at the time. First, the secretary again rejected the proposed 0.125 percent increase in certificate rates. Second, he cautioned the System to reconsider its policy of allowing rates on Treasury bills to rise because it would force a rise in the certificate rate.¹⁶⁷ Third, the Treasury would not commit to retire debt from the reserve banks. It preferred to retain its freedom to choose the source of open market retirements. The System saw this as a threat to its role.

FOMC members differed about whether interest rates should be raised. Some of the Board's staff and Governor Clayton opposed the increase in rates as inappropriate in a recession. Some noted that prices had fallen (since October). Sproul described the decline as "a healthy readjustment." He proposed to continue pressure to increase the bill rate, while avoiding an increase in the discount rate, to "improve the interest rate structure . . . and avoid the appearance of more or less permanently pegged rates at both ends of the rate pattern" (Minutes, FOMC, March 1, 1949, 12).

The FOMC adopted Chairman McCabe's suggestion that it ask Secretary Snyder to increase the rate but to be less insistent than in the past. To show its awareness of conditions in the economy, the committee included the words "in the light of changing economic conditions" in its directive. The vote, however, was to raise rates. Some members may have voted for the increase knowing that the Treasury would reject it.

a result of the System's support policy and, therefore, was entirely justified for that reason" (Board Minutes, February 15, 1949, 8). Despite the recession, Eccles favored the rate increase.

166. The council also favored an increase in short-term rates despite the clear recognition of recession and deflation, but it opposed an increase in the discount rate.

167. Snyder irritated the FOMC by writing that the 1.25 percent certificate rate should remain until "a different rate can be mutually agreed upon" (Minutes, FOMC, March 1, 1949, 6). The FOMC recognized that it would not act unilaterally, but it disliked the presumption that the Treasury had veto power. It voted to so inform Snyder (7).

In March, four months after the peak, with industrial production down almost 6 percent, the Board made its first public acknowledgment of recession. By a vote of five to one, it reduced down payment requirements on furniture and appliances to 15 percent (from 20 percent) but kept the 33.33 percent down payment on autos. The maximum maturity on all loans increased to twenty-one months (from fifteen or eighteen months). Eccles opposed the change as “premature.” Further, he thought it encouraged families to go heavily into debt on “too easy terms at high prices” (Board Minutes, March 2, 1949, 2–3).

At the end of the month, by unanimous vote, the Board reduced stock market margin requirements from 75 percent to 50 percent, effective March 30.¹⁶⁸ The purpose was to stimulate investment without reducing open market rates. The decline in output continued at a steeper pace. The Board continued to press for a rise in short-term rates and new issues of long-term debt restricted to nonbank holders. The staff continued to view falling prices as helpful and to regard future inflation as a more serious concern than current deflation (Minutes, FOMC, March 1, 1949, 4).

Sproul explained the System’s dilemma in an April memo. Wholesale prices and industrial production were 8 percent below their previous peaks. Factory man-hours had fallen 9 percent. Bank credit had declined “rapidly and substantially.” The economic and credit situation called for lower interest rates; the problem was that the Treasury might not permit a reversal after the economy recovered. He proposed a resolution calling for greater interest rate flexibility that would allow “the short rate to move up and down from the new level with some freedom while trying to find a long rate . . . which will float by itself without too great deviations either up or down” (Sproul Papers, FOMC, April 1949, 2–3).

On April 21, the Board began discussing a reduction in reserve requirements. Interest in an expansive action conflicted with a desire to have Congress renew temporary authority for higher maximum reserve requirements. Facts overcame politics. A key fact was the size of the contraction of bank credit, described as one of the most severe on record (Board Minutes, April 28, 1949, 7). Effective May 1 and 5, the Board reduced reserve requirement ratios by two percentage points at central reserve city banks, one percentage point at other banks, and one-half percentage point on all time deposits (see table 7.9 above). The relative size of the changes reflected the relative size of the decline in bank credit in the year to date. In

168. Before acting, the Board informed the Securities and Exchange Commission (SEC). The SEC did not object.

all, the staff estimated that the changes liberated \$1.2 billion of reserves.¹⁶⁹ The Treasury issued \$100 million in long-term debt to absorb part of the reserves without lowering rates unduly. In May the System sold \$1.3 billion, offsetting the effect of the reduction on the monetary base.

Open market rates remained unchanged except for a modest (0.005) decline in the ninety-day bill yield. The Board's policy now aimed to "twist the yield curve" by raising short-term rates while slowly reducing long-term rates.¹⁷⁰ The Treasury was unwilling to permit higher short-term rates, so the System was forced to sell long-term, bonds to prevent a steep decline and buy short-term to prevent a rise (Minutes, Executive Committee, FOMC, May 3, 1949, 2).

The Federal Advisory Council praised the Board for reducing consumer credit controls but questioned why controls were needed when durable goods were in excess supply. Governor Vardaman sided with the bankers: controls had been authorized to reduce inflation; inflation had ended. Some manufacturers wanted the controls retained to regulate trade practices but, Vardaman said, that was not authorized in the law (Board Minutes, May 17, 1949, 13-14).

The council again opposed supplementary reserve requirements and asked the Board why it did not reduce requirement ratios below the former maximum values. McCabe questioned the members about the effect on interest rates. W. Randolph Burgess, a member of the council, said there would be little if any effect if the Board sold securities and the Treasury issued medium-term bonds to fill gaps in the maturity structure.

By early June, several in the System began to express concern that the recession was spreading. Their policy of pressing for higher short-term rates and resisting lower long-term rates prevented any effective monetary response to the decline. FOMC members who wanted a more expansive

169. The Board decided to ask for renewal of authority to change reserve requirements, to make the supplemental reserve requirements permanent, and to extend the requirements to all insured banks that received demand deposits (thereby exempting mutual savings banks). The members wanted the maximum requirements increased by 10 percentage points for demand and 4 percentage points for time deposits, as initially requested in the State of the Union address, but they realized this was not likely to pass. They prepared two bills, one with the higher ratios they wanted and one renewing authority beyond June 30 with maximum increases of 4 percentage points and 1.5 percentage points above former statutory ratios. The Board also asked for a two-year extension of consumer credit controls instead of the permanent authority it preferred (Letter McCabe to Maybank, Board Minutes, May 5, 1949, 2-3). The chairman of the Federal Advisory Council testified against the bill.

170. "Twisting the yield curve" was the name given in the early 1960s to a policy of raising the interest rate on short-term debt and lowering the rate on long-term debt. As this experience shows, the policy had been tried before.

policy agreed that the Treasury would not oppose rate reduction. Later, they hoped, rates could be raised if necessary and policy would be more flexible.

Sproul took the lead in urging flexibility, but Eccles and McCabe joined him. Eccles said that future policy should maintain an orderly market without supporting a pattern of rates. He favored a symbolic reduction in the discount rate and in reserve requirements. Sproul agreed that the time had come to ease the money market to combat deflation, but he insisted that the change to an independent policy should be permanent, not tied to a current reduction in rates.

Congress did not renew supplementary reserve requirements or consumer credit controls. Both expired on June 30, so demand deposit reserve requirement ratios returned to 26, 20, and 14, with 6 percent for time deposits. The Board considered additional reductions near the end of June but postponed its decision until the Treasury agreed to a general program that included an end to the peg on short-term rates.

POLICY CHANGES Seven months of recession, and a growing sense of its impotence, had moved the System toward a new policy. On June 21, McCabe and Sproul met with Snyder to propose lower rates on bills and certificates. The Federal Reserve would remove the peg at the short end but retain it at the long end. It would announce the change publicly. Privately they assured Snyder that rates would probably fall and would not be allowed to rise when the peg was removed. Snyder liked the proposal but was hesitant to announce the change.

By July the consumer price index had fallen in six of the preceding nine months and was below the previous year's level. To stop the deflation, the Board's staff proposed that reserve requirements be reduced by three percentage points on demand deposits and one point on time deposits, to release \$2.6 billion of required reserves. The proposed reductions were an addition to the reserves released by the expiration of supplementary reserve requirement ratios. The Board also reduced the discount rate by 0.25 percent (Board Minutes, June 21, 1949, 16).¹⁷¹

As the System began a more activist policy, it restored the indicators of ease and restraint it had used in the 1920s. Riefler played a major role in drafting and presenting the proposal, so it is not surprising that the proposal discussed policy in terms of excess or free reserves (excess reserves minus member bank borrowing). Reducing reserve requirements, he said,

171. Eccles said that although he favored the proposal, it "implied that credit policy had a greater influence on the economic situation than the facts warranted" (Board Minutes, June 28, 1949, 2).

increased excess reserves and put downward pressure on market rates, easing policy.

Although the proposal called for a Board decision, it was the main subject of the June 28 FOMC meeting. The committee held the most active policy discussion in many years. What seems remarkable in hindsight is that opinion was divided about the need for change. Of those who are recorded, Presidents C. E. Earhart (San Francisco), Ray M. Gidney (Cleveland), and Hugh Leach (Richmond) were most aggressive; they favored ending the peg for both short- and long-term rates and announcing the change as a permanent change whether rates moved up or down. Governor Evans, at the opposite pole, favored letting rates decline but wanted the Board's public statement to reaffirm the commitment to the 2.5 percent rate as a maximum. Keeping the 2.5 percent rate "was one of the major accomplishments of the postwar period" (Minutes, FOMC, June 28, 1949, 8).

Snyder's support for lower rates seemed to give the opportunity Sproul had waited for. He favored letting rates fall, but he was reluctant to announce that rates would be more flexible henceforth. He wanted to limit the public announcement to a statement that the FOMC would maintain orderly conditions, omitting words about stable rates but not making a permanent commitment to market-determined rates (*ibid.*, 22).

McCabe hesitated also. He "felt it would be catastrophic if long-term government bonds were allowed to drop below par" (*ibid.*, 11). He proposed avoiding the issue in his letter to Secretary Snyder by reaffirming that the "programs and policies to be pursued would be decided upon after full discussion and mutual understanding" (10). This formulation did not assert independence or accept a Treasury veto. It was ambiguous enough to gain unanimous consent.

The committee next had to decide what it would announce publicly and what it intended to do about the \$800 million that would be released when the supplementary reserve requirements expired in two days. There was general agreement that the System would not absorb the \$800 million by open market sales but, instead, would allow banks to lower market rates. Riefler wanted to supplement the \$800 million by a further reduction in reserve requirement ratios. Reverting to the Riefler-Burgess framework of the 1920s, "he was not interested in lower short-term rates as such. . . . [He] was prepared to accept them as the inevitable consequence of bank reserve positions that would put banks under some pressure as lenders" (*ibid.*, 18–19). Sproul emphasized market rates, not free reserves. He thought \$800 million of additional reserves was a sufficient increase to reduce rates. The presidents agreed with Sproul. Only President W. S. McLarin Jr. (Atlanta) favored the staff position.

The public announcement, approved unanimously, emphasized the “needs of commerce, business, and agriculture,” and the “general business and credit situation.” It added that “under present conditions the maintenance of a relatively fixed pattern of rates has the undesirable effect of absorbing reserves from the market at a time when the availability of credit should be increased.” This formulation left open whether the decision to drop the peg was temporary or permanent.¹⁷² The committee’s hesitation proved costly when it wanted to increase rates. Because it failed to tell Snyder and the market what it wanted to do, it weakened its claim that the June 1949 change permitted rate increases later.

Stock prices reached their cyclical low in mid-June, 13 percent below the October 1948 peak. The announced change in policy may have contributed to a rise in stock prices; the July average is more than 5 percent above June. The actual change in policy was slight. Contrary to its discussion, the System sold securities, withdrawing \$800 million of reserves in July. Bill, certificate, and bond rates declined in July, with long-term bonds reaching the lowest rate in two years, 2.27 percent in late July. Gold continued to flow in, increasing the monetary base. The decline in rates was not steep enough to compensate for ongoing deflation, so real rates of interest continued to rise.

The following day, urged on by McCabe, the Board again discussed an additional reduction in reserve requirements. All other governors opposed, preferring to observe the full effects of the expiration of supplementary reserve requirements.¹⁷³ Ten days later, and continuing through July, Board members and staff frequently suggested additional action, including reductions in the discount rates and in reserve requirement ratios. Several governors were on vacation, so discussions remained informal.

172. Leading banks welcomed the June 28 action as the end “of the fixed rates . . . and of the close relationship of System open market policies to Treasury financing policies that had existed since the war” (Minutes, FOMC, August 5, 1949, 2).

173. Eccles cited the overnight drop in Treasury bill yields from 1.16 percent to 1.10 percent following the Board’s announced policy change. Yields fell to 1.02 percent by the end of July, then rose back to 1.10 percent by late December.

Eccles drafted a long statement after the June 29 meeting. He proposed releasing the statement to the public, but only four governors agreed to the statement. McCabe, Vardaman, and Draper did not sign. Part of the statement shows the mistaken interpretation of low nominal interest rates as evidence of monetary ease. The relevant section reads: “Since we have had easy money conditions with relatively low rates all along in the money market, it should not be supposed that still easier conditions with lower rates will completely correct or cure a deflationary trend, although they may encourage greater use of the existing money supply. . . . To the extent that the Reserve System becomes a reluctant seller of its holdings of Government securities, banks may be more disposed to make productive loans to private borrowers. . . . Monetary policy by itself cannot make lenders lend or borrowers borrow. . . . It cannot by itself bring about the very necessary price and other readjustments within the economy” (Board Minutes, June 29, 1949, 17–18).

By August the Board was ready to reduce reserve requirement ratios by two percentage points on demand deposits in a series of steps (Board Minutes, August 4, 1949, 10). The following day the FOMC agreed to absorb the reserves released by the Board's action so as to hold bill and certificate rates within their current ranges. Although discount rates were now above market rates on Treasury bills and certificates, McCabe proposed postponing any rate reduction. Discussion of a discount rate reduction continued throughout the fall, but discount rates remained unchanged.¹⁷⁴

Several FOMC members asked the reasons for the August reduction in reserve requirement ratios. The Board did not give a credit or monetary reason. The reasons given were that the System wanted to make clear that it was no longer concentrating its efforts on controlling inflation; that requirements could be raised later, if needed; and that increased ownership of government securities would increase bank earnings.¹⁷⁵

The August 5 meeting raised issues that would not be resolved for a decade. New York pressed for flexibility in the range of short-term rates and authority to purchase and sell at all maturities. It claimed that it was difficult to forecast how much of any increase in reserves would be held as excess reserves, so the account manager needed to respond to the market. As usual during discussions in this period, Robert Rouse, manager of the System Open Market Account, Woodlief Thomas, the Board's chief economist, and Winfield Riefler, adviser to the chairman, took an active role not limited to staff or operating duties. Sproul's was the dominant voice, Eccles's a close second. McCabe remained relatively passive, looking for compromise and unwilling to challenge the Treasury. Most of the bank presidents were recorded infrequently or not at all.

Rouse suggested a further reduction in reserve requirements so that they could be raised later if inflation developed. The committee members rejected this proposal, recognizing at last that they could act through open market purchases (or sales) if they were willing to let market rates change.

174. The New York directors voted to reduce the discount rate to 1.25 percent, effective September 19. At first the Board postponed action pending discussion with the Federal Advisory Council (Board Minutes, September 16, 1949, 8). One reason for hesitation was signs of recovery, but the Board also cited the British devaluation that week. The Federal Advisory Council opposed the reduction, as did several presidents (Minutes, FOMC, September 21, 1949, 6-7). They preferred to keep the discount rate as a penalty rate (Board Minutes, September 20, 1949, 2-3). New York tried again in October, but the Board refused again. Governor Eccles cited the explosion of a Russian atomic bomb as a reason for opposing the reduction. The Russian action would cause United States defense spending to increase, with inflationary consequences.

175. Chairman McCabe read a letter from Leslie Rounds of the New York reserve bank citing the low prices of bank stocks in relation to book values (Minutes, FOMC, August 5, 1949, 7).

For the first time, there was general recognition that the System could not control the size of excess reserves while maintaining a fixed level of interest rates. It gave up using excess reserves as a target. Instead, it set a target for Treasury bill rates at 0.94 to 1.06, about the prevailing range.

END OF THE RECESSION The National Bureau of Economic Research dates the end of the recession in October. Industrial production increased at a 12 percent annual rate in August and again in September. October's decline reflected strikes in that month. In November and December production rose at a 25 percent annual rate, and third quarter GNP rose 2.5 percent.

The FOMC executive committee recognized the turn in November. Renewed fears of inflation replaced concerns about recession and deflation. Using a phrase that recurred many times in the next fifty years, the minutes referred to "the largest peacetime deficits in the history of the United States at a time of very high levels [*sic*] of production and employment" (Minutes, Executive Committee, FOMC, November 18, 1949, 2). The members agreed that interest rates should rise and now asserted more forcefully that the flexible policy adopted the previous June allowed rates to change up as well as down. The committee unanimously approved an increase in bill rates by 0.07, a range for bills from 1.00 to 1.14 percent and for certificates 1.10 to 1.16 percent.

The minutes show that the Treasury would not agree to flexible rates. It wanted to sell certificates at 1.125 percent. Since the System was unwilling to challenge the Treasury in the marketplace, it could only petition and advise but was not free to act.

Much of the committee's discussion in this period concerned advice on Treasury debt management. Sproul and McCabe continued to meet with Snyder, or to petition him by mail, seeking higher rates at Treasury refundings. Occasionally the advice was accepted; most often it was not.

The System did not limit its advice to rates for new issues and refundings.¹⁷⁶ It expressed concern about the decline in the maturity of the debt, a reflection both of the passage of time and of Treasury policy. The rate structure did not permit the Treasury to sell longer maturities. As notes and bonds matured, the Treasury substituted bills and certificates. Five years after the war, Treasury notes had declined from a peak of \$20 billion

176. The System also responded to requests from the president for legislative proposals and for statements to be included in the January 1950 Economic Report. The principal legislation sought at the time was regulation of bank holding companies. It asked also for renewal of authority to purchase a limited volume of securities directly from the Treasury, authority over nonmember banks, and modification of limits on the cost of new Federal Reserve buildings.

to less than \$4 billion. The stock of bonds outstanding also continued to fall as bonds matured. There were no new bond issues until 1952, after the interest rate peg was removed.

WHY DID THE RECESSION END? The Federal Reserve was slow to respond to deflation and recession but quick to dampen recovery. Until June, seven months after the recession started, the System did little, none of it effective. Yet it raised rates in November, one month into the recovery. This behavior raises two questions. Why was policy action, and the recognition of a need for action, asymmetric? Did policy actions contribute to recovery?

The minutes suggest some answers. Many policymakers believed the economy would expand because of pent-up wartime domestic and foreign demand. Also, the System had struggled to raise interest rates and was reluctant to give up some of its “progress” toward higher rates and a flatter term structure. It acted only after Secretary Snyder accepted greater flexibility in principle, with some concern about whether the Treasury would permit flexibility both ways. This was a legitimate concern, given the Board’s experience, and it soon proved to be correct. Further, Eccles and other Board members remained skeptical about the effectiveness of monetary policy. This view was widely held by officials and economists within the System and outside.

At another level was the belief that had done much harm in the Great Depression—failure to distinguish between nominal and real rates. With market rates from 1 to 2.5 percent, officials thought monetary policy was easy. John H. Williams offered a classic restatement of this view: “The System had not had a tight money policy . . . any effort to ease money conditions to counter the recession would be starting from an already easy situation, and he felt that the System was likely to be frozen into a low-interest rate situation about which it might not be able to do anything” (Minutes, FOMC, May 3, 1949, 4).

Prices were falling at the time, so real interest rates rose. The rise increased the cost of investing in new capital relative to the cost of buying existing assets and increased the return to holding money. But falling prices raised the real value of money balances and the excess supply of money.

Chart 7.5 compares the change in real base money to the ex post real rate of interest on long-term bonds. Both series reflect the common influence of falling prices, hence they are roughly parallel in the months preceding the 1948–49 recession and during the recession.¹⁷⁷

177. Inflation in chart 7.5 is based on the deflator from Balke and Gordon 1986. The interest rate is the yield on long-term Treasury bonds with ten years or more to maturity.



Chart 7.5 Twelve-month moving average real base growth versus real long-term interest rate, December 1947 to December 1949.

The chart suggests that monetary policy in 1948–49 is qualitatively similar to that in 1920–21. Both recessions followed an inflation that drove down the real interest rate and the real value of the monetary base. The real value of the monetary base reached a trough two months before the 1948–49 recession started, and it turned positive in April, six months before the recession's trough. Industrial production started to rise in July, three months later. As in 1920–21 and 1937–38, but to a lesser extent, gold inflows under a fixed exchange rate contributed to the increase in real balances.

Real interest rates give a very different picture of events. Ex post real rates were lowest before the recession and highest before the recovery. The fall in real rates did not prevent the recession, and the rise did not prevent recovery. As in 1920–21 and 1937–38, the effects of real rates on economic activity appear to have been dominated by the response to rising real balances.

Two of the deflationary recessions, 1937–38 and 1948–49, provide evidence on the frequently stated proposition that monetary action becomes ineffective at low nominal interest rates. The data suggest that nominal interest rates near zero did not make monetary policy ineffective or irrelevant. Between November 1948 and July 1949, the rate on new issues of Treasury bills remained between 1.13 and 1.16 percent. In July the rate fell to about 1.05 percent, where it remained for most of the summer and fall. Changes in the rate of deflation dominated the small changes in the growth of the base and the level of nominal rates.

The deflationary recessions provide evidence, also, on the process by which monetary policy affects output. The fall in market prices raised the public's stock of real balances above the desired amount, just as if the Fed-

eral Reserve had increased base money at a constant price level. The public used its excess real balances to purchase assets, goods, and services. These purchases stimulated production directly and by changing asset prices relative to the prices of new production, thereby increasing the demand for new production. The rise in real interest rates worked in the opposite direction, but it was less powerful.

RECOVERY, EXPANSION, AND INFLATION

Industrial production passed its prerecession peak in April 1950. Consumer prices started to rise but remained near 1948 levels. The Federal Reserve took no action. Throughout the winter and spring of 1950, FOMC meetings considered, in detail, whether the Treasury should sell tap issues on demand, long-term nonmarketable debt, or bank eligible debt. The committee again offered advice on Treasury refundings and new debt issues. Typically the advice called for a slight increase in rates with the hope that the System could follow by raising its buying and selling rates for bills and certificates. The opposite was also true. Unless the Treasury was willing to increase its offering rate, the System could not raise open market rates. If it pushed the market rate above the offering rate, it expected large open market sales by private holders, who were expected to sell outstanding debt and buy new issues.¹⁷⁸

The System remained unwilling to confront the Treasury publicly and was frustrated by its failure. As long as Secretary Snyder insisted on a 1.125 percent offering rate for new issues or refundings, the System had to either insist on independence or remain subservient. Fearing the consequences of the first course, it remained with the second.

The government budget heightened the members' concerns. After three (fiscal) years of surplus, in the 1950 fiscal year the budget had a deficit. Instead of net debt reductions, the Treasury sold more than \$3 billion of new issues. Defense spending and foreign aid rose. There seemed to be no prospect of soon again using a budget surplus to reduce the monetary base.

The Treasury permitted very modest increases in short-term rates in February and May and a larger increase in June, without any negative market reaction. The long-term rate remained between 2.38 and 2.43 for the entire period, and the stock market index rose 13 percent between December and June as recovery gained momentum.¹⁷⁹

178. In March 1950 the FOMC authorized reserve banks to enter into repurchase agreements with nonbank government securities dealers to provide reserves temporarily. These were the first such operations since the 1920s.

179. Real GNP rose at an annualized 15 percent rate in the first half of 1950 (Balke and Gordon 1986).

Table 7.11 Rates Set at FOMC Meetings, December 1949 to June 1950

MEETING ^a	BILL RATES	MONETARY CERTIFICATE RATES	BASE GROWTH ^b (%)
12/13/49	1.04-1.12	1.08-1.12	-1.3
1/6/50	1.04-1.12	1.08-1.12	-1.8
2/6/50	1.06-1.14	1.09-1.17	-0.1
3/1/50	1.06-1.14	1.09-1.17	0.4
4/12/50	1.06-1.14	1.09-1.17	-1.7
5/3/50	1.06-1.14	1.12-1.19	0.7
6/14/50	1.12-1.19	1.12-1.24	-1.6
After July 1	1.10-1.36		

^aIncludes executive committee meetings.

^bTwelve-month moving average.

Table 7.11 shows the interest rates set at each meeting between December and June. In June the staff suggested that the economy showed signs of an unsustainable boom. Real estate and commodity prices had increased. Reported rates of inflation were 5 percent or higher in May and June.

The return of expansion and inflation turned attention back to monetary policy. At the May 3 meeting of the executive committee, Sproul proposed to confront the Treasury. Referring to the June 1949 decision to permit flexibility, he “saw no reason why the System should, and every reason why it should not, make statements about support or non-support of the Government securities market at par or any other price” (Minutes, Executive Committee, FOMC, May 3, 1950, 5). In June he continued to press for a firmer policy, including an increase in certificate rates to 1.25 percent followed by an increase in discount rates, as “a signal to the whole financial community and to the public that there has been a change in our policy in the light of the changed business and credit situation” (Minutes, FOMC, June 13, 1950, 4).¹⁸⁰ He wanted to continue selling long-term bonds from the System account and, if the problem arose, to let these bonds go below par.

Eccles gave Sproul limited support. He continued to urge new issues of long-term nonmarketable bonds. Although he favored an increase in bill and certificate rates, he opposed an increase in discount rates and was not yet ready to allow long-term bonds to go below par value. The FOMC remained unwilling to confront the Treasury over long-term rates. It agreed to let the long-term rate rise until long-term bonds were at 100.75 and to

180. Sproul went on to assert that there was no difference between the effect of selling marketable and nonmarketable bonds. This is the first clear rejection of the view held by Eccles and others that it was less inflationary to sell nonmarketable issues.

have the executive committee meet again if that happened. The committee, however, increased short-term rates in two steps, immediately to a maximum of 1.24 percent, and after the Treasury refunding to 1.36 percent, consistent with a 1.375 percent certificate rate.

The Treasury did not accept the System's advice or accede to its threat to raise rates. It continued to issue Treasury bills at 1.15 percent and certificates at 1.25 percent. Open market rates on bills remained unchanged and were only 0.05 percent higher on certificates, at the lower end of the System's support range.

The issue remained unresolved when the Treasury came to market. Snyder refused to raise offering rates. The System was unwilling to allow the new issues to fail, so it purchased heavily, offsetting part of the purchases with sales of bills. For the month of June, System holdings in the one- to five-year range rose nearly \$2 billion, and total holdings of governments rose \$942 million (5.4 percent). In the market, certificate rates rose by 0.05 percent to 1.23 percent in the week ending June 3. System purchases kept rates at this level through the refunding and beyond. The first skirmish with the Treasury ended with the System supporting the rates set by the Treasury.

Reform of Reserve Requirements

In the months before the start of the Korean War, both the Board and Congress again considered eliminating geographical location as the basis for reserve requirements. Classification into reserve city and country classes caused repeated problems. Not all banks in reserve cities held correspondent deposits of country banks, and some large country banks served as correspondents. The Board exempted from reserve city status banks on the periphery of a reserve city that did not hold correspondent balances, but it recognized that this was not entirely satisfactory.

After discussions with interested groups, the Board proposed the system based on type of deposit it first developed in the 1930s. Reserve requirement ratios would be 26 percent for interbank deposits, 15 percent for demand deposits, and 4 percent for time deposits. The requirements would apply to all commercial banks, not just members. The proposal did not attract support from bankers. Country banks would face increases, so they were strongly opposed. Banks that held a large volume of interbank deposits also opposed. Reserve city banks would have lower requirements for demand deposits, but they did not trust the Board to administer the requirements objectively: "The Federal Reserve System would go to almost any end to get banks to join the System and in so doing would take steps that would injure the business of the correspondent banks" (Board Min-

utes, October 3, 1950, 4). Bankers told the Board that to get banks to accept the proposed changes, it would have to reduce reserve requirement ratios. With concern about inflation rising, the Board was unwilling to consider anything that would increase the credit multiplier. The proposal remained on the System agenda but was never implemented.¹⁸¹

The Korean War

The Korean War began on June 26, 1950. The almost immediate economic response was a surge in domestic demand and prices. The economy was recovering rapidly, with real incomes rising. Memories of wartime shortages of durable goods remained strong. Also, war periods in the United States had always been financed by deficit spending and money growth. The public anticipated a repetition. When it did not occur and money growth did not rise, inflation concerns vanished. In the first two quarters of 1950, real GNP rose at a 14.9 percent annual rate. Third quarter GNP increased slightly faster, and consumer prices accelerated from a 4.5 percent rate of increase in the second quarter to 10 percent in the third.

The Korean War inflation is one of the few examples of expectationally driven price increases. Concerns about shortages and possible rationing increased demand, and an anticipated reallocation of resources from civilian to military uses reduced expected supply. Growth of the monetary base or M_1 was modest in the first nine months of war. The federal budget shifted from a \$3 billion deficit to a \$6 billion surplus, driven mainly by a large increase in personal and corporate tax rates. Government revenues increased by \$12 billion in fiscal year 1952, a 30 percent increase.¹⁸² Tax revenues reached \$51 billion, the highest level up to that time. Income tax rates were near (or above) peak World War II rates.

The Federal Reserve could not know at the time that the first year of war would be financed by taxes. Its concern was that wartime deficits would bring back inflation. Unlike the decision in 1942 to finance the war at prevailing, low interest rates, to many in the System the war gave greater urgency to the need for higher interest rates. This view was widely but not uniformly held.

The eight months from the start of the Korean War to the end of Feb-

181. In May President Truman nominated Edward L. Norton to be a member of the Board of Governors. In July he named Oliver S. Powell. Norton was from Alabama. He served from September 1, 1950, to February 1, 1952, completing Ernest Draper's unexpired term. Powell had been a vice president of the Minneapolis reserve bank. He served from September 1, 1950, to June 30, 1952.

182. As another sign of the Federal Reserve's role in government policy at the time, the Treasury asked the Federal Reserve to present its ideas about the tax program. McCabe designated Riefler as its representative (Board Minutes, July 18, 1950, 2).

ruary 1951 brought a growing rift between the Treasury and the Federal Reserve. Faced with the prospect of having to finance expected wartime deficits and to roll over large parts of the \$250 billion marketable debt, the Treasury became less willing to increase short-term rates or acknowledge Federal Reserve responsibilities for restraining inflation. Since Snyder was a longtime close friend of President Truman, he was confident that the president would rebuff a Federal Reserve appeal.

THE DOUGLAS HEARINGS

That left matters to Congress. In fall 1949 a subcommittee of the Joint Committee on the Economic Report (later the Joint Economic Committee) under the chairmanship of Senator Paul Douglas (Illinois) held hearings on monetary, credit, and fiscal policies.¹⁸³ The hearings gave the Federal Reserve a public forum in which to make its case under the sympathetic questioning of Senator Douglas, Senator Ralph E. Flanders (Vermont), and Congressman Jesse P. Wolcott (Michigan). While there is no way to directly connect the hearings to the System's subsequent behavior, System policy discussions changed in 1950, before the Korean War started. Many in the System believed that the Treasury's reluctance to let rates rise during the recovery broke the 1949 agreement under which it reduced rates in the recession. Nevertheless, the FOMC remained unwilling to act without Treasury agreement.

Eccles had often said that the System could not act independently without congressional support. The hearings gave the first public evidence of that support.¹⁸⁴ McCabe, Sproul, and Eccles testified for the Federal Reserve. Snyder spoke for the Treasury. Other witnesses included Leon Keyserling, chairman of the Council of Economic Advisers, the heads of other financial agencies, and representatives of labor, agriculture, and finance.

Secretary Snyder denied there was a conflict. The Treasury had final responsibility for debt management. The Federal Reserve had principal responsibility for credit and monetary policy, but debt management required the cooperation of the Federal Reserve: "I have been very happy with that cooperation. I think it has been splendid" (Subcommittee on Monetary, Credit and Fiscal Policies 1950a, 408). He refused to be drawn into a dis-

183. Paul Douglas was a distinguished economist who had been an economics professor at the University of Chicago before his election to the Senate. As is often the case, senators who had little understanding of the technical issues relied on a colleague's expertise, so Douglas's opposition to pegged rates carried considerable weight.

184. Eccles's book does not emphasize the role of the Douglas committee, but he later recognized that congressional support helped the Federal Reserve to regain its independence (CHFRS, May 18, 1954, 2).

cussion of possible conflicts. Most of his testimony discussed the difficulty of managing a large debt and the Treasury's successful management. At one point he compared his record favorably with debt management after World War I, when government bonds went below par value.

Snyder denied that the Treasury was unwilling to let interest rates change: "The Treasury Department has never taken an inflexible position" (*ibid.*, 409). Senator Flanders responded by reading from a letter Eccles sent to the committee to supplement his testimony. Discussing the Board and the FOMC, Eccles wrote: "Under present circumstances the talents and efforts of these men are largely wasted. Views of the Federal Reserve Board and the Open Market Committee regarding debt-management policies are seldom sought by the Treasury before decisions are reached. . . . Decisions are apparently made by the Treasury largely on the basis of a general desire to get money as cheaply as possible" (410).¹⁸⁵ Snyder would not comment publicly, but he agreed to meet privately with McCabe, Sproul, Eccles, and the members of the subcommittee.¹⁸⁶ Later in his testimony, however, he denied that the Treasury's decisions were based on the desire to borrow cheaply (425).

The System did not speak with a single voice. Its three spokesmen differed in both tone and substance. McCabe was most conciliatory, Eccles characteristically the most outspoken. On substance, however, Sproul was the strongest proponent of an independent central bank, McCabe most willing to accommodate the needs of the Treasury.

Differences in style and presentation reflected differences in personality. Substantive differences show that after forty years, political and financial interests had not been fully harmonized. McCabe and Eccles saw the Federal Reserve as mainly a government institution regulating the financial industry and carrying out government policy. Sproul saw the Federal Reserve mainly as a financial institution, blending private and public control. The difference had always been one of degree or mix; although the mix

185. In a later hearing, Snyder described the consultative role of the Federal Reserve in debt management. Until 1943, Secretary Morgenthau called on a large number of experts for advice on the pricing, timing, and maturity of new debt issues. He included presidents of reserve banks among the experts. Eccles and Sproul objected to this procedure on the grounds that advice from the presidents should come through them. Citing the statutory responsibility of the FOMC, the Board asked the Treasury to recognize the chairman and vice chairman of the FOMC as the representatives of the FOMC. The Treasury agreed. This procedure continued in effect under Secretaries Vinson and Snyder (Subcommittee on General Credit Control and Debt Management 1951, 78–79).

186. There is no record of the discussion at this meeting. Snyder was either misleading or not well informed. He denied that there had been a recession in 1948–49 (Subcommittee on Monetary, Credit and Fiscal Policies 1950a, 412) and claimed that the United States was on a gold bullion standard (422).

had changed in the 1930s, the difference between New York and Washington continued.

The testimony brought out several changes in analysis and outlook. Unlike the 1920s, all System spokesmen accepted responsibility for countercyclical policy and recognized that System actions affected prices, output, and employment. Although there were occasional references to “speculative” uses of credit, these have a much less prominent role.

Witnesses offered reform proposals, including abolishing the Board and vesting all monetary powers in the FOMC. At the opposite extreme, Eccles repeated his earlier wish for a five-person Board without reserve bank participation in open market decisions. Such perennial issues as required membership, uniform reserve requirements for all commercial banks, and coordination with other banking and financial regulators reappeared. Members of the subcommittee and the witnesses considered whether some type of domestic policy council would help to coordinate policy actions. The three System spokesmen differed on these issues, reflecting their views on the role of government.

The main focus remained on Federal Reserve–Treasury conflicts and whether there was a legal obligation or commitment to prevent bonds from going below par value. Snyder denied any legal obligation. It was a policy, not a binding commitment. McCabe denied that the FOMC had been pressured by the Treasury to support the 2.5 percent long-term rate (*ibid.*, 465). There were “widely varying shades of judgment” about appropriate policy. His view was that the System had to avoid the “repercussions that would ensue throughout the economy if the vast holding of the public debt were felt to be of unstable value” (465). The Treasury had been slow to accept higher short-term rates, but McCabe did not challenge the ceiling on the long-term rate.¹⁸⁷

McCabe quoted from the June 1949 announcement that interest rates would be more flexible: “I regard June 28, 1949 as a most important date. It signified removal of the strait-jacket in which monetary policy had been operating for nearly a decade” (*ibid.*, 471). The public debt was now sufficiently settled in the hands of stable holders that monetary actions could be more flexible. Coordination would continue to be required: “A splendid degree of cooperation exists between the Treasury and the Federal Reserve” (472).¹⁸⁸

187. Unlike Sproul, McCabe argued that raising reserve requirement ratios had been useful. Sproul argued correctly that the changes simply shifted securities between the Federal Reserve and banks without effects on money or credit.

188. Douglas gently but repeatedly challenged McCabe. Coordination and cooperation, he said, are vague terms, often covering up disagreement. The June 1949 agreement came in

Sproul asked Congress to issue a directive to the Treasury requiring it to carry out debt management within a structure of rates “appropriate to the economic situation” (*ibid.*, 431). He described policy coordination as “better than might have been expected . . . but agreed action . . . has most often been too little and too late so far as the aims of an effective monetary program were concerned” (431). Neither he nor members of the committee mentioned that the Employment Act gave the Treasury some of the guidance that Sproul wanted.¹⁸⁹

Like Strong in the 1921 hearings, Sproul showed far greater sophistication about the working of monetary policy than Board spokesmen and many economists of that period. Interest rate changes did more than change borrowing costs, as in the simple Keynesian framework of that period or the Board’s view: “I think in dealing with the interest rate, you are dealing both with expectations as to the future business situation and as to future profits. . . . I think you have an effect far beyond what I admit is the minor cost of interest in the carrying out of any business undertaking” (*ibid.*, 436). Sproul rejected the prevailing view that monetary policy was either ineffective or too powerful to use in an economy with a large outstanding debt. Monetary policy could be used effectively to maintain a satisfactory degree of economic stability. The large debt was not a deterrent to effective policy, as many believed. Small changes in interest rates could be helpful if they were supported by stabilizing fiscal, labor, and debt management policies.¹⁹⁰ The main limitation was political. With great insight, he forecast a central feature of the policy of the 1960s and 1970s. Large changes in interest rates were impractical. People would not submit to that sort of discipline because it required reduced production and employment: “I do not think that is the kind of climate we live in” (438). On the critical issue of whether there was an implied or explicit commitment to bondholders, Sproul was firm. No such commitment had ever been made or discussed. A contrary statement by the chairman of the Federal Deposit Insurance Corporation was “grossly mistaken” (439).¹⁹¹

a period of recession and called for a reduction in interest rates. The Treasury would, of course, agree to that. “Does it follow that . . . the Treasury will go along with primary regard to the general business and credit situation in other periods?” (Subcommittee on Monetary, Credit and Fiscal Policies, 493–94).

189. Sproul recommended uniform reserve requirements for commercial banks and was willing to open the discount window to nonmember banks as compensation.

190. Douglas asked Sproul to comment on a statement he had sent to the Board: “The problem of the budget is not merely that of deficits and surpluses but also one of size. . . . Carried beyond some point, a large budget destroys incentives throughout the whole community” (Subcommittee on Monetary, Credit and Fiscal Policies, 438). Sproul agreed.

191. Sproul testified that reserve requirements, margin requirements, and other controls should be decided by the FOMC. He strongly defended the regional character of the System

The start of Eccles's testimony repeated the themes he had emphasized throughout—the need for additional powers over nonmember banks and secondary reserve requirements. Eccles argued, with customary force, that the policy of fixed rates of interest rendered the System powerless to control the supply of money. The process of making decisions continued, but the Treasury controlled the substance of decisions (*ibid.*, 223). Congress had to choose one of three courses. It could retain the present arrangement under which the Treasury controlled monetary policy and the Federal Reserve advised the Treasury; give the Federal Reserve additional powers as a partial substitute for open market and discount powers; or restore the Federal Reserve's powers to carry out the mandate of the Employment Act and compel the Treasury to take account of the mandate when managing the debt (225).¹⁹²

Eccles did not argue for a change in the 2.5 percent interest rate. Nor did he argue that the Federal Reserve should force the Treasury to increase interest rates. Federal Reserve independence did not go that far. His statement explains some of the reason for a long delay in implementing an anti-inflation policy in the 1970s: "Congress appropriates the money; they levy the taxes; they determine whether or not there should be deficit financing. The Treasury then is charged with the responsibility of raising whatever funds the Government needs to meet its requirements. . . . I do not believe it is consistent to have an agent so independent that it can undertake, if it chooses, to defeat the financing of a large deficit, which is a policy of the Congress" (*ibid.*, 231). Chairman William McChesney Martin Jr. also held this view in the 1950s and 1960s.

None of the three Federal Reserve witnesses criticized the 2.5 percent ceiling or asked Congress to remove the ceiling. That recommendation was made most forcefully by a banker, W. Randolph Burgess.¹⁹³ In contrast

and its importance for decision making (Subcommittee on Monetary, Credit and Fiscal Policies, 444–45). The System should continue to combine the political influence from Washington with financial concerns (445). In a letter to McCabe, he endorsed Eccles's proposal (see below) that Congress should require the Treasury to consult with the FOMC about debt management (Sproul to McCabe, Sproul Papers, Board of Governors, Douglas Hearings, December 16, 1949).

192. McCabe was reluctant to have Congress mandate consultation between the Federal Reserve and the Treasury about interest rates and debt management. His concern was political. He thought that "it would be inexpedient to inject language as explicit as is embodied in this directive into the political arena of Congressional debate" (Letter McCabe to Senator Douglas, Sproul Papers, Board of Governors, Douglas Hearings, December 22, 1949, 6–7). His concern was that the populists in Congress would use the opportunity to mandate low interest rates.

193. W. Randolph Burgess was chairman of the executive committee, National City Bank. He had been a vice president of the New York reserve bank in the 1920s and 1930s and was a member of the System's Federal Advisory Council.

to Eccles, Burgess argued that the Federal Reserve did not need new powers. The System's problems arose from insufficient independence, "The wise executive will yield to the Reserve System a substantial measure of independence of action so that its judgments can be objective and free from political bias" (*ibid.*, 178). Open market operations and discount rate changes are powerful tools, Burgess said: "If we will act to restore the prestige of the Federal Reserve System, to give it greater independence and better cooperation from other Government agencies, I believe it does not need any new powers" (179).

Burgess distinguished between real and nominal values, a subject that Reserve officials never mentioned. He compared the relative fixity of interest rates to the loss of value from inflation.¹⁹⁴ His testimony also made the strongest argument for allowing interest rates to change. Unlike Snyder, McCabe, and Eccles, who argued that losses on the debt had major consequences that made interest increases too socially costly to impose, Burgess testified that "a moderate decline in bond prices is nothing very serious" (*ibid.*, 182). Small savers were protected from capital losses. The Treasury, mindful of experience in the 1920s, had offered nonmarketable savings bonds, redeemable at the Treasury at a fixed price, including interest, that could only increase in nominal value. Then, he added: "The responsibility of the United States government for the buying power of the savings bonds . . . is fully as important as the cash redemption of these bonds at the price you sell them" (184).¹⁹⁵

The subcommittee's report was a victory for the Federal Reserve. The subcommittee opposed subordination of monetary policy to debt management. It supported Sproul's and Burgess's view that monetary policy could be used flexibly, with fiscal and other policies, to achieve the goals of the Employment Act. New powers were not necessary if existing powers were used flexibly. (Subcommittee on Monetary, Credit, and Fiscal Policies, 1950a).¹⁹⁶

194. "Since the war the buying power of those bonds has been reduced very substantially (Subcommittee on Monetary, Credit and Fiscal Policies 1950a 181). "Let's not get our attention focused solely on the dollar price of things. Let's think in terms of the buying power" (184).

195. Burgess had served as account manager, so he could describe how the System could permit small changes in interest rates. He favored "orderly markets" operated according to the judgment of the manager and the FOMC.

196. The subcommittee recommended a new coordinating body in the federal government consisting of heads of four agencies, the Treasury, Federal Reserve, Budget, and Council of Economic Advisers. The group would discuss issues of common interest. The Kennedy administration tried a council of this kind, called the Quadriad, but it did not last.

Policy Actions before the Accord

Conflict over refunding rates on certificates at the end of June was a main topic at the FOMC executive committee meeting on July 10. The Federal Reserve had voted to raise rates, without Treasury concurrence. Snyder called the System's bluff. By refusing to raise rates on the new issue, he had forced it either to let the issue fail or to hold the rate by purchasing enough to clear the market. Snyder blamed the large purchases by the Federal Reserve on leaks to the press about differences between the Federal Reserve and the Treasury. The Federal Reserve regarded the differences as real and known to market watchers. The issue for the members was whether to stay with the June policy decision to discontinue purchases of short-term securities until rates reached 1.375 percent.

The July meeting was the first meeting after the start of war in Korea. The members viewed the war and increased military spending as an additional inflationary threat. Yet they decided to take no action to increase interest rates and resolved only to draft another letter to Secretary Snyder explaining the problems they faced and asking again for a tap issue of long-term bonds, ineligible for bank purchase.¹⁹⁷ They believed a tap issue would absorb saving, thereby satisfying part of the market demand for long-term issues. The letter explained that, as in World War II, banks were "playing the pattern of rates," selling short-term and buying long-term securities. To keep long-term rates from falling further, the System sold long-term debt. It also purchased short-term debt to prevent yields from rising. Since the Treasury would not raise its offering rates, the System felt unable to let market rates rise.¹⁹⁸ A long-term Treasury bond would absorb market demand, reducing the Federal Reserve's need to sell long term bonds and buy short term. This would firm short-term rates, a System objective that the Treasury did not share.

Snyder's reply again emphasized the need for stable market rates as the first priority. Although he did not mention the proposed tap issue, he opposed "experimentation" and emphasized the importance of leaving short-term rates unchanged.¹⁹⁹ After canvassing the opinions of all the presi-

197. A tap issue permits buyers to purchase from the Treasury on demand. The main reason Sproul gave for not raising short-term rates was that it might generate uncertainty, leading to further consumer buying and inventory building.

198. The only other action at the meeting was to propose reimposition of consumer credit controls.

199. Snyder explained later that in view of the uncertainties about war finance and the unprecedented size of the debt at the outbreak of the war, he wanted the Federal Reserve to maintain rates unchanged. He pointed out that far from monetizing debt and acting as an in-

dents, the executive committee renewed its request for a tap issue (Minutes, Executive Committee, FOMC, July 21, 1950). It also postponed a decision on the New York bank's request to increase the discount rate to 1.75 percent pending discussion with the Treasury.²⁰⁰

On August 18 the Board approved discount rate increases at New York and Boston, the first changes in two years. Within the week, all other reserve banks raised their discount rates to 1.75 percent. In announcing the increase, a joint statement of the FOMC and the Board declared that they were willing "to use all the means at their command to restrain further expansion of bank credit consistent with the policy of maintaining orderly conditions in the Government securities market" (Board Minutes, August 18, 1950, 3–4). The FOMC met on the same day. It supported the decision by voting to let short-term market rates rise to 1.375 percent immediately.

Before announcing the rate increases, McCabe and Sproul met with Snyder and his staff. Instead of asking the Treasury to agree, McCabe and Sproul told Snyder of their concerns about the growth of credit and inflation and their decision to raise short-term rates. They promised to maintain orderly markets. Snyder made no comment. "Chairman McCabe asked him if he was in accord with what we had done. The Secretary said we had told him what we had done and there was nothing he could say." McCabe promised to read the announcement to Snyder when he returned to the Board (Sproul Papers, Meetings with Secretary Snyder, August 18, 1950).

The meeting was brief. "A few minutes after our return, a call came through from Secretary Snyder. He told Chairman McCabe that he was announcing his September–October financing immediately, and that he was offering the market a 13-month $1\frac{3}{4}$ percent note. . . . Chairman McCabe said that the announcement . . . would be in direct conflict with our announcement, that it would create confusion, and that it ran counter

flationary force, the Federal Reserve had reduced its portfolio by \$4.5 billion in 1949 and continued the reduction in the first half of 1950 (Subcommittee on General Credit Control and Debt Management 1951, 66).

200. The New York directors had discussed an increase in the discount rate on July 6, but they postponed action, at Sproul's urging, until they had more information about the cost of the Korean War. On July 20, with Sproul absent, they voted for a 0.25 percent increase in the rate (Minutes, New York Directors, July 6 and 20, 1950). The letter from the New York directors also urged the Board to increase short-term market rates, get the Treasury to issue a long-term bond, and control consumer and real estate credit. The New York directors renewed their request on July 27. Again the Board deferred action pending discussion with the Treasury (Board Minutes, July 28, 1950, 2–3). The following week the Board approved a statement to all banks, issued jointly with federal and state banking regulators. The statement asked banks "to decline to make loans . . . used for speculative purposes" (Board Minutes, August 3, 1950, 7). The real bills tradition continued.

Table 7.12 System Portfolio and Gold Certificates, July 1950 to February 1951 (billions of dollars)

DATE	90 DAYS AND UNDER	91 DAYS TO ONE YEAR	1-5 YEARS	5-10 YEARS	OVER 10 YEARS	TOTAL	GOLD
July 1950	6.3	3.7	5.1	0.04	2.7	18.0	24.2
August	9.6	4.6	1.7	0.02	2.4	18.4	23.9
September	6.4	3.9	6.6	— ^a	2.6	19.6	23.6
October	0.8	9.2	6.2	— ^a	3.0	19.2	23.4
November	1.8	13.3	1.4	— ^a	3.1	19.7	23.2
December	3.6	11.8	1.8	— ^a	3.5	20.8	22.9
January 1951	1.7	12.2	4.0	0.99	2.6	21.5	22.5
February	1.5	12.2	4.3	0.99	2.8	21.9	22.2
Change July–February						3.9	-2.0

Source: Board of Governors of the Federal Reserve System 1976, 488.

^aLess than 10 million.

to any ideas of restraining inflation by credit measures” (ibid., 3). McCabe then called the president to read the announcement of the rate increase and to inform him of the conflict with the Treasury announcement.

Neither side retreated. The System again faced a choice of supporting the Treasury issue or letting it fail. Sproul later explained that “failure” meant that the Federal Reserve had to buy most of the maturing short-term issue, \$8 billion of the \$13 billion refunded. To offset the purchase, the System sold \$7 billion of other securities, absorbing the difference in interest rates as a portfolio loss.²⁰¹ Sproul affirmed that the Treasury had been informed about the increase in the discount rate before making its announcement (Subcommittee on General Credit Control and Debt Management 1951, 518–19). Table 7.12 shows the large swings in bill and certificate holdings one year and under, and in one- to five-year maturities, between August and November.

Total system holdings increased \$3.9 billion, approximately 22 percent in seven months. Gold losses offset about half of the increase; an increase in reserve requirements in December offset the other half. The net effect was a 3.2 percent (\$620 million) annual rate of increase in the monetary base for the seven-month period ending in February 1951.²⁰²

Minutes of the August 18 FOMC meeting show the heightened antagonism that marked the Federal Reserve–Treasury relationship during this period. The Federal Reserve continued to urge the Treasury to issue a long-term, nonbank 2.5 percent tap issue. The Treasury continued to refuse,

201. Private holders exchanged less than 6 percent of the maturing issue; \$2.25 billion was redeemed in cash, the largest change of that kind experienced to that time.

202. The \$620 million increase includes all transactions affecting the base. Data on the base are from the Anderson-Rasche series (St. Louis Federal Reserve bank), so they are adjusted for the change in reserve requirement ratios in January 1951.

claiming there was not enough demand. The System challenged the Treasury's data with its own estimates of demand, but it could not get Treasury staff to discuss the differences. Phrases like "the bitter experience of recent years," "unwillingness of the Treasury to sop up nonbank funds," or "spirited discussion" leading to "an impasse" appear in letters to the Treasury and in the discussion at FOMC meetings (Minutes, FOMC, August 18, 1950, 4–6). Secretary Snyder continued to talk about stable rates; System representatives referred to stable markets.²⁰³

The FOMC held four more meetings between August and December, and the executive committee met separately twice during this period. Nothing changed. The System recommended a long-term tap issue, pressed for higher rates at refundings, and discussed its inability to persuade Secretary Snyder or his aides.

The Federal Reserve had support from members of Congress and from the Federal Advisory Council. When voting on the Defense Production Act in August, Senators Paul Douglas (Illinois), J. William Fulbright (Arkansas), and Ralph E. Flanders (Vermont) urged the Treasury and the Federal Reserve to reduce credit expansion. The Federal Advisory Council urged the Board to press its case with the Treasury, to seek Treasury cooperation but, if that failed, to take its case to the president. As a last resort, the members should resign if they felt the issues were of sufficient importance (Board Minutes, September 13, 1950, 4–7). In November, Edward E. Brown, chairman of the Federal Advisory Council, suggested letting the 2.5 percent bond go below par value (Board Minutes, November 21, 1950, 15). Eccles objected.

McCabe continued to seek a compromise with the Treasury. He urged caution, and he continued to consult Snyder before taking any action. Sproul seems to have decided that the Treasury would not agree to any rate increases. He told his colleagues in September, "We ought to proceed immediately with open market operations that would permit the short-term rate to rise" (Minutes, Executive Committee, FOMC, September 27, 1950, 3). He proposed a one-year rate of 1.75 percent, an increase of almost 0.5 percent. When McCabe and Sproul again made their case to Snyder, Snyder urged delay. The only suggestion he offered was voluntary credit restraint.²⁰⁴

203. On August 10, McCabe told Snyder that the System had purchased \$400 million in the past three months. "He then asked the secretary just how far he thought the System could go in providing hot money. The secretary replied that 'it wasn't a question he should try to answer . . . and that in the natural course of things reserves needed to be supplied to the market'" (Minutes, FOMC, August 18, 1950, 7).

204. The FOMC minutes report his views (referring to the August decision) as follows: "There was a big question in his mind whether the recent increase of $1/8$ percent had any value whatever. . . . Both the Secretary and Mr. Bartelt [assistant secretary] brought up the cost to

The FOMC voted unanimously to let the one-year rate increase to 1.75 percent but to postpone the increase until after a further meeting between McCabe, Sproul, and Snyder. The long-term rate would remain at 2.5 percent or slightly below. On completion of the rate increase, the FOMC suggested that the Board increase reserve requirement ratios by two percentage points on demand deposits.

Not much happened. Secretary Snyder and his aides thought inflation might be ending. On October 5, he promised an answer by October 9. Although this meeting was more cordial, it was no more decisive. The FOMC executive committee could not agree on a response. McCabe and Evans wanted to wait for Snyder's response. Sproul and Eccles wanted to increase rates but would defer putting the change into effect until October 10, after Snyder's reply. On a two to two vote, the committee took no action.

The FOMC met again the following week. Snyder had taken a strong position against a rate increase, citing the harmful effect on sales of series E savings bonds. The committee voted to put the rate increase into the market, to let the one-year rate rise to 1.75 percent, provided the long-term 2.5 percent bond remained above par value. And it repeated its recommendation that the Board increase reserve requirement ratios by two percentage points. The Board discussed a change in reserve requirement ratios throughout the fall but did not act until December.²⁰⁵

In a letter to Snyder explaining the decision to increase rates, McCabe pointed for the first time to the effects of inflation on real values and purchasing power. He did not mention the effect on interest rates, but he reminded Snyder that "any resultant increase in the costs of carrying the public debt will be directly saved, many times over, if it helps to curb the rising costs of Government procurement" (Minutes, Executive Committee, FOMC, October 11, 1950, 7). He assured Snyder again that the 2.5 percent rate would remain as a ceiling for long-term bonds.

Table 7.13 shows the levels of short-term interest rates from August to February. The System's actions did not get the one-year rate to 1.75 percent, but they permitted short-term commercial paper rates to rise by 0.30 percent between August and October and an additional 0.24 percent between October and February. Rates on government securities changed by lesser

the government of an increase in the short-term rate, asking in different ways what proof we had of the effectiveness of the increase. He seemed pretty emphatic that any further increase in the short-term rate would be a step of very doubtful character" (Minutes, FOMC, September 28, 1950, 8). Compare this statement with his testimony at the Douglas hearings the year before denying that he insisted on low interest rates.

205. On October 2 the Board voted to dispense with the requirement that the chairman sign the minutes of Board meetings. This requirement had been in place since 1914.

Table 7.13 Market Interest Rates, August 1950 to February 1951 (percent)

MONTH	PRIME	THREE-MONTH TREASURY BILLS	NINE- TO TWELVE-MONTH GOVERNMENTS	THREE- TO FIVE-YEAR GOVERNMENTS
	FOUR- TO SIX-MONTH COMMERCIAL PAPER			
August	1.42	1.20	1.26	1.45
September	1.65	1.30	1.33	1.55
October	1.72	1.31	1.40	1.65
November	1.69	1.36	1.47	1.62
December	1.72	1.34	1.46	1.64
January	1.86	1.34	1.47	1.66
February	1.96	1.36	1.60	1.67
Change	0.54	0.16	0.34	0.22

Source: Board of Governors of the Federal Reserve System 1976.

amounts, and long-term rates remained nearly constant at about 2.38 percent. To forestall Federal Reserve activism, the Treasury preannounced its December and January refunding on November 22. Acceding to the Federal Reserve's request, and after the usual consultations with advisory committees, the Treasury offered to refund \$7.9 billion in maturing bonds and certificates into a five-year, 1.75 percent Treasury note.²⁰⁶

The initial market response was favorable, but market sentiment quickly changed after the Chinese entered the Korean War. The Federal Reserve supported the issue by buying \$2.7 billion of the maturing issues, partly offset by sales of \$1.3 billion.²⁰⁷ The result was a large increase in the System's portfolio in December, as shown in table 7.12 above. "Throughout the whole period . . . a premium was maintained on the new issue despite the fact that prices on many outstanding issues continued to move lower" (Subcommittee on General Credit Control and Debt Management (1951, 520).

On December 21, McCabe reported to the Board that he had again discussed an increase in reserve requirement ratios with Secretary Snyder. Snyder had questioned the effectiveness of the action, since the Federal Reserve would have to purchase securities that banks sold to meet the increase. He did not object, however.²⁰⁸ The Board voted an increase of two

206. Rates on three- to five-year issues had remained between 1.60 percent and 1.68 percent in October and November. The rate on November 18 was 1.60 percent.

207. Holders converted only 51 percent of the maturing issue into the new offering. They exchanged 14.5 percent of the old issues for cash. At the time, the average cash redemption was about 5 percent (Subcommittee on General Credit Control and Debt Management 1951, 72).

208. McCabe also discussed the action with Charles Wilson, director of the Office of Defense Mobilization, Senators A. Willis Robertson (Virginia) and Burnet R. Maybank (South Carolina), and Leon Keyserling. None objected, perhaps because they recognized that it would have no effect on market rates.

percentage points for demand deposits and one percentage point for time deposits, effective in the second half of January. The Board's statement highlighted growth of credit and "an excessive rise in the money supply" (Board Minutes, December 21, 1950, 6).

The action moved an estimated \$2 billion into required reserves. The move had been discussed so long and with so many groups that banks had accumulated more than \$1 billion of excess reserves in advance. The following week the executive committee, on Sproul's recommendation, voted to keep interest rates unchanged, so the change in reserve requirement ratios again had no effect on the monetary base. In January bank reserves and the monetary base increased.

Looking back on these events more than a year later, the Board wrote:

It was not possible during the period of August 1950 through February 1951 to carry out adequately the August 18 decision to undertake a limited program of general credit restraint. Immediately after the System in mid-August 1950 began to strengthen its efforts to curb inflation through monetary and credit action, it became necessary to buy Government securities in volume in support of an exceptionally large Treasury refinancing program. After the refunding was out of the way, short-term yields tended to adjust upward further in response to pressures in the credit market. The increase permitted, however, was very small. Under the circumstances, the policy of credit restraint could not be followed far enough to make the discount rate effective. Beginning in mid-November, both short-term and long-term yields on Government securities were again firmly pegged until the Treasury-Federal Reserve accord in early March. (Subcommittee on General Credit Control and Debt Management 1951, 365)

This summary, like similar statements about credit expansion made at the time, either is based on an error of interpretation or is deliberately misleading. It is true that bank loans increased rapidly during this period. Total bank credit and money increased modestly, at noninflationary rates. Table 7.14 shows the values of money, loans, and bank credit for the period. These data appear to support the Treasury view that monetization of debt had not occurred. In fact, monetization did occur, but its effect was largely offset by loss of gold.

Only the data for loans show rapid expansion. Banks sold government securities to finance most of their loan growth. The Federal Reserve and the Treasury trust accounts made heavy net purchases, but the gold outflow offset most of the effect on the monetary base. The base, M_1 and M_2 , rose modestly. Once again the Federal Reserve appears to have been mis-

Table 7.14 Money, Credit, and Bank Loans, August 1950 to March 1951 (billions of dollars)

DATE	MONEY		DATE	BANK CREDIT ^a	
	M ₁	M ₂		LOANS	LOANS PLUS INVESTMENTS
August 1950	115.0	151.7	8/16/50	26.6	67.8
March 1951	117.1	153.7	2/28/51	31.8	69.1
Change (%)	1.8	1.3		19.6	1.9

Source: Board of Governors of the Federal Reserve System 1976.

^aWeekly reporting banks.

led by its focus on nominal interest rates and bank lending and its neglect of monetary aggregates.

What about inflation? The data tell an unusual story for wartime. Inflation soared at the turn of the year. The consumer price index rose at a 19 percent annual rate for three months, December 1950 through February 1951. The rate of price change then fell back to about 1 percent (annual rate) from March through June 1951. The GNP deflator shows a similar pattern, 14 percent in first quarter 1951, -2.9 percent in the second quarter. Low rates of inflation continued for the next year or longer.

The surge in the measured rate of inflation appears to be a one-time change in the price level. For the Federal Reserve, the timing was ideal. The inflation it had warned about appeared with a vengeance just as its conflict with the Treasury became both more open and more intense.

Other Actions

The Board did not confine its action to the modest changes in interest rates and reserve requirement ratios. President Truman, Secretary Snyder, and the Board agreed to bring back consumer credit controls and supplement them with controls on real estate credit, authorized under the Defense Production Act of 1950. The Board delegated regulation of credit for real estate construction to the Housing and Home Finance Administrator. On September 18 the Board restored consumer credit controls, setting minimum down payments and maximum length of contract. The following month, it introduced real estate credit controls with the cooperation of the Federal Housing Administrator and tightened controls on consumer credit.

Although Secretary Snyder and the Board referred to credit controls as important parts of the anti-inflation program during the Korean War, at times the Board recognized that controls were “of secondary importance” though “effective in their respective spheres of operation” (Letter to President Truman, Board Minutes, December 1, 1950, 8).

The Board’s staff had a different, and more correct, appraisal.

Industry lawyers proved to be highly adept at developing arrangements that effectively circumvented the letter of Reg W [consumer credit]. Fed regulators found themselves lagging far behind industry lawyers, first in ferreting out the loopholes, and then in devising measures to close them. Similar enforcement problems developed in the administration of Regulation X [real estate credit].

This generally negative experience with mandatory credit allocation programs strongly influenced Fed attitudes. Each time Congress has subsequently proposed new programs for direct credit regulation, Fed officials have taken a negative view of their feasibility. (Stockwell 1989, 19)

The Board also raised stock market margin requirements by twenty-five percentage points, to 75 percent, in January 1951. It had discussed, and dismissed, the change several times during the fall, usually on the grounds that stock market credit had not increased rapidly. A rise of more than 7 percent in stock prices between December and January, with increased trading volume, led the Board to respond.

THE END OF PEGGED RATES

Between August and December 1950, conflict between the Federal Reserve and the Treasury intensified and became open. Although the FOMC continued to advise on debt management and McCabe continued to discuss Federal Reserve concerns, there was less talk about cooperation and coordination and growing determination at the Federal Reserve to free monetary policy from Treasury control.

The Treasury's decision to accept the FOMC's advice by offering a four-year note in November to extend the maturity of the debt deepened the conflict. The issue's failure to attract buyers required the Federal Reserve to support the market by buying a large part. The Treasury blamed the System's advice for the failure and charged that rate increases had accomplished nothing useful. Federal Reserve talk and actions had unsettled securities markets, raised rates, and increased the cost of debt finance to the Treasury and the taxpayers.

The Federal Reserve accused the Treasury of announcing refundings far in advance to prevent the System from carrying out its responsibilities to control credit and money. It had become resentful of Treasury dominance, particularly after the Treasury ignored the modest 0.125 percent increase in interest rates in August. And of greater substance, System officials were skeptical about the administration policy to control wartime inflation. Sproul in particular doubted that the resources for war could be

obtained without restricting private demand more than the Treasury contemplated. In his view, the administration's program relied too much on credit, wage, and price controls and too little on higher interest rates to restrict demand and control inflation. Sproul made these views known at a meeting with Snyder and McCabe early in January 1951.²⁰⁹ He again urged higher short-term interest rates, to flatten the yield curve and stop debt owners from playing the pattern of rates, and higher rates on long-term debt, to permit the Treasury to sell debt without System support. Still, Sproul stopped short of asking for a long-term rate above 2.5 percent. He limited his demands to letting the bond price fall to par.²¹⁰

Discussions between McCabe, Sproul, and Snyder could not resolve the differences over power, responsibility, and policy. On January 17 Snyder and McCabe met with President Truman in an effort to resolve differences and restore cooperation after failed attempts in August and November to market government securities. McCabe's account of the meeting does not mention short-term rates, the immediate issue in dispute. The president said he would like the 2.5 percent long-term rate to remain "if possible."²¹¹ McCabe replied that "we have some doubt as to whether a long-term bond can maintain itself at the 2½ percent rate. Secretary Snyder said that he thought it could and that he would meet the situation when he came to it. . . . The Secretary said that we ought to let the public know that we are going to maintain it" (Sproul Papers, January 18, 1951, 2). McCabe replied that the FOMC had sent the secretary a letter several weeks earlier giving its views, and he could not commit the FOMC beyond that letter.²¹²

Snyder has a different, though not wholly contradictory, account. At the meeting with President Truman, Snyder later reported to Congress, "The President, the Chairman and I agreed that market stability was desirable, and the Chairman again assured the President that he need not be con-

209. Sproul and McCabe reported on the meeting. Their statements and reports of Snyder's response are in Minutes, Executive Committee, FOMC, January 31, 1951, 4–9.

210. Sproul also warned about savings bond redemptions. Ten-year series E bonds sold to small savers in 1941 were due to mature. Sproul urged the Treasury to increase rates and revitalize the selling organization to reduce redemptions. McCabe told the FOMC that the Federal Reserve staff had worked out a program for refunding E bonds but that Treasury staff had listened to their suggestions but ignored them (*ibid.*, 9).

211. The quotations are not direct. They are quoted from Chairman McCabe's telephone discussions with Allan Sproul as reported by Sproul and available in Sproul's papers in the Archives of the Federal Reserve Bank of New York. Other quotations in this section are from the same source but are based on Sproul's notes of meetings he attended. The notes refer to the president as "the Chief."

212. The latter was sent after the October FOMC meeting. Although Snyder is not quoted as asking for a renewal of the 1942 policy statement fixing interest rates for the duration of the war, it seems clear that this was his aim.

cerned with the 2½ percent long-term rate” (Subcommittee on General Credit Control and Debt Management 1952, 73).²¹³ Snyder responded to McCabe’s complaints about the size of recent purchases by blaming the Federal Reserve for creating uncertainty about future interest rates.

According to McCabe, Snyder did not mention a speech to the financial community in New York that he planned to give the following day. The speech first discussed the importance of avoiding inflation and the desirability of financing the Korean engagement out of current taxes. He then forecast a \$16.5 billion deficit for fiscal 1952.²¹⁴ Snyder dismissed small increases in interest rates as ineffective. To control inflation, the government would rely on a return to wartime policies, allocation of materials for defense, selective credit control, and wage and price control. Then he said: “The Treasury has concluded, after a joint conference with President Truman and Chairman McCabe, . . . that the refunding and new money issues will be financed within the pattern of that [2.5 percent] rate” (Sproul Papers, FOMC, January 31, 1951; Eccles 1951, 484).²¹⁵

The speech was a turning point. Federal Reserve officials were incensed that Snyder’s speech had publicly committed them to a policy many of them no longer supported. Some, who had continued to support the 2.5 percent rate, changed their position. The speech seemed to convince

213. McCabe reported his statement as: “The Chief [president] said he is concerned about maintenance of the 2½ percent rate. The Chairman replied the market has been acting well recently, that what support has been necessary has been given, and that he could *not see anything to be concerned about*” (Sproul Papers, January 18, 1951, 1; emphasis added). McCabe went on to refer to the letter he had sent to Snyder giving the FOMC’s position. This was not the first time President Truman intervened directly with the Federal Reserve. In early December he called Chairman McCabe at home. Referring to a newspaper article reporting that the Federal Reserve was “undercutting” the Treasury, he “hoped we would stick rigidly to the pegged rates on the longest bonds” (Minutes, Executive Committee, FOMC, January 31, 1951, 9). McCabe explained how many bonds they had bought (at the time of the failed note offering) and said they had bought the bonds at a premium, rewarding the sellers. President Truman ended with: “I hope the Board will realize its responsibilities and not allow the bottom to drop from under our securities. If that happens that is exactly what Mr. Stalin wants” (10). McCabe responded by assuring the president that they would “do all in our power to insure the successful financing of the Government’s needs” (10). After reporting to the president on the amount purchased to support the recent financing (\$2.5 billion gross, \$1 billion net), McCabe did not commit to announcing a firm peg. Instead, he asked to talk to the president about the risks and costs of such an announcement. The president subsequently sent some news clippings with a letter urging the Federal Reserve to stabilize the long-term rate.

214. The actual deficit was \$1.5 billion followed by a \$6.5 billion deficit in fiscal 1953. Tax rates were increased to reduce the deficit.

215. Sproul’s notes on the speech, taken at the time, do not record the reference to Truman and McCabe that caused subsequent excitement (Sproul Papers, Snyder Talk, January 18, 1951, 2).

them that the Treasury took their support for granted and would not change its position.²¹⁶

Four factors worked to the benefit of the System. First, it found support within the administration. Second, the financial press took its side. Third, some congressional leaders, especially in the Senate, wanted a more independent policy. Fourth, as noted earlier, economic activity and inflation were rising rapidly. Nominal GNP growth in 1950 was above 15 percent. Fourth quarter growth in GNP continued at that pace. Industrial production increased more than 20 percent in 1950. In December, consumer prices rose 14 percent. These data bolstered the Federal Reserve's arguments with each of the groups that now supported its position.

Support within the administration became clear when McCabe met with President Truman on January 19 to correct the impression left by Snyder's speech. The president told him he had not known about the speech in advance. McCabe warned the president about inflation. He then read a memo he had sent to mobilization director Charles Wilson warning about the effects of inflation on defense costs. The president said he would talk to Wilson. Wilson supported the System's view that inflation was a problem and that he wanted to avoid rising defense costs (Sproul Papers, January 19, 1951, 4; Minutes, Executive Committee, FOMC, January 31, 1951, 14).²¹⁷

Strong support in the financial press bolstered the System's position in Washington. One of the leading financial journalists, writing in the *New York Times*, gave his opinion of Snyder's speech:

In the opinion of this writer, last Thursday constituted the first occasion in history on which the head of the Exchequer of a great nation had either the effrontery or the ineptitude, or both, to deliver a public address in which he has so far usurped the function of the central bank as to tell the country what

216. The usually conciliatory McCabe described his position as "untenable." He had not committed, and could not commit, the FOMC. Governors Evans, Norton, and Szymczak were cautious, believing the System would lose a public confrontation. McCabe hesitated, pointing out that the statement had not committed the FOMC, only referred to consultations. Sproul protested. The press and the financial community regarded the statement as a commitment. He urged McCabe to tell President Truman that the System was not committed to the 2.5 percent rate. He did not want a press release or immediate public statement. They should inform the public in their speeches and public statements later. Governor Szymczak called Sproul later in the day to say he agreed, adding that McCabe had received a letter from Secretary Snyder reaffirming the importance of keeping the 2.5 percent rate. Eccles also called, agreed with Sproul, and advised that he would testify at the Joint Committee on the Economic Report the following Thursday (Sproul Papers, January 19, 1951, 2-5).

217. McCabe also pointed out that before taking any decisions, he advised and consulted with all relevant parts of the government, especially the Treasury. Snyder did not reciprocate when setting interest rates on debt issues. The president agreed to talk to Snyder and urge him to be more cooperative.

kind of monetary policy it was going to be subjected to. For the moment at least, the fact that the policy enunciated by Mr. Snyder was, as usual, thoroughly unsound and inflationary, was overshadowed by the historic dimensions of this impertinence. (Quoted in Eccles 1951, 485)

Press coverage of this kind, especially if widespread, undermines the position of officials in political Washington. Politicians who cannot have a well-founded, independent position on every issue are often influenced by public opinion as reflected in the press. This is particularly true when the criticism finds support among members of Congress who are viewed as knowledgeable about the subject.

In this controversy, many members of Congress regarded Senator Douglas as an expert. He firmly supported the Federal Reserve and the need to control inflation by controlling money growth.²¹⁸ Douglas was not alone. Senators A. Willis Robertson (Virginia) and Burnet R. Maybank (South Carolina), both influential members of the Banking Committee, worked to avoid public hearings, at which populist senators would side with the Treasury. They too supported the System's position and opposed the Treasury. On the Republican side, Senator Taft, a minority member, invited Eccles to present the Federal Reserve's position to the Joint Committee on the Economic Report. Eccles changed his earlier position and criticized the bond support policy as inflationary.

The FOMC was scheduled to meet on January 31. At Secretary Snyder's suggestion, President Truman invited the entire committee to meet with him. The White House announced the meeting to the press, so it drew considerable attention. It was the first and only meeting of this kind ever held. It shows how much independence had been lost since President Wilson's decision not to interject political consideration into Federal Reserve proceedings.

Before meeting the president, the FOMC discussed its options. McCabe suggested three alternatives: agree to maintain the 2.5 percent ceiling rate; agree to support the rate conditionally and to discuss a change with the president and the secretary if economic conditions changed; or resign if unwilling to make any commitment.

Sproul disagreed. He found the first two alternatives unacceptable, the third an admission of failure. He proposed asking Congress for new instructions, thereby shifting the onus of continued inflation onto Congress

218. In a Senate speech a month later, Douglas warned of the destructive power of inflation and compared it to wartime destruction. Then he added: "In the eyes of those who want to destroy democracy and capitalistic institutions it is a cheap way of achieving their collapse" (quoted in Eccles 1951, 481).

if it failed to support the Federal Reserve (Minutes, FOMC, January 31, 1951, 15–19). No one suggested letting the market adjust. That would continue conflict with the Treasury, an unacceptable outcome for both sides.

The committee did not make a choice. The members could not agree on the language for a written statement of their position. They agreed only that Chairman McCabe would speak for the group. Agreement was not unanimous. Governor Vardaman said he would offer his own view, that the committee should be “guided by whatever request was made by the President as Commander-in Chief” (Minutes, FOMC, January 31, 1951, 21).²¹⁹

The substance of the meeting with the president was less important than its aftermath.²²⁰ The president talked about the seriousness of the wartime emergency and the importance of maintaining confidence in government securities. He recalled his experience in 1920 when the value of government bonds fell to 80 before rising to a premium. He thanked the committee members for their past cooperation, then told them that he wanted to finance the war with taxes and that he would ask for \$16.5 billion of new revenues to balance the fiscal 1952 budget (Minutes, FOMC, January 31, 1951, 25).

McCabe explained that the Federal Reserve shared his concern about maintaining the government’s credit, but that it had responsibility for economic stability. Its decisions were made by a committee of public-spirited men who might, however, disagree. He did not touch on the dispute with the Treasury, nor did the president. He promised to continue consultation with the secretary. If they failed to reach agreement, he would discuss the issue with the president.

The president said that was “entirely satisfactory.” He concluded the meeting by again stressing the importance of maintaining confidence in the government’s credit and in the securities market. The president said the White House would issue a statement saying that “we discussed the general emergency situation, the defense effort, budget and taxes, and that he had stressed the need for public confidence in the Government’s credit” (*ibid.*, 27).

The meeting with the president smothered the conflict in ambiguity.

219. Governor Vardaman then read a memo he had presented to the Board the previous day. The memo criticized McCabe and the other members for opposing the Treasury. The decision about interest rates and debt finance was the secretary’s. “This Board has nothing further to say on the question involved other than to state quite firmly and clearly that the Board will support to the fullest extent of its authority the program as officially promulgated by the United States Treasury” (Board Minutes, January 30, 1951, 7–8).

220. The text is based on a memo prepared by Governor Evans after the meeting, probably based on notes made during the meeting, and on Eccles 1951, 487–90.

Everyone seemed to agree, but no one changed position. Some members of the FOMC complained that they had wasted an opportunity.

Press reports at the time said that the FOMC voted eight to four against a motion to support the 2.5 percent rate. This is an error. There is no mention of a vote, only a statement by McCabe that the price of the long-term bond would remain 100²¹/₃₂. Although Snyder was not present when the FOMC met with the president, the Treasury began to tell the press its version of what had taken place. In the Treasury's version, the Federal Reserve had agreed to support Treasury issues and maintain the 2.5 percent rate. These stories infuriated Sproul and other Federal Reserve officials. But there was more to come. As Sproul and McCabe discussed the Treasury's leaks to the press and debated whether to respond, McCabe received a letter from the president thanking the FOMC for its cooperation and for its "assurance that you would fully support the Treasury . . . financing program" (Minutes, FOMC, February 6, 1951, 3). McCabe then said that there were two courses of action: one, get the president to take back the letter or, two, deny that the FOMC had given any such assurances.

At noon on February 1, the White House released a press statement that took the Federal Reserve by surprise. Instead of the bland statement that President Truman had given at the meeting, the White House press office announced: "The Federal Reserve Board has pledged its support to President Truman to maintain the stability of Government securities as long as the emergency lasts." Soon after, a statement from the Treasury said that the White House announcement meant that interest rate levels would be maintained during the Korean emergency.

These efforts to force the System to remain subservient accomplished in a few days what most of the members had been unwilling to consider in the previous five and a half years. The Treasury had lied publicly. In Sproul's words, "publicity concerning yesterday's meeting with the President . . . doesn't accord with the facts" (Sproul Papers, February 1, 1951, 1).

At the February 2 Board meeting, McCabe circulated the letter from the president and asked for discussion of a response. The Board decided that McCabe should ask to meet with the president to show him Governor Evans's summary of the January 31 meeting. Then McCabe would ask the president to withdraw the letter. Before a meeting could be arranged, the White House released the letter to the press late on Friday afternoon.²²¹

That was too much for Eccles.²²² After thinking about his response

221. Eccles (1951, 492) claims the Treasury drafted the letter.

222. Eccles (1951, 495) had decided to resign and return to Utah. He held his letter of resignation until after the controversy ended. He left the Federal Reserve on July 14, 1951. His last days were among his best. Eccles recognized that what he did next was irregular and im-

overnight, he released a copy of Evans's memo, summarizing the January 31 meeting at the White House, that the Board had agreed to unanimously. The memo, published in the press on February 4, showed that the White House and the Treasury had released false information to give the impression that the Federal Reserve had capitulated. The press and much public opinion supported the Federal Reserve.

The FOMC met on February 6–8. Sproul proposed a confidential response to the president and another to Secretary Snyder. The letter to the president was polite, but firm and carefully reasoned. The committee stressed its responsibility to control inflation and argued that control of inflation was essential for achieving the president's goal of maintaining confidence in the "integrity of the dollar and therefore in Government securities" (Minutes, FOMC, February 6–8, 1951, 26). The letter reminded the president of his own frequent statements on the importance of controlling inflation. Confidence would be destroyed, however, "by a flood of newly created dollars [that] will overwhelm whatever price, wage, and similar controls, including selective credit controls, that might be contrived" (26).

The letter then explained the differences between 1941 and 1951 to show why higher interest rates must be part of the 1951 program. The FOMC did not want high interest rates: "We favor the lowest rate of interest on Government securities that will cause true investors to buy and hold these securities" (*ibid.*, 27). Then, at last, the committee took up the president's press statements and releases: "The inevitable result [of supporting bond prices] is more and more money and cheaper and cheaper dollars. This means less and less public confidence. Mr. President, you did not ask us in our recent meeting to commit ourselves to continue on this dangerous road. Such a course would seriously weaken the financial stability of the United States and encourage a further flight from money into goods" (27).²²³ The letter closed with an assurance that the FOMC would seek to work out an agreement with the secretary to protect both the credit of the United States and the purchasing power of the dollar.²²⁴

proper. At the FOMC meeting on February 6, only Sproul supported Eccles's action, although he agreed that it was improper to discuss publicly what happened at meetings with the president. No other member of the FOMC took a position (Minutes, FOMC, February 6, 1951, 10). Sproul described the conflict with the Treasury as "violent," the FOMC record of the meeting with the president as "fair and accurate," and the White House statement and the president's letter as inaccurate and a misrepresentation (9–10).

223. The letter then reminded the president of the difference between the bonds he bought in World War I and the series E bonds sold to the general public in World War II. The latter were protected against loss of nominal value.

224. The Board approved the letter eleven to one. Vardaman dissented on grounds that the committee had not adopted a program. He agreed to have his dissent recorded along with his reason, but McCabe said he would not include the dissent when he sent the letter to the

The importance of the letter lay not so much in what it said to the president as in what it said about the FOMC. The committee was now on record favoring an anti-inflationary policy, even if that meant that long-term rates would rise. Money growth had to be controlled. It is of interest, also, that nowhere does the letter, or the discussion, suggest that if inflation persisted interest rates would rise.²²⁵

The committee turned next to the letter it would send to the secretary. By unanimous vote, it approved a letter outlining a coordinated program to control inflation and finance Treasury borrowing. The Federal Reserve offered to hold the price of long-term debt above par "for the present." If this required a substantial increase in reserves, the Treasury could issue a "longer-term bond with a coupon sufficiently attractive" to investors. Holders of outstanding long-term bonds would be permitted to exchange them for the new bond. This exchange would remove any debt overhang. The Federal Reserve would maintain an orderly market for short-term securities but would not maintain fixed interest rates. Returning to its 1920s procedures, "banks would be expected to obtain needed reserves primarily by borrowing" (*ibid.*, 30–31).²²⁶

All that remained was to work out an agreement with the Treasury. On February 7, Senators Robertson and Maybank asked McCabe and Sproul to meet with Snyder. They both agreed, but they refused to accept Snyder's suggestion that bankers and outsiders should be present. Snyder agreed to think about it. The first meeting was held the following day.

At the February 8 meeting, both sides repeated their grievances. Snyder was angry. He claimed that McCabe had agreed to support the 2.5 percent

president. Vardaman wanted to remain on good terms with the president and the administration, so he insisted that the staff tell the president's press secretary he had dissented. There were several exchanges with other Board members at about this time accusing Vardaman of leaking confidential information to the press and the administration. Vardaman denied these charges. He also sided with the White House and Treasury interpretation that McCabe had agreed to support government bonds at the January 31 meeting (Board Minutes, February 6, 1951, 1–6). He was the only one.

225. The change in attitudes is reflected in a long statement that Governor Eccles made at the time. "We are almost solely responsible for this inflation. It is not deficit financing that is responsible because there has been a surplus in the Treasury right along; the whole question of having rationing and price controls is due to the fact that we have this monetary inflation, and this Committee is the only agency in existence that can curb and stop the growth of money" (Board Minutes, February 6, 1951, 18). Later he added: "I believe we have been derelict; . . . I think I have not made the record I should have. . . . If we had had a row [in 1946–47] I could have resigned" (19).

226. The committee also approved a motion to ask the president to fire any Board member who leaked information about meetings. There is a reference to a member who had called the *Wall Street Journal* and also offered to confer with members of Congress. This is apparently a reference to Governor Vardaman.

rate at the January 17 meeting with President Truman. He charged that the FOMC had given him an ultimatum in August 1950 and that he had not been asked to express a view. Sproul criticized Snyder for not conducting a dialogue, for listening to the Federal Reserve's position but refusing to discuss his plans. The only progress that was made came at the end, when McCabe read a letter to Snyder outlining the Federal Reserve's position on future monetary and debt management policy. The secretary "expressed strong reservations." He thought they should just let markets settle down, but he agreed to study the letter and meet again (*ibid.*, 34).²²⁷

The FOMC proposal became the basis for the Treasury–Federal Reserve Accord. The Federal Reserve agreed to remove support of the 2.5 percent rate gradually. It would regain its independence only after the market stabilized at a new level of interest rates. The Treasury would assist the adjustment by offering to refund outstanding 2.5 percent bonds at a higher interest rate and would absorb the cost of removing the excess supply of bonds.

Two days later, Secretary Snyder told McCabe he was going into the hospital for eye surgery. He expected to be away for two weeks and asked that the status quo be maintained during that time. McCabe told Snyder that "unless there was someone at the Treasury who could work out a prompt and definitive agreement with us as to a mutually satisfactory course of action, we would have to take unilateral action" (Subcommittee on General Credit Control and Debt Management (1951, 520)).²²⁸ Secretary Snyder then appointed assistant secretaries Edward F. Bartelt and William McChesney Martin Jr. to negotiate with the Federal Reserve.²²⁹ The System appointed Riefler, Thomas, and Rouse.²³⁰

227. McCabe questioned Snyder about why he had not mentioned his January 18 speech in New York when they met with the president on January 17. Snyder said that the president knew what he planned to do, but McCabe replied that the president had denied any knowledge of the speech. Snyder agreed to keep McCabe informed in the future, but McCabe was not mollified. The meeting permitted both sides to complain and respond to the other side's complaints, but it made no progress toward agreement.

228. To support the long-term rate at a slight premium (2.4 percent) the System bought (net) \$700 million in the first two weeks of February. Market pressure slowed after mid-February. For the month as a whole, the System purchased (net) \$400 million, of which \$200 million had ten or more years to maturity (Board of Governors of the Federal Reserve System 1976, 488, 536). Holdings of long-term bonds were \$2 billion lower than a year earlier.

229. Sproul's papers (February 10, 1951, 2) report a conversation with McCabe. McCabe wanted to agree to a postponement, but Sproul was opposed. McCabe said, "As long as the Treasury [*sic*] is supporting the longest term restricted 2 1/2 there wouldn't be anything for us to do. I said yes, there is continued purchase of short-term securities to prevent the rate from going above 1 1/2 percent for one year—we ought to quit that right away." They agreed to discuss their next move at the executive committee meeting on February 12.

230. The Federal Reserve came under almost immediate pressure to delay discussion and withdraw its letter to the president. Senator Maybank and others urged delay. They re-

Snyder's stay in the hospital lasted a month. He asked for more time before reaching agreement so that the discussions at the technical level, led by Martin and Riefler, could consider alternatives other than those proposed by the Federal Reserve. McCabe declined because, he said, the FOMC continued to buy government bonds in "very substantial amounts" (Minutes, Executive Committee, FOMC, February 26, 1951, 3).

One reason the Federal Reserve's position hardened was that the staff had almost completed the technical discussions with the Treasury. At meetings between Riefler, Martin, and their associates between February 20 and 23, the Federal Reserve insisted on ending the monetization of long-term debt, a rise in short-term rates to 1.75 percent, and reliance on member bank discounting to supply reserves.²³¹ The Treasury team agreed to all of this. It asked only that the Federal Reserve maintain discount rates at 1.75 percent until December to facilitate Treasury planning of future issues. Riefler proposed, also, that the Treasury issue a 2.75 percent non-marketable long-term bond in exchange for the 2.5 percent bonds of 1967–72. The bond would not be redeemable before maturity but could be exchanged for a marketable 1.5 percent five-year note (Minutes, FOMC, March 1–2, 1951, 4–11).

The main difference between the two sides had been reduced to different speculations about what would happen if they agreed on the program

ported that Congressman Wright Patman "was very critical of the Federal Reserve" and eager to conduct public hearings on the controversy (Minutes, FOMC, February 14, 1951, 2). McCabe asked other members of the executive committee. Sproul favored sending the letter but not releasing it to the press. He opposed a commitment to maintain rates. Young (Chicago) and Evans agreed with Sproul about the letter but were willing to postpone action on interest rates. Eccles sided with Sproul. McCabe told the senators that the System was buying long-term bonds at a premium above par. This, he said, encouraged additional sales, further increasing reserves.

At its next meeting, the executive committee voted unanimously not to withdraw the letter to the president. Negotiations with the Treasury were under way based on the System's recommendations in their letter to the secretary, so the committee decided not to raise rates provided it was not required to purchase heavily to support the rate structure. If it had to buy, McCabe would discuss the decision with Martin and Bartelt before acting.

The Board asked the Federal Advisory Council for support. The council was reluctant to take a stand. Meeting with the Board on February 20, the council recognized the threat of inflation, but it concluded "that small changes in interest rates will not have any important effect on the volume of loans made" (Board Minutes, February 20, 1951, 3). Citing the large government debt outstanding, it called for "a flexible attitude" by the Treasury and the Federal Reserve. (At the time, commercial banks held about \$9 billion of government securities with five or more years to maturity, and insurance companies held about \$15 billion.) McCabe tried to get a stronger statement, but the bankers were unwilling. Eccles took them to task and accused them of lacking courage, but he did not sway them.

231. Riefler's case for discounting is along the lines of his book (Riefler 1930). Banks were reluctant to borrow, so increased borrowing is contractive.

and how to lessen the market response. “The Federal Reserve’s position was firm that this could be done without repercussions in the money market while the Treasury view has been that it could be minimized through direct controls which were preferable to increases in interest rates” (Martin memo in Minutes, FOMC, March 1–2, 1951, 11).²³²

With agreement nearly in hand, the Federal Reserve wanted to avoid additional delay. The members were in no mood to compromise when the president called a meeting at the White House on February 26 to discuss a program to prevent inflation. McCabe and Sproul represented the Federal Reserve. In Snyder’s absence Treasury Undersecretary Edward H. Foley and Martin represented the Treasury.²³³

The president began the meeting by reading a lengthy statement about the need to reconcile stability of the government securities market with restriction of private credit. He sketched a comprehensive program of controls, spending reductions, tax increases, credit restraint, and debt management. Clark described the Federal Reserve’s policy as disastrous for the economy and the government’s credit. Foley talked about the possible destruction of confidence if government securities prices fell. Sproul described the System’s statutory responsibility and claimed that the System’s proposals would strengthen confidence in the market rather than weaken it.

The president again referred to his post–World War I experience with Liberty bonds and said he did not want that experience repeated. Sproul replied that fluctuations in securities prices would not affect World War II savings bonds (Sproul Papers, February 27, 1951, 1–3).

Wilson agreed that something had to be done to slow the growth of bank credit. The president appointed him to take responsibility in Snyder’s absence by chairing a committee to study ways to reconcile credit control and debt management. The president asked that the Federal Reserve maintain current interest rates during the study period, until March 15. The White House released a press statement following the meeting. This time it did not announce the Federal Reserve’s commitment.

232. The Treasury team was able to reconcile acceptance of the Federal Reserve’s proposal with Snyder’s January 18 speech because Snyder had not discussed an exchange issue. The non marketable 2.75 percent bonds “would be consistent with the 2½ percent rate as announced by the Secretary on January 18” (Martin memo in Minutes, FOMC, March 1–2, 1951, 11).

233. Also present in addition to President Truman: Charles Wilson, director of defense mobilization, Charles Murphy, special counsel to the president, Leon Keyserling, John D. Clark, and Roy Blough of the Council of Economic Advisers, and Harry McDonald, chairman of the Securities and Exchange Commission.

That evening McCabe and Sproul told Wilson that the meeting “had all the appearances of another delaying action. . . . The FOMC could not commit itself to the maintenance of fixed rates” (Sproul Papers, February 27, 1951, 3). Wilson said he understood their position and doubted that his committee could resolve the issue.

Two days later, after additional discussion, Martin told Riefler that “from the standpoint of the Treasury, the matter was sufficiently in hand so that it could be presented to the Federal Open Market Committee as a basis for discussion” (*ibid.*, 12). The discussions now moved from the technical level to the policy level.

Martin and Bartelt met with the FOMC to present the Treasury’s counterproposal. They asked for three principal changes, based on conversations with Secretary Snyder. The first required the Federal Reserve banks to keep discount rates unchanged until the end of the calendar year. The second asked the Federal Reserve to maintain the existing premium on long-term bonds until the Treasury sold the 2.75 percent long-term bond. The commitment had a ceiling of \$600 million in open market purchases to be shared with the Treasury. The third was mainly cosmetic; to appear consistent with Snyder’s January 18 speech, the joint statement would say that nonmarketable saving bonds would be available at unchanged interest rates.

After Martin and Bartelt left, the FOMC discussed the proposal. It declared itself unable to commit reserve bank directors to hold the discount rate. And it was reluctant to maintain the premium on the 2.5 percent bonds during the refunding.

The final agreement said that the Board “will approve no change in the discount rate during the rest of the calendar year without prior consultation with Treasury” (*ibid.*, 37). The FOMC agreed to a maximum of \$200 million of purchases of the 2.5 percent bonds during the refunding and until April 15.

The Board then approved the following statement, subject to approval by the secretary: “The Treasury and the Federal Reserve System have reached full accord with respect to debt-management and monetary policies to be pursued in furthering their common purpose to assure the successful financing of the government’s requirements and, at the same time, to minimize monetization of the public debt” (Board Minutes, March 2, 1951, 1–2). The rest of the statement discussed the conversion of long-term debt, the commitment to support rates during the conversion, and the agreement to let short-term rates rise and to maintain an orderly market.

The FOMC approved the agreement the same day. Secretary Snyder ap-

proved it the following day. The joint statement was published on March 4, 1951.²³⁴

For the first time since 1934, the Federal Reserve could look forward to conducting monetary actions without approval of the Treasury. The accord ended ten years of inflexible rates, following seven years of inactive and inflexible policies. The System now faced the task of rediscovering how to operate successfully.

On March 9 McCabe resigned. His efforts at conciliation had lost support on both sides. Although his term as a member ran until 1956, President Truman told McCabe that “his services were no longer satisfactory, and he quit” (President Truman in Snyder’s memoirs as quoted in Kettl 1986, 75). He left the System on March 31, after confirmation of his successor. The president named William McChesney Martin Jr. as chairman.²³⁵ Martin served for almost nineteen years beginning April 2, 1951, the longest term of any chairman to this time.²³⁶

The accord was a major achievement for the country. It was not inevitable. The Truman administration could have appealed to patriotism, to the exigencies of war and to populist sentiment against higher interest rates to keep the support program in place. That decision would have required an earlier end to the Bretton Woods system, a different history than the one we know.

234. The 2.75 percent bond was exchanged successfully in April 1951. Press reports of the accord did not treat the agreement as a major change in policy or independence. See Keech 1995.

235. Concerned that Martin’s appointment meant the Treasury would dominate, Senator Douglas voted against him (Stein 1990, 277). Snyder proposed Martin. Truman and his staff preferred Harry McDonald, chairman of the Securities and Exchange Commission. McDonald was not from an open Federal Reserve district, so he was ineligible (Kettl 1986, 75).

236. Martin was forty-five years old at the time. His father had served as the first chairman and, after 1928, as governor (president) of the St. Louis reserve bank. He had taken graduate courses in economics at Columbia and had studied law. He worked as a broker after graduation. In 1938, at thirty-one, Martin became the first paid president of the New York Stock Exchange after a personal scandal sent his predecessor, Richard Whitney, to jail. He served as president of the Export-Import Bank after World War II and as assistant secretary of the Treasury from 1949 until his appointment as chairman. When he met President Truman before his appointment to the Board, the president retold the story of his loss on government securities in 1920–21. He hoped that would not happen again. Martin’s answer was: “I’ll do my best, Mr. President” (taken from some unpublished remarks by Robert Solomon on October 27, 1998). There are many stories about Martin’s strength of character and integrity. One that he told concerned his possible appointment by President Roosevelt as chairman of the Securities and Exchange Commission. Martin describes Roosevelt as very cheerful until Martin told him that he would gladly accept the chairmanship “but that he thought Mr. Roosevelt should know that there were three members of the commission that he could not get on with.” The president’s mood changed, and he did not appoint Martin (CHFRS, May 19, 1955, 3).

The Immediate Aftermath

The announcement of the accord lifted uncertainty from the securities markets. Considering the strength with which Secretary Snyder had resisted the change, the initial response of interest rates and stock prices seems modest. By the standards of the time, however, the changes in short- and medium-term rates are relatively large; the nine- to twelve-month certificate rate increased as much in March as in the seven months following the August 1950 decision to allow rates to rise to 1.75 percent. Table 7.15 shows rates in the weeks following the announcement and at the end of the month.

The refunding into 2.75 percent nonmarketable bonds in mid-April did not greatly change the yield on long-term debt. After the refunding, the yield rose to 2.62 percent on April 19. Federal Reserve purchases during March may have eased the transition to a freer market. It is difficult to separate open market purchases at that time from the normal seasonal change in bank reserves over the (then) March 15 tax date.²³⁷ The monetary base rose more than 5 percent in the second quarter, the largest six-month rate of increase since 1945. As noted earlier, the consumer price index rose very little (0.3 percent) in the next three months. Interest rates were no higher on June 30 than on March 31, suggesting that most of the adjustment had occurred within the month. In June the Treasury carried out a refunding by selling nine-and-one-half-month certificates at 1.875 percent, a yield Sproul described as “generous” (Sproul Papers, FOMC, June 7, 1951).

In less than two years, General Dwight D. Eisenhower became president, with George Humphrey as secretary of the Treasury and W. Randolph Burgess as his deputy. Burgess had testified strongly against pegged rates in 1949. He favored an independent monetary policy. The Federal Reserve was once again independent within the government.²³⁸

237. The seasonally adjusted growth of the St. Louis monetary base is smaller in March than in February or April. Monthly numbers contain relatively large random components, suggesting caution in drawing conclusions.

238. This phrasing was used by Martin, and it is often attributed to him. I believe it originated in Sproul's 1952 letter to Congressman Wright Patman amplifying his testimony in hearings on monetary policy and management of the public debt. Sproul responded to questions about why monetary policy should be independent if defense policy or foreign policy was not. His reply included the following: “I think it should be continuously borne in mind that whenever stress is placed on the need for the ‘independence’ of the Federal Reserve, *it does not mean independence from the government but independence within the government*” (Sproul 1980, 144; emphasis added).

Table 7.15 Interest Rates, March 1951 (percent)

WEEK ENDING	THREE-MONTH BILLS ^a	NINE TO TWELVE MONTHS	THREE TO FIVE YEARS	LONG TERM
March 3	1.390	1.60	1.69	2.40
March 10	1.406	1.72	1.78	2.44
March 31	1.507	1.94	2.03	2.51

Source: Board of Governors of the Federal Reserve System 1976.

^aNew issues.

Why So Little and So Long?

The Treasury's warnings about disaster proved empty. A rise of 0.25 percent in long-term bond rates, and about 0.34 percent in medium-term issues, restored equilibrium. There was neither panic nor destruction of confidence in the government's credit. Apparently, existing market rates had not been far from equilibrium rates. The puzzles are to explain why interest rates rose so little and why the Federal Reserve was so slow in regaining independence.

The principal reason for the modest adjustment was that, despite the Federal Reserve's repeated concern, inflation remained low. It is true that consumer prices rose, on average, 7 percent a year from 1946 through 1951. Most of the rise was an adjustment to the end of wartime controls. Much more relevant is that the consumer price index at the start of the Korean War was the same as in April 1948. In between, prices had fallen and gradually returned to their earlier level.

Again, despite its protests, the Federal Reserve had not become an "engine of inflation," the description Eccles was fond of using. The principal reason is not hard to find. The government budget was in surplus most of the time; the net budget surplus for fiscal years 1947 to 1951 was approximately \$8 billion. Federal government civilian employment declined from a World War II peak of 3.4 million to 2.1 million in 1950. And President Truman committed repeatedly to fighting the Korean War with a balanced budget. Further, gold flows reduced monetary expansion after 1948. The gold stock reached a peak in September 1949, near the end of the deflation. By the time of the accord, gold holdings had declined 10 percent from their peak. Almost all of the decline came after the start of the Korean War.

With a modest budget surplus, no gold inflow, and given interest rates, money growth depends mainly on growth of private spending and the portion financed by the banking system. The monetary base was about the same in March 1951 as in December 1945. Without sustained growth of money per unit of output, the public had no reason to expect continued inflation, and there is no evidence in market data that it did.

With hindsight, it seems clear that the Federal Reserve could have

ended pegged rates much earlier, without harm to the economy, if its officials had been more forceful. Their delay was more for political than for economic reasons, and resistance to change was usually stronger in Washington than in New York.

System officials believed they had no friends in high political office. Secretary Snyder was a Missouri banker, a longtime friend of the president. Although he denied it in the 1949 Douglas hearings, his principal concern was to borrow and refund debt at low interest rates. Until the Douglas hearings, the Federal Reserve had little overt congressional support to end pegged rates. And there was considerable opposition from the more populist members of Congress.²³⁹

Through most of the early postwar period, the Federal Reserve lacked a leader who was willing to push the issue forward. During his chairmanship, Eccles preferred to seek new powers over reserve requirements and to pursue his long-standing goal of gaining authority over nonmember banks. Reliance on credit controls, margin requirements, and other non-monetary arrangements reflects an effort to show that the Federal Reserve recognized its legal responsibility to prevent inflation, in part a mistaken belief that the Federal Reserve could control inflation without raising interest rates and controlling money.

Although political concerns were paramount, faulty economic analysis had a prominent role. Eccles did not believe that monetary policy could control inflation without very large increases in interest rates. Like many private and public sector economists at the time, he believed that fiscal policy was powerful and monetary policy was weak or impotent. On many occasions he expressed concern about the size of the change in interest rates required to control inflation. This too reflected political and economic concerns. Memories of 1920–21, when discount rates rose to 7 percent (in

239. I worked for the House Banking Committee in 1964 and had several opportunities to discuss some of these issues with the chairman, Congressman Wright Patman (Texas). Patman regarded the period of pegged interest rates as akin to a golden age of monetary policy. His slightly more muted views are on the record in many hearings, including the 1952 hearings on monetary policy and debt management that he chaired. These hearings, coming after the accord, gave opponents of the accord a chance to voice their complaints. By the time he held the hearings, the Treasury was not eager to reopen the issue. The subcommittee recommended many changes in the System, including required reserves for nonmember banks, appointment of labor representatives on reserve bank boards, six-year terms for governors (with reappointment), elimination of geographical requirements for governors, four-year term for the chairman, coterminous with the president's term, an advisory council to coordinate policy, and an annual audit of the Board's accounts. It opposed selective credit controls except in "special circumstances," favored "mutual discussion" to resolve conflicts between the Federal Reserve and the Treasury, and pointed to the Employment Act as the policy mandate (Subcommittee on General Credit Control and Debt Management 1952, 2–7).

a period of high inflation), haunted the Federal Reserve, Secretary Snyder, and President Truman. Since no official at the time distinguished between nominal and real rates of interest, concern that interest rates would rise again to 6 percent or 7 percent deterred action. The existence of a large stock of debt—ten times the size of the federal debt after World War I—reinforced other concerns about higher rates. A substantial increase in market rates would lower the value of existing debt, causing losses to the public and financial institutions.

Neither Federal Reserve nor other economists had developed a framework linking debt, money, and interest rates to output and prices. The common belief, repeated many times by officials and economists, was that the large outstanding debt changed the possibility of using monetary policy.²⁴⁰ It was not until the Korean War that Federal Reserve spokesmen pointed out that if inflation rose, the budget saving from holding interest rates low would be more than offset by the rising cost of government purchases.

The System began to change its view near the end of Eccles's term as chairman. Sproul was often the most forceful proponent of change. Since McCabe was a much weaker chairman than Eccles, leadership shifted to New York. It was Sproul who pushed for the 1949 decision to make policy more flexible and the August 1950 decision to raise interest rates without Treasury approval. And it was Sproul who appeared most determined, in the eight months of conflict that preceded the accord, to regain full independence from Treasury domination. But even Sproul was slow to state opposition to the 2.5 percent rate until concern about wartime inflation and political and press support opened an opportunity in 1951.

GOLD AND INTERNATIONAL ISSUES

The 1949 Douglas Committee hearings also reviewed the role of gold in the monetary system. The hearings came soon after several European countries, led by Britain, devalued against the dollar. Some members questioned whether the president or secretary could change the price of gold without the approval of the International Monetary Fund or Congress. The

240. One explanation for the delay in changing policy is fear of capital losses at banks. This argument is valid as one part of the concern at the time, within and outside the Federal Reserve, about using monetary policy actively in the presence of a large outstanding debt. It finds support in the emphasis given to issuing debt that banks could not buy, although the proposals were not defended on that ground. The argument is incomplete, however. I believe the Federal Reserve would have changed policy after June 1949, and possibly in December 1947, if it had believed that Congress and the public would support its decision.

fund had the right to approve a devaluation, but Congress had retained authority to set the gold price of the dollar.²⁴¹

The Federal Reserve gave little attention to international monetary issues during this period. Gold holdings were large at the end of the war compared with any previous experience. They continued to increase once the initial postwar United States inflation ended. Deflation in the United States and concerns about devaluation of some European currencies added to the gold inflow. Despite exchange controls in most of Europe, the United States gold stock increased more than 22 percent, to \$24.6 billion, in the four years following the end of the war in August 1945.

The peak in the United States gold stock came in 1949 when Britain, the sterling area, and Scandinavia devalued by 30 percent, with smaller devaluations by Germany, France, Belgium, and Portugal. Purchasing power parity calculations suggest that the devaluations substantially overvalued the dollar against the British pound and the Swedish krona (Friedman and Schwartz 1963, 771).²⁴² By the following September, the United States gold stock was 4.4 percent lower. A larger decline began after the start of the Korean War.

Chart 7.6 shows the real value of gold from 1934 to 1951 in 1982–84 prices. As commodity prices rose, the price of gold in constant dollars fell. By 1951 the \$35 gold price, set in 1934, had fallen by almost 50 percent in real terms.

There was only a slight echo of the Federal Reserve's earlier concerns about gold inflows in the early postwar years. Gold movements were small relative to changes in the government budget. Gold inflows reinforced demand for new powers to raise reserve requirements, but the demand would almost certainly have been made in any case.

Aside from a few technical adjustments, the Bretton Woods agencies leave no mark in the System's minutes for the period. The principal reason is that these agencies were inactive at the time. James (1996, 83) describes the IMF as "moribund," a view apparently shared by the fund's first two managing directors (83–84).

241. Section 5 of the Bretton Woods Agreement Act, enabling the United States to join the fund and the World Bank, provided that "neither the President nor any person or agency shall propose to the International Monetary Fund any change in the par value of the United States dollar or approve any change in par values unless Congress by law authorizes such action." When President Nixon stopped the sale of gold in August 1971, he did not get the prior approval of Congress or order a change in par value. He claimed authority under the same Trading with the Enemy Act that President Roosevelt used to stop gold sales in March 1933.

242. The British devaluation lifted the purchasing power of the pound relative to the dollar far more than Britain's 1931 devaluation. To a lesser extent this is true of the Swedish krona.

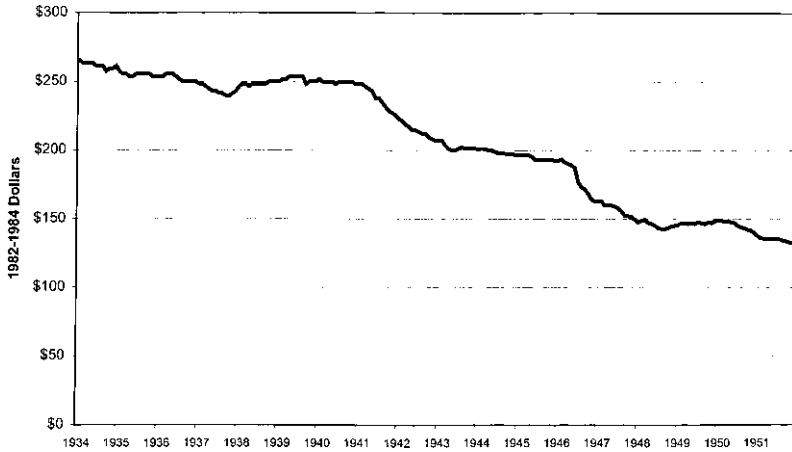


Chart 7.6 Real price of gold per troy ounce, January 1934 to December 1951, base period 1982–84.

The IMF's minor role reflected both errors in the original plan and changed views in the United States and abroad.²⁴³ Roosevelt and Morgenthau were gone. Their multilateral, internationalist views did not survive in the emerging postwar struggle with the Soviet Union. The Truman administration shifted toward a unilateral policy (James 1996, 60, 62). After 1947 the Marshall Plan, providing unilateral aid, became the principal source of European aid.

Even if there had not been a Cold War, it seems unlikely that the IMF and the World Bank would have taken a large role. They had limited resources, and the misalignment of exchange rates was much greater than the IMF's resources could handle. John H. Williams of the New York reserve bank, W. Randolph Burgess, and Allan Sproul had foreseen the problem. Their writings and testimony in 1945–46 opposed the Keynes-White plan as premature and inadequate for the circumstances they expected after the war. Williams especially argued for a "key currencies" approach, based on the dollar and the pound sterling. He believed that the increased postwar demand for dollars could not be satisfied from the fund's resources.

The so-called dollar shortage—the excess demand for dollars by foreigners—reflected the misaligned exchange rates agreed to at Bretton Woods. These rates did not take adequate account of the wartime differences in inflation and the destruction of capital and living standards.²⁴⁴ By

243. James (1996, chap. 3) summarizes changing views in Russia, Britain, and elsewhere.

244. The pound was set at \$4.035, its prewar value, whereas the French franc was devalued by about 60 percent in 1946 and the Belgian franc by about 75 percent.

raising concerns about devaluation, and despite currency controls, discussion of the “dollar shortage” probably contributed to capital flight from Europe to the United States. After the 30 percent devaluation of the British pound in September 1949, followed by a 22 percent devaluation of the German mark and other devaluations, discussion of the dollar shortage ended.

Unlike the postwar 1920s, this time the Federal Reserve had a modest, insignificant role in international monetary affairs. Authority and responsibility shifted to the Treasury, where it has remained through most of the postwar era.

CONCLUSION

From the start of United States participation in World War II to the accord of March 1951, debt management policy dominated monetary policy. To a considerable degree, the period continued the Morgenthau policy of 1934–41: keep interest rates low to minimize the cost of selling and refunding debt. The Federal Reserve willingly supported this policy in wartime. After the war, it feared postwar deflation and depression. The problem seemed much greater after 1945 because the increased stock of debt fostered concern that higher interest rates would impose capital losses, weaken the financial system, curtail lending, and bring back deflation and depression. Many in the System believed that an independent policy was impossible. Table 7.16 shows the wartime rise in debt and the postwar change in ownership.

At its peak, gross debt was much larger than gross national product. Almost 27 percent of the debt was in bills and certificates with less than one year to maturity. The Treasury may have been right in 1945–46 to be concerned about the task of managing the debt while avoiding the (widely predicted) postwar depression that had been the norm after earlier wars. It was wrong, however, when it refused to agree to the very modest changes in interest rates that the Federal Reserve wanted and to insist on continuing wartime interest rates long after the threat of postwar depression had passed.

Table 7.16 shows that the Treasury used budget surpluses to retire debt. In addition, Congress used part of the surplus to reduce taxes by more than \$20 billion, overriding President Truman’s veto. However, tax rates remained high by historical standards, thereby contributing to the budget surplus. In addition, the Treasury purchased more than \$12 billion of debt for its accounts.

Commercial banks had been the largest wartime buyers; they became the largest postwar sellers. The Federal Reserve was a net seller also. Instead of serving as “engine of inflation,” as Eccles and others often de-

Table 7.16 Size and Ownership of Marketable Debt, 1941–50 (billions of dollars)

DATE	GROSS DEBT	TREASURY ACCOUNTS	FEDERAL RESERVE	COMMERCIAL BANKS	INSURANCE COMPANIES	INDIVIDUALS
December 1941	64.3	9.5	2.3	21.4	8.2	13.5
December 1945	278.7	27.0	24.3	90.8	24.0	64.1
December 1949	256.2	39.4	18.9	66.8	20.1	66.3
December 1950	255.5	39.2	20.8	61.8	18.7	66.3

Source: Board of Governors of the Federal Reserve System 1976, 882.

Note: Detail does not add to total because some owners are omitted and nonmarketable debt is part of gross debt but not part of the detail.

scribed its role, monetary actions were often deflationary; the monetary base and the money stock fell, and the consumer price index fell more than at any time in the postwar years. Chart 7.7 shows that the base and the money stock rose rapidly during the war, grew more slowly after the war, and declined in 1948–49 in advance of the recession and during its early months.

Converted to constant dollars, base growth remained nearly constant during the war, then collapsed at the end of the war when controls were removed and prices fully reflected earlier wartime inflation. Thereafter, real money balances fell until 1949. With nominal long-term interest rates almost constant, the movement of real interest rates shows mainly the rise and fall of measured inflation. Chart 7.8 shows highly negative ex post real interest rates at the end of the war; the one-time effect of removing price controls in 1946 overstates the decline, however. Negative real rates encouraged holding money for its real return. Negative real base growth reduced spending and aggregate demand.

As in several earlier recessions and recoveries, real base growth and real interest rates are positively related during recession and recovery, reflecting the common effect of inflation. Although the two series move together, they have opposite implications. Rising real interest rates produced by deflation imply that policy has become more restrictive; rising real balances may suggest an excess supply of money. In the 1948–49 recession, the effects of the real base again dominated the effects of real interest rates on output and economic activity, a repeat of experience in 1920–21 and 1937–38.²⁴⁵

Historically low nominal interest rates of the early postwar years, and the continued negative real long-term rates from 1946 to 1949, show that monetary policy—measured by the growth rate of money—was not im-

245. The influence of the real base represents more than the conventional real balance effect. In Brunner and Meltzer 1976, 1993, the response includes relative price changes of assets to output in addition to the standard wealth effect. These changes induce an excess supply of real balances and an increase in spending.

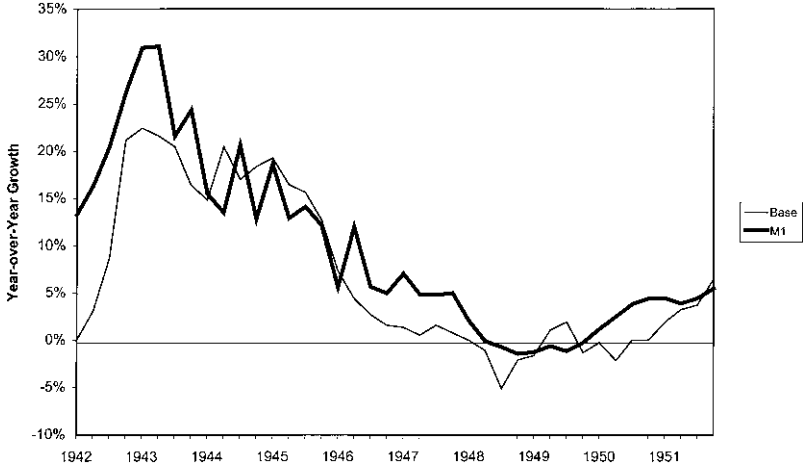


Chart 7.7 Nominal base growth and nominal M₁ growth, 1942.1 to 1951.4.



Chart 7.8 Real base growth versus real interest rate; data smoothed using four-quarter moving average.

tent even at the prevailing interest rates. Relative prices, including stock prices, and prices of existing real assets continued to respond to current and prospective rates of money growth and inflation. In 1947 and 1948, with real base growth negative, the total return to common stocks was 5 to 6 percent; when real base growth turned positive in 1949, stock prices rose more than 18 percent, and the recession ended.

In 1942, the Federal Reserve volunteered to keep the long-term rate on

Treasury bonds at 2.5 percent, fix short-term rates, and hold the pattern of rates prevailing at the time. After the war it did not insist on, or even propose, a free market in Treasury debt. It believed, correctly, that the spread between short- and long-term rates was much too large to encourage banks and others to hold short-term debt. Its goal through most of the period before the Korean War was to raise short-term rates enough to stop holders from selling short-term bills and buying long-term debt.

Most members of the FOMC shared this goal. They differed about how to achieve it. The Board, led by Eccles, preferred to increase reserve requirement ratios, use selective credit controls to ration credit, and require banks to hold secondary reserves of government securities. Influenced by political pressures from the Treasury, and reinforced by his own beliefs, Eccles hoped to control credit expansion without increasing interest rates. The reserve banks, particularly New York, acquiesced in some of these policies or supported them. They argued correctly that none of these actions would be effective unless interest rates rose. Although New York urged a slow and deliberate policy, it took advantage of opportunities to change short-term rates when they arose in December 1947, June 1949, and after the start of the Korean War.

Policy differences between New York and the Board have some aspects of a repeat, in different form, of the policy dispute in 1928–29. As before, the Board most often favored some type of credit or monetary control that did not require higher interest rates. New York argued for higher interest rates as a necessary step to control money growth and inflation. And as in 1928–29, the Federal Reserve ignored deflation in 1948–49.

Both the Board and the reserve banks had political and economic concerns. The main political concern was to avoid an open fight with the Treasury. The two main economic concerns were (1) that an increase in interest rates large enough to prevent postwar inflation would run the risk of reproducing the 1920–21 deflation and deep recession and (2) the mistaken belief that historically low nominal interest rates indicated an easy monetary policy. As in 1928–29, the Board and the FOMC paid less attention to money growth and price changes than to nominal interest rates.

Eccles and several of the Board's economists, like many private sector economists, did not believe that small changes in interest rates had much effect on economic activity and prices. In the 1930s, Eccles accepted the phrase "pushing on a string" to describe the alleged impotence of expansive policies. In the postwar years he had similar reservations about contractive policies, unless carried far enough to run the risk of deflation. In both periods many economists, influenced by early Keynesian analysis, shared this view. There was no attempt to reconcile the conflicting beliefs

that monetary policy was weak or impotent with the expressed concern that allowing interest rates to rise would risk deflation and depression. And along with these divergent views, a third view was often repeated: that deflation must inevitably occur to purge the effects of the previous inflation.

Before the start of the Federal Reserve System, bankers expressed concern about political dominance by a Board located in Washington. The Banking Act of 1935 shifted power from the reserve banks, particularly New York, to Washington. The sixteen years from 1935 to 1951 did little to dispel the early concerns. Resistance to the Treasury was stronger in the reserve banks, particularly New York, than in Washington. After Thomas B. McCabe replaced Marriner Eccles as chairman in 1948, Allan Sproul was able to gradually increase New York's influence over the direction of Federal Reserve policy and, three years later, to insist on an end to pegged interest rates and a restoration of some of the System's independence. But Sproul too was cautious, unwilling to push hard for independence until the threat of Korean War inflation made action seem imperative and support in Congress made success more likely.

Restoration of independence was not simply a victory for the reserve banks over the Board. Eccles played an important role, as did Senator Paul Douglas and other members of the congressional banking committees. High-handed actions by the Treasury and President Truman helped to marshal support for the System in the financial press and in Congress.

The FOMC had little to do during the long period when open market policy remained subordinate to Treasury debt management. The committee spent much of its time giving advice to the Treasury about the types of debt to sell, advice that the Treasury usually ignored. The Board also recommended tax changes, wage and price controls, and other policies unrelated to its mission. Within the System, the role of the account manager changed. Since the account manager had more information about the debt markets than the members did, his influence increased. Often he took the lead, making recommendations to the FOMC and, beyond his role, recommending changes in reserve requirement ratios. This shift in the manager's role remained for years after the accord.

The long period when the FOMC was inactive did not eliminate the Riefler-Burgess doctrine as a guide to policy action. When the FOMC became more active, it reverted to its earlier operating procedure. Riefler was again at the Board, and Sproul used that framework to discuss monetary policy. Discussions at the FOMC before the accord, and the accord itself, refer to future policy actions as intended to "immediately reduce or discontinue purchases of short-term securities and permit the short-term market to adjust to a position at which banks would depend upon borrow-

ing at the Federal Reserve to make needed adjustments of their reserves” (Krooss 1969, 4:3056).

Monetary policy was not the only friction between Washington and New York. Eccles and Sproul disagreed about the International Monetary Fund. The New York bank opposed the multilateral system developed at Bretton Woods. It favored a key currency system based on the dollar and the British pound. Although the Board had no role in the design of the postwar international system, the Treasury gained its support by appointing Eccles to the delegation for the Bretton Woods meeting.

The war opened a wide gap in the relative size and strength of the United States economy. Net exports and, despite controls, capital inflow continued the gold inflow that the war and the lend-lease program of allied war finance interrupted. Low inflation—even deflation—budget surpluses, and an expanding economy attracted foreign investment. Recovery in Europe, foreign aid policies like the Marshall Plan, and the start of the Korean War reversed the inflow. By 1950 the deflated price of gold was back to the predevaluation level. Large outflows began in 1950. For the next two decades, gold and the balance of payments deficit would become matters of increased attention and concern.

Conclusion: The First Thirty-seven Years

Monetary history reveals the fact that folly has frequently been paramount; for it describes many fateful mistakes. On the other hand, it would be too much to say that mankind has learned nothing from these mistakes.

—Wicksell 1935, 4

The Federal Reserve began operations in 1914 as a peculiar hybrid, a partly public, partly private institution, intended to be independent of political influence with principal officers of the government on its supervisory board, endowed with central banking functions, but not a central bank. Each of the twelve semiautonomous reserve banks set its own discount rates, subject to the approval of the Federal Reserve Board in Washington, made its own policy decisions, and set its own standards for what was eligible for discounting. Even branches of reserve banks initially had some independent powers.

The new system had two principal monetary powers. It could buy and sell gold, thereby changing interest rates and money, and it could set the rate at which member banks discounted eligible paper. Other activities and responsibilities included centralizing the country's gold reserve, developing a domestic market for bills of exchange, acting as lender of last resort in a crisis, and eliminating large seasonal increases in interest rates during the autumn, when the agricultural harvest moved through the commodity markets.

The Federal Reserve had little discretion. The founders intended the gold standard to work automatically. Discounting was at the discretion of the member banks. The Federal Reserve could decide the timing of discount rate changes, but the rules of the gold standard limited the range

within which it could set the discount rate. It could set the rate at which it bought acceptances, but despite its efforts, the acceptance market did not become large and active.

The original structure, organization, and methods of operation did not survive. Establishment of the Federal Reserve helped to create a national financial market that undermined the system of separate discount rates. Banks used the correspondent banking system to borrow in markets with lower rates. By the early 1920s, the System had moved toward more uniform discount rates; although differences between districts continued, they were smaller, and rate schedules became more uniform.

Wars, the growing role of the federal government, and other external forces contributed to the major changes in structure and organization in the years to 1951. Flaws in the original plan and different conceptions about the roles and responsibilities of the Board and the reserve banks combined with these external events to force changes. Different beliefs about the roles of the reserve banks and the Board, and rivalry over power and influence, worked to delay change and disperse power.

By 1951 the Federal Reserve System had become a central bank with its headquarters in Washington. The accord with the Treasury in March of that year released the Federal Reserve from Treasury control and began the evolution toward the modern Federal Reserve. Although struggles over power and influence continued, the Board of Governors had final control over decisions. The semiautonomous regional banks were now part of a unified system. The Federal Open Market Committee (FOMC) made binding portfolio decisions for the reserve banks. Open market purchases and sales of government securities replaced discounting as the principal means of implementing policy. The discount rate had a minor role.

The System's founders would not have liked or even recognized the Federal Reserve that existed in 1951. Gold no longer had an important role. Activist policies, based on collective judgment, determined money, interest rates, and prices. A small, mostly passive institution had become the most important central bank in the world.

The Federal Reserve's founders wanted to base currency or note issue on discounts of commercial paper to free currency from dependence on government securities. They believed that the new arrangement would permit currency and money to expand and contract with the needs of trade and the public's demand. In the Great Depression a change, believed to be temporary, permitted the Federal Reserve once again to issue currency backed by government securities. Eventually the change became permanent. Government securities became the Federal Reserve's principal asset.

Discounts of commercial paper and bills of exchange had only a modest and inconsequential role.

Volume I tells how and why these changes occurred in response both to external events and to flaws in the original plan. It is also a record of the achievements and failures of the first thirty-seven years.

ACHIEVEMENTS AND FAILURES

Looking back from 1951, few would conclude that the Federal Reserve had achieved the hopes of its founders and early proponents. The Great Depression, though at the time not considered a failure of monetary policy, was the deepest and longest in United States history. The Federal Reserve had not prevented thousands of bank failures, the collapse of the financial system, and the devaluation of the dollar. The dominant view in 1951 regarded monetary policy as unimportant for economic stabilization, but it recognized that the Federal Reserve had failed to maintain financial stability. Deposit insurance, stock market regulation, and separation of commercial and investment banking, among other New Deal measures, showed that the public, through its representatives, no longer trusted the Federal Reserve alone to maintain a stable and solvent financial system.

Central bankers and most economists in the 1920s regarded the gold standard as essential for monetary stability. The Federal Reserve achieved one of its major goals when Britain and France followed Germany back to a fixed exchange rate with their currencies convertible into gold. Other countries pegged to gold also; by 1928 all major trading countries, and many others, had adopted a gold exchange standard. The Federal Reserve and other central bankers considered restoration of a type of gold standard one of the major achievements of the 1920s.

Although central bankers and governments wanted the gold standard restored, several were reluctant to accept its implications. Three problems arose. First, after restoration, exchange rates in major trading countries were incompatible with domestic price stability. The British overvalued the pound; the French undervalued the franc. Britain would not deflate after 1925; France would not inflate after 1927, so price changes could not adjust real exchange rates to remove these differences, as the gold standard required. Second, countries would not permit dynamic adjustment to work. Gold flowed to the United States through much of the decade and to France at the end of the decade. Both countries sterilized most gold flows to prevent prices from rising. With receiving countries sterilizing, the countries paying gold had to deflate or leave the standard. The gold standard had an unwelcome deflationary bias. As countries returned to the gold standard,

the increased demand for monetary gold stocks added to deflationary pressure.

Third, under the gold exchange standard the United States and Britain held their reserves in gold. Other countries held dollar or pound sterling balances. France, especially, regarded its status as second-rate. As in the 1960s, the rules permitted the Bank of France to convert its reserves into gold. France's gold purchases, and sales of dollars and pounds, added to the deflationary pressures imposed by the return to gold. Unwilling to follow the rules or give up the standard, countries resisted steps to restore equilibrium real exchange rates. In retrospect, the breakdown of the gold standard seems inevitable; at the time, it seemed calamitous.

As the world economy moved toward deflation and depression. The Federal Reserve's principal concern was inflation. To contemporary economists, this concern is puzzling because the price level fell slowly from 1927 to 1929, then more rapidly. Federal Reserve officials did not base their concern about inflation on price changes or sluggish money growth. To most of them, rising stock prices and growing use of borrowing to purchase shares was all the evidence of inflation they needed. Their interpretation relied on the real bills doctrine—the belief that credit extended for common stocks, real estate, government securities, or commodity speculation created inflation because the additional credit did not give rise to additional output.

Deflationary policies contributed to the start of the 1929 recession. When the Federal Reserve raised the New York discount rate in August 1929, part of the world was in recession. Although it was not known at the time, the United States economy was at a peak. The Great Depression had started.

There is no single cause of the Great Depression or a unique monetary shock. A series of financial shocks followed—bank failures, Britain's departure from the gold standard followed by other departures, and financial failures in the United States. Most Federal Reserve officials favored a passive policy. They viewed the depression as the inevitable consequence of excessive speculation in stocks financed by credit creation. On their view, the proper response was to purge the economic system of its excesses—excesses made more serious by credit expansion unrelated to real bills. Monetary or credit expansion to end the depression would require purchases of government securities. On the real bills interpretation, such purchases prevented the inevitable adjustment and purge of previous excesses.

If the Federal Reserve had maintained monetary growth, the country and the world would have avoided years of depression. Failure to act during the Great Depression was the Federal Reserve's largest error, but far

from its only one. Failure to expand can be explained as the result of prevailing beliefs about the inevitability of a downturn following the stock market boom. Nothing in theory or central banking practice can explain why the Federal Reserve did not respond to the failure of thousands of banks. Most of the banking failures from 1929 to 1932, and the final collapse in the winter of 1933, could have been avoided. The failing banks included many member banks. After years of recession, banks had little eligible paper to borrow against. The Federal Reserve, following the real bills doctrine, saw no reason to expand. This was a destructive and mistaken interpretation of banking theory. In *Lombard Street*, his classic work on banking, Walter Bagehot quotes the spokesman for the Bank of England in the 1825 panic: “We lent it . . . by every possible means and in modes we had never adopted before . . . in short, by every possible means consistent with the safety of this Bank, and we were not on some occasions over-nice” (Bagehot 1962, 25).

Bagehot’s work was known at the time. Senior officials referred to him, but they did not follow his advice. They tried to protect the gold reserve and, at crucial times, did not function as a system. Individual reserve banks refused to participate in open market purchases to protect their banks’ gold holdings. A design failure and a failure of leadership permitted individual banks to opt out of System purchases. There was too much autonomy built into the 1913 Federal Reserve Act, and the Board failed to use its powers to force the reserve banks to expand together.

Ideas were important too. The original Federal Reserve Act wrote the real bills doctrine into law. At the Federal Reserve Board, and at several reserve banks, officials followed this doctrine. They considered real bills—commercial credit—to be the only correct foundation for credit expansion. If banks did not borrow, they believed it was wrong to expand credit. This policy gives rise to procyclical policy action: credit and money expand when output expands and contract when output contracts. The gold standard, too, makes policy action procyclical.

The Federal Reserve’s attachment to the real bills doctrine was not peculiar. Economists, bankers, congressional leaders, and many others accepted the theory and believed the Federal Reserve was right to follow it. There were few critics at the time.

Early in the nineteenth century, one of the founders of economics, Henry Thornton (1962) recognized the principal flaw in the real bills doctrine: controlling the quality of credit did not ensure control of the quantity. At the Federal Reserve, Benjamin Strong rediscovered this proposition in the 1920s. Neither the discovery nor the rediscovery convinced real bills proponents.

Strong's conclusion reflected experience in the postwar recession of 1920–21. After the Federal Reserve convinced the Treasury to end wartime restrictions on interest rates, the nominal discount rate rose to 7 percent in New York. Use of marginal discount rates at regional banks raised interest rates far above that level. Discounting continued to increase, in part because banks could borrow at preferential rates using Treasury securities as collateral. But that was not the lesson drawn by Strong and others.

The 1920–21 experience affected subsequent developments in two ways. First, the Federal Reserve became convinced that the traditional British central banking procedures would not work in the larger, more diverse circumstances of the United States. Second, and closely related, complaints from agricultural and commercial interests, particularly in the South and West, aroused congressional concerns. Topmost among the political concerns was the fear that the Federal Reserve would operate for the benefit of Wall Street and large banks and against the interests of farmers, ranchers, and the general public. Federal Reserve policy in the 1920–21 recession seemed to confirm these fears.

Failure to distinguish between real and nominal interest rates was another, no less important error. As prices fell, real interest rates rose. Federal Reserve officials, and outsiders, failed to distinguish between the two rates, a distinction recognized early in the nineteenth century by Henry Thornton and later developed more fully by Irving Fisher. Although there are occasional references to the possibility that a low nominal interest rate did not necessarily connote an easy policy, none of those making these comments offered a clear analysis of the effect of falling prices on real interest rates and exchange rates.

Failure to distinguish clearly between real and nominal interest rates is puzzling. Fisher was professionally active in the 1920s and 1930s. He warned about the high cost of deflation and urged officials to pay attention to measures of deposits and money. In the 1920s Fisher worked to get Congress to mandate price stability as the Federal Reserve's goal. The Federal Reserve opposed the legislation, and it did not pass.

The Federal Reserve also ignored Walter Bagehot's analysis of the role of a lender of last resort. At times Board members and governors referred to Bagehot's *Lombard Street*, but they did not follow his doctrine: In a financial crisis, lend freely at a penalty interest rate; do not try to protect the gold reserve.

Theories, or beliefs, go a long way toward explaining why the Federal Reserve did not avoid crises in 1920–21, 1929–33, and 1937–38. The beliefs that officials used to interpret events, and the interpretations they reached, were conventional at the time. The Federal Reserve Act used the gold stan-

dard and the real bills doctrine as guiding principles. Faith in the gold standard and belief in its stabilizing power constituted a cornerstone of the orthodoxy of the time, an orthodoxy that was widely shared by leading members of the business, banking, and academic communities. It would have required a strong, forceful leader to recognize the need to abandon orthodox beliefs. A divided Federal Reserve could not supply that leadership. It is highly uncertain that even a strong leader could have overcome the firmly held beliefs that led to the mistakes of 1929–33 and 1937–38.

Between 1930 and 1933, the Federal Reserve did little to prevent the collapse of the United States financial system and thousands of bank failures. President Herbert Hoover and Secretary Andrew Mellon proposed a National Monetary Commission and, soon after, the Reconstruction Finance Corporation (RFC) to prevent failures from spreading. Initially the Federal Reserve was wary of these efforts, concerned that it would have to lend to insolvent banks or to institutions like the RFC that lent to insolvent banks. By June 1932, the Federal Reserve wanted the RFC to be more active. In part this change of view reflects two opposing influences. One was the System's desire to limit or end bank failures and the large increases in the demand for currency by concerned depositors. The other was the firm belief that it could, or should, do nothing to prevent bank failures.

Financial collapse in the winter of 1933 was not inevitable. President Hoover appealed to the Federal Reserve to offer guidance. Hoover also appealed to President-Elect Roosevelt to support a bank holiday. Hoover believed he lacked authority to act, and Roosevelt was unwilling to accept responsibility when he lacked authority.

Political maneuvering and hesitancy do not explain the Federal Reserve's failure to act. Chapter 5 offers three plausible explanations. First, some members of the Open Market Policy Conference believed that the very large open market operations in 1932 accomplished little. Additional operations would do no more. Failures, they believed, were the inevitable consequence of bad decisions and speculative excesses that had to be purged before stability could return. Second, some reserve banks, notably Boston and Chicago, refused to participate in additional purchases during the summer of 1932. They would likely have refused again, if asked, in the winter of 1933. Third, some reserve banks may have feared that open market purchases would be offset, in part, by a loss of gold. Protecting the gold reserve by refusing to lend was one of the main errors of central banking practice that Bagehot warned against.

Reliance on discounting gave monetary policy a procyclical bias. In the severe recessions of 1920–21 and 1937–38, the Federal Reserve imposed deflation. The 1920–21 recession resulted from a decision to restore the

prewar dollar–British pound exchange rate by deflating prices in both countries. Britain had experienced more inflation, so it had to deflate most to restore the prewar exchange rate. Deflation by Britain alone, however, would not have removed the effects of wartime finance on the United States stocks of money and credit, contrary to the real bills doctrine. The decision delayed Britain's return to the gold standard and raised the social cost. The two governments did not repeat this mistake after World War II.

The decision to deflate together also raised the social cost in the United States. The 1920–21 recession is the only recession in Federal Reserve history that has short-term nominal interest rates higher at the trough of the recession than at the previous peak. Severe deflation made real interest rates higher still.

The Federal Reserve took no action to end the recession. Rising real interest rates, however, attracted gold, raising the stock of base money. The counterpart of rising real interest rates was a rising stock of real balances. As prices fell and gold flowed in, real money balances rose rapidly. When the public's real balances exceeded the amount it wished to hold, spending increased and the recession ended.

The pattern of rising real money balances and rising real interest rates contributed to ending recession in 1937–38 and 1948–49. This dynamic did not work to restore prosperity in 1929–33 because the Federal Reserve allowed the nominal stock of money to decline so much that real money balances fell despite the expansive effect of deflation on the stock of real balances. Bank failures, and fears of additional failures, contributed to the decline in real balances. Efforts to shift from deposits to currency drained reserves from the banking system. The Federal Reserve's failure to offset the loss of reserves added to bank insolvency and brought about the result the public feared.

Theory or beliefs also contributed to the Federal Reserve's reluctance to end pegged interest rates after World War II. Many economists and businessmen claimed that a large outstanding government debt limited the size of permissible interest rate changes. Marriner Eccles, Federal Reserve chairman at the time, repeated frequently that, to be effective, interest rate increases had to be large. Large increases, however, imposed large losses on debt owners (with gains to the Treasury). Unwilling to impose large losses, Eccles sought other ways to reduce spending growth.

His proposals show the absence of careful analysis at the time. Eccles often favored higher reserve requirement ratios, secondary reserve requirements to force banks to hold more (low yield) Treasury bills, and controls requiring higher down payments and shorter duration of consumer loans.

With interest rates fixed (or pegged), increases in reserve requirement

ratios transferred incomes from banks to the government. Banks sold securities to meet the additional requirement. To keep interest rates unchanged, the Federal Reserve supplied the additional reserves by buying the securities that banks sold.

Congress never agreed to secondary reserve requirements. Such requirements would force banks to hold more government securities, reducing their profits. With unchanged growth of base money and government debt, the total supply of credit would remain unchanged. Portfolio composition of the principal institutions would differ. Banks would own more Treasury bills; other lenders would acquire loans that the banks would forgo.

The Federal Reserve was not alone in these errors. Many in the academic profession, and other economists, made similar statements.

The Federal Reserve had some notable successes during its first four decades. Evidence of success and acceptance was the agreement in 1927 to replace the Federal Reserve's twenty-year charter with a permanent one. The new charter evoked little of the passion and attention so much in evidence in 1913. The relatively stable price level and stable interest rates from 1922 to 1929 lay behind acceptance of the Federal Reserve and its increased congressional support. Strict adherents to the real bills doctrine criticized the use of open market operations to supplement discounting of real bills. They saw open market operations as a departure from the letter and spirit of the law. These criticisms found little congressional support as long as the System avoided major recessions or a return of financial crises accompanied by failures and surging interest rates.

Before 1914, United States interest rates rose sharply during the scramble for liquidity that became a standard feature of a financial panic. The Federal Reserve avoided financial panics between 1914 and 1928. Interest rates rose much less in the 1920-21, 1923-24, and 1926-27 recessions than in the 1890s or in 1907-8. Also, before 1914 interest rates had a large seasonal element. The Federal Reserve removed the seasonal swing using discount policy and acceptance and open market purchases. This fulfilled one of the founders' main reasons for creating the institution.

The Federal Reserve helped to finance both world wars; it provided credit and money by lending to commercial banks at fixed interest rates or by open market purchases. In addition, the System acted as the principal bond salesman for the Treasury, using its network of regional and branch banks, and its relations with the leading commercial banks, to place the bonds. The Federal Reserve's decision to allow banks to profit from bond sales to the nonbank public gave banks a powerful incentive to cooperate in the financing.

During the 1920s, the System undertook pathbreaking research and the development of new statistical series to support its work. The absence of an operative gold standard immediately after World War I, and widespread criticism of discount policy and discount rates in the 1920–21 recession, encouraged consideration of operating procedures and market signals about the need for policy action. Concern for market signals, in turn, required the development of new data series and fostered the use of new analytical techniques. By the mid-1920s, System economists had constructed measures of production, inventories, department store sales, and other variables. These are the forerunners of the data series that markets and policymakers rely on to this day. Developing these series and combining them required skillful use of index number theory.

In its 1923 annual report, the System discussed a general framework that sought to reconcile the passive stance implied by the real bills doctrine with more active use of open market operations. The new framework tried to achieve the Bank of England's control of discounting without relying very much on the discount rate. Also, it tried to satisfy both advocates of the real bills doctrine and their opponents. Subsequently, economists at the Board and the New York bank developed a more explicit framework to guide policy decisions. This framework, though based on observations by many people, was mainly the work of Winfield Riefler and W. Randolph Burgess. Their work implied that the Federal Reserve could control the volume of member bank borrowing with fewer and smaller changes in interest rates. Open market purchases supplied reserves and encouraged banks to repay borrowing, offer more loans, and reduce interest rates; open market sales drove banks to borrow, restrict lending, and raise interest rates. The emphasis satisfied real bills advocates. Quantitative control through the use of open market operations satisfied Strong and others who no longer believed that the quality of credit restricted the quantity.

The new framework brought together open market operations, discounting, discount policy, and credit expansion as part of a theory of central banking. The theory required the strong proposition that banks did not borrow to profit from higher market rates. This proposition removed the need for an unpopular penalty rate, set above the rate on prime commercial paper. Experience in 1928–29, when the Federal Reserve tried to control the volume of discounts without increasing the discount rate, rejected the proposition but failed to change it. Federal Reserve officials continued to claim that banks did not borrow for profit. They found it necessary, however, to inform bankers that borrowing was a privilege and not a right of membership and to impose administrative restrictions to limit the amount and duration of borrowing. This was a long step away from the original

idea that the Federal Reserve's main function was to discount for member banks.

The Riefler-Burgess framework combined banks' reluctance to borrow with another proposition that did not distinguish between individual banks and the banking system: "Banks disliked being continuously in debt and hence tended to contract credit when the level of indebtedness was increased and to expand credit when the level of indebtedness was reduced. Because of the tradition against continuous borrowing, when the Federal Reserve System sold securities, the resulting increase in indebtedness tended to cause banks to control credit" (Subcommittee on General Credit Control and Debt Management 1951, 283).

This reasoning does not explain why open market sales would contract total bank credit. Why didn't other banks borrow when an individual bank repaid its indebtedness? The proper answer would have required the Federal Reserve to develop a framework linking its operations to market interest rates and the supply of bank reserves or monetary base.

The tenth annual report and the Riefler-Burgess framework covered over, but did not resolve, differences between opponents and proponents of the real bills doctrine. The conflict emerged first in the 1924 and 1927 recessions when, under the leadership of Benjamin Strong of the New York bank, the System expanded credit and the monetary base both to help the British and to encourage recovery from domestic recessions. The conflict became more open in 1929, when the Board wanted to control borrowing by discouraging speculative credit and New York and some other reserve banks wanted to raise the discount rate.

The Riefler-Burgess framework retained a central role in the Federal Reserve's analysis of monetary developments until the 1950s. The staff adjusted the framework to reflect new developments, notably the increase in excess reserves during the 1930s.

The 1923 annual report, books by Riefler and Burgess, speeches by Strong and Adolph C. Miller (a prominent Board member from 1914 to 1936), and other statements and publications moved toward greater openness about procedures and analysis. Nineteenth-century central banks were secretive about what they did and why they did it. Gold standard rules were known, of course, but central banks often did not follow the rules automatically. One of Bagehot's (1962) main criticisms of the Bank of England in the nineteenth century is that it failed to preannounce its policy response to financial panics. The movement toward transparency was slow, but by the end of the twentieth century, all leading central banks had moved decisively toward greater openness.

Other major accomplishments included extension of the par collection

system, development of the payments system, and a national money market. Interest rates and discount rates became more uniform within the country as banks' size increased and new money market instruments were developed. The founders failed in their attempts to create a broad national acceptance market to replace reliance on stock market call loans as a money market instrument. By the 1930s, Treasury bills and certificates served this function. Wartime increases in government debt made the government securities market the market of choice for short-term reserve adjustment. By the 1950s, the government securities market and the market for federal funds (bank reserves) achieved one of the founders' goals in a way they did not envisage. These markets replaced the call money market as the market in which banks adjusted reserve positions. Monetary operations and bank adjustment were freed from dependence on stock market activity.

The lasting achievements of the early years include the development of a high-quality professional staff. Although research on central banking lagged in the 1930s and 1940s, Federal Reserve staff pioneered in research on topics such as the measurement of government deficits and the effects of budget deficits on the economy. In areas such as supervision, regulation, and banking law, Federal Reserve staff made important contributions. Two notable examples are legislation closing the banking system for the 1933 bank holiday and the Banking Act of 1935.

In the early years, international monetary policy was a central bank responsibility. Central bankers dealt with their counterparts abroad. In the 1920s the New York reserve bank and its governor, Benjamin Strong, negotiated and granted loans to foreign central banks to help restore the gold standard and to coordinate actions. Governments borrowed in the marketplace, assisted by investment bankers.

Although central banks attempted policy coordination, the Federal Reserve was explicit that it would not change its course for the benefit of another country if the change required inflation or deflation at home. This restricted the role of coordination. Some economists assign a large role to insufficient policy coordination. They claim that governments could have maintained the gold standard and prevented worldwide deflation and depression by acting together in the 1920s and 1930s.

This claim neglects exchange rate misalignment, particularly the misalignment of real exchange rates. Lending and borrowing or simultaneous intervention in exchange markets had a limited role at best. In the 1920s, countries on the gold standard had to accept inflation or deflation to adjust real exchange rates. Surplus countries would not inflate; deficit countries were reluctant to deflate after the mid-1920s. The remaining solution was

to devalue or revalue against gold and other currencies. Britain left the gold standard in 1931. Other countries followed.

In the 1930s, the Treasury replaced the Federal Reserve as the principal negotiator of international financial agreements. Secretary Henry Morgenthau signed the Tripartite Agreement with Britain and France. The agreement sought to stabilize exchange rates between the three countries, but again real exchange rates were misaligned, and countries followed independent policies. French policy, especially, was inconsistent with the agreement, necessitating devaluations of the franc that violated the spirit of the agreement.

Again in the 1940s, the Treasury negotiated an international monetary agreement. The Bretton Woods Agreement attempted to formalize international policy coordination. Member countries agreed to fix exchange rates but retained the right to devalue (with international approval) to correct structural imbalances. The agreement tried to reconcile domestic and international stability and provide a means by which surplus countries could lend to deficit countries.

The agreement divided the Federal Reserve. The Board sided with the Treasury, favoring the agreement. The leaders of the New York bank opposed. They preferred a return to the gold standard, not adjustable exchange rates. Neither side had much influence on the agreement. The Treasury took control and retained it.

INDEPENDENCE AND CONTROL

The Federal Reserve's independence was so well established in the first twenty years of its existence that President Hoover was reluctant to even ask its advice during the financial crisis at the end of his administration. Within a few years, this independence was lost. From 1934 to 1951, the Treasury Department severely restricted Federal Reserve actions. When William McChesney Martin Jr. became chairman of the Board of Governors in 1951, one of his tasks was to reestablish the independence of the Federal Reserve System from the executive branch, particularly the Treasury.

Independence

One of the anomalies of the 1930s and 1940s is that the Treasury had more influence over the Federal Reserve after the secretary left the Board. Secretary Morgenthau permitted Congress to eliminate his statutory position as chairman of the Federal Reserve Board, but he acquired another means of influencing the Federal Reserve. He held most of the profit from devaluing the dollar against gold in the Exchange Stabilization Fund. He used the

fund, and other Treasury trust funds, to buy and sell gold or foreign exchange, and he could threaten the Federal Reserve with his power to supply reserves and lower interest rates. Occasionally he did just that.

Morgenthau's threats and influence were not the only reason the System failed to resist Treasury control. Eccles believed that monetary policy was powerless, since interest rates were at historically low levels. His greater interest was fiscal policy. He wanted to advise the president and participate in budget and legislative decisions. His principal interest in Federal Reserve independence in the 1930s surfaced when Morgenthau threatened to act in place of the Federal Reserve.

Wartime Treasury influence or control had a different origin. The Federal Reserve agreed in 1942 to finance the war at low nominal interest rates, as central banks traditionally have done. Regaining independent authority to set interest rates after World War II proved difficult, just as it had after World War I. Regaining independence of decisions and actions required political support from the administration, the Congress, or the public. Political support began to form in 1949 under the leadership of Senator Paul Douglas. Support strengthened after the Korean War started in 1950. Heavy-handed action by Treasury Secretary John W. Snyder and support for an anti-inflation policy in Congress helped the Federal Reserve get an agreement that allowed interest rates to rise provided they rose slowly during the transition to greater independence.

Independence was never thought to be absolute. Independence prevented an administration from deciding unilaterally to use monetary expansion to gain temporary political advantage or to finance too much of the budget at the central bank. Allan Sproul, president of the New York reserve bank from 1941 to 1956, recognized the nuances hiding in the term "independence":

I don't suppose that anyone would still argue that the central banking system should be independent of the Government of the country.¹ The control, which such a system exercises, over the volume and value of money is a right of Government, and is exercised on behalf of Government, with powers delegated by the Government. But there is a distinction between independence from Government and independence from political influence in a narrower sense. The powers of the central banking system should not be the pawn of any group or faction or party, or even any particular administration, subject to political pressures and its own passing fiscal necessities. It is clear that in war or in any other great emergency, the policy of the central banking system must support the national plan of action. It seems to me equally clear that in

1. The European Monetary System suggests that this statement is no longer true.

less emergent circumstances it is wise for government to set-up barriers or buffers of protection of the central banking system from narrow political influence. (Letter to Robert R. Bowie, Sproul Papers, Memorandums and Drafts, September 1, 1948, 2)

This statement of general principles seems well crafted. However, it does not say what happens if the government and the Federal Reserve disagree about the importance of the emergency. Secretary Snyder argued that “the President has the right, and the duty, to discuss disputes without attempting to dictate to the Board of Governors but by full and complete consultation with the Board” (Subcommittee on General Credit Control and Debt Management, Answers to Questions 1951, 31).

The secretary also favored creating a “discussion group” consisting of the secretary of the treasury, the chairman of the Board of Governors, the director of the budget, the chairman of the Council of Economic Advisers, and the chairman of the Securities and Exchange Commission (*ibid.*, 31).² The Federal Reserve’s statement did not mention a coordinating body. It favored a more independent role. When conflicts arise “each agency involved shares the responsibility for finding ways to resolve the conflict” (264).

The meaning assigned to “independence” did not progress much subsequently. Resolution of its conflict with the Treasury did not settle what a central bank should do if the government ran large or regular deficits in peacetime. FOMC members recognized that Congress approved the spending plan and deficit finance. A central bank could not, and they believed should not try to, reverse congressional decisions. But that appeal to democratic rule did not answer the question, How much should the central bank raise interest rates, or permit them to increase? It took years of sustained inflation to force attention to that question. In the 1950s the Federal Reserve hoped it could avoid the issue by joining a coordinating body of the four leading economic agencies known as the quadriad during the Kennedy administration. The quadriad continued through the early 1970s until replaced by less formal arrangements.

In both world wars, the Federal Reserve surrendered its independence to assist in war finance. Each time it found that regaining independence

2. The Treasury also pointed out that section 10 of the 1913 Federal Reserve Act gave the Treasury power to override the Board in the event of conflict (Subcommittee on General Credit Control and Debt Management 1951, 28). The wording is: “Wherever any power vested by this Act in the Federal Reserve Board or the Federal Reserve agent appears to conflict with the powers of the Secretary of the Treasury, such powers shall be exercised subject to the supervision and control of the Secretary” (Krooss 1969, 4:2450). The section protects the Treasury against any interpretation of the Federal Reserve Act that limited the Treasury’s authority. The Treasury’s interpretation seems extreme.

was difficult and long delayed. It did not learn from its experience after World War I to negotiate an end to pegged interest rates before it made a commitment in 1942. It did not foresee that raising interest rates would be unpopular after the war. It worked hard to gain public support for independence among journalists, academics, bankers, and the public, and within the government by undertaking unpopular duties that Congress and the executive branch did not want to do. Only after the Korean War started and concern about inflation rose did the Federal Reserve muster the popular and congressional support necessary to sustain an independent policy.

Control

President Wilson's compromise, establishing semiautonomous reserve banks and a supervisory Federal Reserve Board, did not resolve the issue of control. Conflicts arose not only because the act dispersed control but because, from the start, officials had different ideas about how the new System should function. New York bankers especially wanted a central bank, under their leadership. The Board often tried to stretch the term "supervise" until it meant "decide."

Benjamin Strong avoided the Board's control by responding to the interests of other reserve banks. Several of the governors thought of their activity as banking, and they wanted their banks to profit. The act granted a dividend on the shares held by member banks, so earnings had to be sufficient to pay the dividend. In the early years some reserve banks—particularly the smaller banks in predominantly agricultural regions—did not have enough discounted paper to pay expenses and the dividend. Strong offered to pool the income on acceptances and then on government securities. By adjusting the allocation formula, he helped the smaller banks solve their problem. In return, they supported his decisions.

In 1919 the Board was able to get the acting attorney general to interpret its power to include changing discount rates even if a reserve bank opposed the change. The Board used the power again in 1927 when it ordered Chicago to reduce its rate.

By the mid-1920s, discounting had a much-reduced role compared with the original plan. Open market operations became the instrument of choice for affecting interest rates and member bank borrowing. Board members could reject the reserve banks' decision, but they could not order the banks to buy or sell. That decision remained with the directors until changed by the 1935 act. The 1935 act not only placed all Board members on the Federal Open Market Committee, for the first time it gave the Board a majority of the votes.

During the years of depression and war, the Board was slow to use its powers. Regular open market operations did not begin until the Federal Reserve was again independent.

In 1927 Strong decided to help Britain remain on the gold standard by lowering interest rates, without first consulting the Board or other governors. The Board and some of the governors later concluded that Strong erred. They blamed the decision for the stock market boom and blamed Strong for the mistake. The Banking Act of 1933 stripped New York of its dominant role. After devaluation of the dollar, control shifted to the Treasury.

WHAT REMAINED IN 1951?

Much of the original plan and organization did not survive to 1951. Gold remained part of reserves, but the dollar, not gold, became the world currency. The Federal Reserve neither thought nor acted as if interest rates and money creation depended on capital flows. Monetary policy became discretionary. In the 1920s the Federal Reserve sterilized part of the gold inflows. In the 1950s it ignored them as a reason for policy action. Increasingly, domestic objectives became the main guide to action.

Vestiges of the real bills doctrine remained part of Federal Reserve thinking. Credit controls such as regulation of down payment requirements and length of loan reflected the mistaken idea that the Federal Reserve could control inflation and the quantity of money by controlling the type or quality of credit. Later these ideas faded away, encouraged both by the difficulty of administering controls and by their ineffectiveness as an anti-inflation policy.

Open market operations in government securities had much earlier replaced the discounting of eligible commercial paper as the principal means of intervening. These operations were more efficient. They did not require decisions about what was eligible, and they did not require the Federal Reserve to accept credit risk. The Federal Reserve determined the size and timing of purchases and sales.

One of the Federal Reserve Act's major innovations removed government securities as collateral behind Federal Reserve notes. The intent was to make note issues more "elastic," capable of expanding and contracting with commerce, agriculture, and trade. When borrowing declined in the 1930s, the Federal Reserve had to use more than the required percentage of gold as backing for its notes. The Glass-Steagall Act of 1932 reversed the original innovation by permitting the Federal Reserve to use government securities in place of eligible paper as backing for its note issue. Originally a temporary measure, after several renewals the use of government secu-

rities as collateral became permanent. Later, Congress removed the required gold backing.

The change in collateral behind notes symbolizes the decline in the real bills doctrine as a guiding principle. The doctrine required procyclical monetary expansion: the Federal Reserve provided additional currency and reserves as the economy expanded and withdrew currency and reserves in economic contractions. The revised Federal Reserve Act, in 1935, retained “the needs of commerce” as a policy objective but added “the general credit situation.” The Employment Act of 1946 did not impose a clear objective on the Federal Reserve, but it emphasized employment and production. Maintaining production and employment required countercyclical policies.

The 1946 legislation suggests the change in public attitudes about the role of government. The change affected the Federal Reserve by endorsing its transformation from a largely passive authority to an activist policymaker. The 1913 Federal Reserve Act gave little scope for discretionary action. By the 1950s, a generation trained in Keynesian analysis rose to prominence at the Federal Reserve and elsewhere in society. Its members believed that budget policy would have the senior role. The role of monetary policy was secondary, supportive of fiscal actions, but useful as a means of keeping interest rates from rising. The emphasis on interest rates fit well with traditional practices.

POLICY LESSONS FROM THE EARLY YEARS

The wide range of monetary experience—wartime inflation, deflation, economic expansion in the 1920s, depression in the 1930s—provides evidence of the relative roles of money and interest rates in the transmission of central bank actions. In some cases money growth falls as interest rates rise or money growth rises as interest rates fall. Since changes in money growth change interest rates, binary comparisons cannot distinguish in these cases whether the transmission of monetary impulses operates principally through changes in interest rates or through changes in money operating through other relative prices and real wealth.

Previous chapters showed that at times interest rates and money growth moved in opposite directions. In 1937–38 and 1947–48, deflation occurred with the short-term interest rate near zero. In both cases the economy recovered without much expansive action by the Federal Reserve. Deflation increased real money balances and real interest rates. The increase in real money balances dominated the effect of the higher real interest rate; output and economic activity increased. These experiences contradict the be-

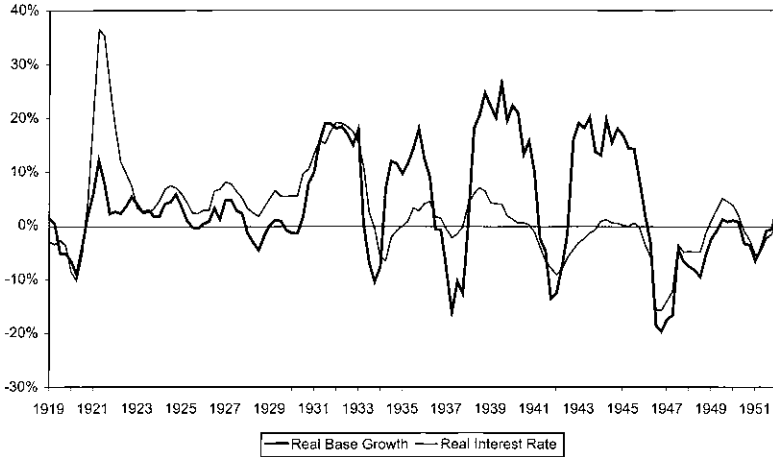


Chart 8.1 Real base growth versus real interest rate, 1919.1 to 1952.1. Real base growth measured year over year.

lief that monetary policy becomes ineffective when the short-term interest rate remains close to zero.

The 1920–22 experience was similar. The short-term interest rate was not zero in this case, but the economy experienced severe deflation. As prices fell, real balances and real interest rates rose. Falling prices also attracted gold from abroad, increasing the monetary base. The ex post real interest rate on government bonds reached 37 percent at its peak. Nevertheless, economic activity and output recovered, consistent with the increase in real balances but contrary to the rise in the real interest rate.

Chart 8.1 shows changes of the real monetary base and the real interest rate during most of the early Federal Reserve history. Growth of the base is measured year to year. The year-to-year change in the GDP deflator measures the rate of price change subtracted from the Treasury long-term rate to convert nominal rates to real rates. The very high real interest rates in 1921 and 1931–32 reflect the severe deflation at these times.

Real base growth is negative before the Great Depression and in its early years. Ex post real interest rates were comparatively high, above the average for the period shown in chart 8.1 but consistent with cyclical peaks in the 1920s. Both measures suggest that monetary policy was restrictive in 1928–29, contrary to the interpretation made at the time. The data for the late 1920s suggest that a productivity-based expansion, as industry adopted new technologies, was ended at least partly by a deflationary monetary policy.

At the start of the depression, real base growth remained low and ex post real interest rates rose. Base growth rose in 1931 and remained high under the impact of the currency drain. The real interest rate is a better predictor than real base growth for this exceptional period.³

Notable also is the collapse of real base growth in 1937 and renewed expansion in 1938. The real interest rate and real base growth moved together in the early postwar years. The common movement reflects the rate of price change, highly positive in 1946, modestly negative in 1948–49, briefly positive at the start of the Korean War in 1950–51. After each of these periods, economic activity moved in the direction implied by base growth.

We can summarize these data in three propositions:

Proposition 1: when growth of real balances rises sharply, expansion follows whatever happens to the real interest rate. Some examples are 1921, 1934–36, 1939–41, and 1943–45. An exception is 1931–33.

Proposition 2: when real balances decline, or their growth is comparatively slow, the economy goes into recession even if the real interest rate is comparatively low or negative. Examples are 1920, 1923, 1926, 1929, 1933, 1937, and 1947. An exception is 1941.

Proposition 3: if the real interest rate is comparatively high, the economy expands if real balances rise and does not expand if they fall. Examples are 1921, 1925, 1927, and 1938–39. Again, 1931–33 is an exception.

These comparisons suggest that the Federal Reserve erred by ignoring the information in the growth rates of real and nominal balances. For short periods, changes in real balances may have little information. The data suggest, however, that attention to money growth would have enabled the Federal Reserve to avoid its largest errors.

The errors the Federal Reserve made in the years 1913 to 1951 were not unique to the System. The few critics of the real bills doctrine and the gold standard were out of step with the dominant views of the period. Many shared the belief that the Federal Reserve could not have prevented the Great Depression or reduced its duration. Historically low nominal interest rates were considered relevant evidence. The view that monetary policy was akin to “pushing on a string” antedates Keynes’s liquidity trap.

Similarly, many bankers and economists as well as ordinary citizens believed that the gold standard was the correct way to harmonize international monetary policy. Efforts to restore the gold standard in the 1920s,

3. The real money stock, M_1/p , fell.

and to fix exchange rates within a gold-based system, met little opposition. Many opponents of the Bretton Woods Agreement criticized its differences from a gold standard.

The gradual dissemination of Keynesian ideas in the 1940s slowly transformed the consensus view. Keynes's emphasis on the role of interest rates and neglect of money fit well with the views widely held by central bankers and in time displaced them. The change to activist, discretionary monetary policy that produced the Great Inflation of the 1970s had not yet occurred by 1951, but important changes had been made. The Federal Reserve gained scope for a more independent, discretionary policy. The United States had an ample supply of gold and, like other parts of the government, a mandate to maintain a high level of employment.

Increasingly, the public looked to government to manage the economy. Within a few years, governments would look to their central bankers to take a leading role in making the macroeconomic policies that first produced the Great Inflation and then learned how to control it.

The shift toward government responsibility required a change in the intellectual consensus on two issues: the roles of gold and government budget deficits. Although some populists opposed the gold standard in the nineteenth century, by 1900 most contemporary opinion in the industrial countries, and many others, viewed the gold standard as the proper way to restrict monetary policy and prevent long-term inflation. The gold standard was a main issue in several presidential elections in the United States. Each time, the gold standard candidate won.

This consensus no longer existed in the 1950s. The population had become more urban and more educated, the country more industrialized, and the workforce more unionized. The public in many countries favored policies that stabilized output, even if the currency value changed.

The belief that balanced budgets should be the norm except in wartime gave way to a loose commitment to cyclically balanced budgets. When private spending declined, government deficits could replace private spending until employment rose.

Weak attachment to the old standards of financial rectitude left the financial system without a belief system that central bankers could appeal to. The new consensus eliminated what had gone before without offering a clear set of rules. At the next stage in the evolution of central banks and governments, the major problem was to learn how to operate in the new, more discretionary environment.

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DATA SOURCES

Discounts and advances: from National Bureau of Economic Research (NBER) Macro History Online Database. Series is “Bills Discounted, Federal Reserve Banks” and is not seasonally adjusted; units are million of dollars. NBER documentation states that the data came from the following sources:

1914–28: Federal Reserve Board, *Annual Report*, 1928

1929–33: Federal Reserve Board, *Annual Report*, 1933

1934–41: Federal Reserve Board, *Banking and Monetary Statistics*, 1943

1942–69: *Federal Reserve Bulletin*

Quoting documentation: “Data are monthly averages of daily figures. Data represent discounts and advances mainly to member banks; at times some rediscounts for non-member banks are also included. Small amounts of loans on foreign gold which have been included with bills discounted in the 1934 Annual Report and in *Banking and Monetary Statistics* are excluded here, except in 1934.”

Gold stock: Data are from NBER Macro History Online Database. Series is “Monetary Gold Stock” and is not seasonally adjusted; units are billions of dollars. NBER documentation states that the data come from the *Federal Reserve Bulletin* and from *Banking and Monetary Statistics*. Figures for 1914 to July 1917 are end-of-month data; data for August 1917–70 are monthly averages of daily figures. Quoting documentation: “Between January 31, 1934 and February 1, 1934, the gold stock was increased 2.98 billion dollars, of which 2.81 billion was the increment resulting from reduction in the weight of the gold dollar and the remainder was gold which had been purchased by the Treasury previously but not added to the gold stock.”

Monetary base: Units are billions of dollars; data are seasonally adjusted. Data come from the following sources:

January 1914 to October 1914: Data are from Friedman and Schwartz, *A Monetary History of the United States, 1867–1960*, and are “High Powered Money.” Friedman and Schwartz document their definition as currency held by the public plus vault cash. Seasonal adjustment by Friedman and Schwartz.

November 1914 to December 1918: Data are from Friedman and Schwartz, *A Monetary History of the United States, 1867–1960* and are “High Powered Money.” Friedman and

Schwartz document their definition as currency held by the public plus vault cash plus bank deposits at Federal Reserve banks. Seasonal adjustment by Friedman and Schwartz.

January 1919 to March 1951: Data are from Anderson and Rasche 1999; Federal Reserve Bank of St. Louis. Series is adjusted by adding the dollar amount of reserves liberated or impounded by changes in reserve requirement ratios. The data are seasonally adjusted using the multiplicative procedure in Micro-TSP.

1959 to present: Data are from St. Louis Federal reserve bank's Adjusted Monetary Base, seasonally adjusted by the St. Louis Federal Reserve bank.

M_1 : Units are billions of dollars; data are seasonally adjusted. Data come from the following sources:

1914–45: Data are from NBER Macro History Online Database. Series is “Adjusted Demand Deposits, All Commercial Banks, plus Currency Held by Public, Seasonally Adjusted.” Documentation states that the series was calculated by NBER as sum of “Adjusted Demand Deposits, All Banks” and “Currency Held by the Public.” Seasonal adjustment was performed by NBER. Quoting documentation: “Data for 1914–1917 and May 1921–1945 refer to figures for the Wednesday nearest the end of the month. Data for January 1918–April 1921 refer to the Friday nearest the end of the month.”

1946–47: Data are from NBER Macro History Online Database. Series is “Adjusted Demand Deposits, All Commercial Banks, plus Currency Held by Public, Seasonally Adjusted.” Documentation states that the series was calculated by NBER as sum of “Adjusted Demand Deposits, All Banks” and “Currency Held by the Public.” Documentation states that the data come from an unpublished Federal Reserve Board table; seasonal adjustment was performed by NBER. Quoting documentation: “Data represent middle of the month, being averages of two half-monthly figures that are based on daily figures.”

1948–58: Data are from NBER Macro History Online Database. Series is “Adjusted Demand Deposits, All Commercial Banks, plus Currency Held by Public, Seasonally Adjusted.” Documentation states that the data come from an unpublished Federal Reserve Board table; seasonal adjustment was performed by NBER. Quoting documentation: “Data represent middle of the month, being averages of two half-monthly figures that are based on daily figures.”

1959 to present: Data are from the St. Louis Federal Reserve bank's FRED online database and are M_1 , seasonally adjusted. Seasonal adjustment by the Board of Governors.

Long-term interest rate: Data are from the St. Louis Federal Reserve bank's FRED online database and are “Long-Term U.S. Government Bond Yield (10 Years or More) Including Flower Bonds; Averages of Daily Figures.”

Commercial paper rate, 1914 to January 1937: Data are from the NBER Macro History Online Database. Series is “Commercial Paper Rates, New York City.” NBER documentation states that the data come from F. R. MacAulay, *The Movement of Interest Rates, Bond Yields, and Stock Prices in the U.S. since 1856*, NBER no. 33 (New York: National Bureau of Economic Research 1938).

February 1937–42: Data are from the NBER Macro History Online Database. Series is “Commercial Paper Rates, New York City.” NBER documentation states that the data were computed by the NBER using weekly data from *Bank and Quotation Record, Commercial and Financial Chronicle*.

1943 to March 1971: Data are from Board of Governors.

The documentation states that the data represent prime sixty- to ninety-day double-name commercial paper rates for 1914 to 1934 and prime four- to six-month double and single names 1924 to March 1971.

April 1971 to present: Data are from the St. Louis Federal Reserve bank's FRED online database and are defined as the thirty-day prime commercial rate, average of daily figures.

Term spread: Calculated as the difference between the Treasury bond rate and the commercial paper rate.

Discount rate: Discount rate. Series represents the following:

November 1914–21: Data are from NBER Macro History Online Database and are “Discount Rates, Federal Reserve Bank of New York”; documentation states that the data come from *Discount Rates of Federal Reserve Banks, 1914–1921*, Federal Reserve Board.

1922–41: Data are from NBER Macro History Online Database and are “Discount Rates, Federal Reserve Bank of New York; documentation states that the data come from Federal Reserve Board annual reports.

1942 to July 1969: Data are from NBER Macro History Online Database and are “Discount Rates, Federal Reserve Bank of New York; documentation states that the data come from the *Federal Reserve Bulletin*. Quoting documentation: “Data are computed by NBER by taking simple averages of rates for commercial, agricultural, and livestock paper, and weighting them by the number of days each rate was in force. Data are for all classes and maturities of discount bills.”

August 1969 to present: Transformed data from the St. Louis Federal Reserve bank’s FRED online database. Original data are “Discount Rate Changes (Date and Rate).” Data are transformed by weighting the rates by the number of days each rate was in force.

Aaa rate: Data are from the St. Louis Federal Reserve bank’s FRED online database and are “Corporate Aaa Bond Rate, Average of Daily Figures.”

Acceptances: Banker’s acceptance rates. From the following sources:

1917–40: Data are from the NBER Macro History Online Database and are “Banker’s Acceptance Rates, New York City.” Quoting documentation: “Data represent prime bankers’ acceptances, ninety days. Data for 1917–1950 are averages of weekly prevailing rates calculated on the basis of frequency of a single rate or a range of rates occurring during the month.”

1941 to present: Data are from the St. Louis Federal Reserve bank’s FRED online data base and are “Bankers Acceptance Rates, Ninety Days.”

Time spread: Calculated as the difference between the Aaa rate and the banker’s acceptance rate.

Baa rate: Data are from the St. Louis Federal Reserve bank’s FRED online database and are “Corporate Baa Bond Rate, Average of Daily Figures.”

Risk spread: Calculated as the difference between the Baa rate and the Aaa rate.

Real GNP: data are from the following sources:

1914–46: Data are from Balke and Gordon (1986). Since Balke and Gordon’s data do not correspond to official data that were revised subsequent to their publication, real GNP was calculated as Balke and Gordon’s nominal GNP deflated by a revision of their deflator as described below.

1947 to present: Data are from the St. Louis Federal Reserve bank’s FRED online database. Nominal GNP was deflated by the GNP deflator as described below.

Deflator: Data from the following sources.

1914–46: Data are a revision of data from Balke and Gordon (1986). Since Balke and Gordon’s data do not correspond to official data that were revised subsequent to their publication, inflation rates were calculated (as log ratios) using the data. Using 1946.4 to 1947.1 as a splicing point, a new series was then calculated from official data by iterating backward using Balke and Gordon’s inflation rates.

1947 to present: Data are from the St. Louis Federal Reserve bank's FRED online database and are the GNP deflator.

Index of industrial production, monthly January 1919 to March 1951, seasonally adjusted. From Board of Governors Web site.

Consumer price index, monthly, January 1914 to March 1951, not seasonally adjusted. From Bureau of Labor Statistics Web site.

I N D E X

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