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The Dual-Center Global Financial System

The Perspective of China's Rise

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Tao YUAN
Department of International Economics
and Trade, School of Economics
Nankai University
Tianjin
China

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Preface

The world economic and financial crisis from 2008 made people to question whether the Dollar-Center Global Financial System is sustainable, and China's rise makes it possible that China has more economic responsibility for the world economy including Chinese RMB being one of the two center currencies of the Dual-Center Global Financial System.

With huge economy and economic power, China can push forward the world economy especially when the world economy faces hard difficulties. After the world economic and financial crisis from 2008, China became the most important driving force of the world economy. Nowadays facing the de-globalization and de-globalization policies' impact in the world, China again becomes the most important facilitator for the economic globalization, balanced and harmonious development of the world economy. Not only Chinese huge international trade, foreign direct investment and outward direct investment have promoted globalization, but also Chinese foreign students' education and China's huge outbound tourism market have promoted cultural exchange between countries. In the new situation, China takes measures to further promote globalization, mainly including: calling to firmly promote globalization, implementation of "the Belt and Road" Initiative, promoting regional economic cooperation and maintaining the authority of international political organization (United Nations) and international economic organizations (the World Bank, International Monetary Foundation, World Trade Organization, and so on).

This book analyzes the problems of the Dollar-Center Global Financial System, the internationalization of RMB and the prospect for RMB becoming one of the two center currencies of the Dual-Center Global Financial System. China's rise is one of most important trends in nowadays world, and the Dual-Center Global Financial System not only is a theoretical design but also has high possibility to be realized.

There are 4 graduate students for Ph.D. degree or master degree of Department of International Economics and Trade, Nankai University, who participated in this book. They worked hard and supplied materials for this book, and wrote some first drafts. They are: Fang, Yong-Dong (Chaps. 1–3), Wu, Zan (Chaps. 3 and 6), Song, Lei (Chaps. 4–6) and Yang, Hong (Chap. 2). From September 2013 to September

2014, I was in Westminster College (Salt Lake City, Utah, U.S.A.) as a visiting scholar. At that time I talked with some teachers and students of Westminster College about China's rise, the world financial system and reform of it, and they gave me many good suggestions about these topics which are helpful for this book. Michael Mamo and Kagen Despain even gave me some written suggestions. Although these suggestions are not parts of this book, these suggestions are very valuable for this book. These teachers and students are Prof. Jin Wang, Teacher Michael Mamo, and the students of Andre Dumas and Kagen Despain, and I thank them very much. I would like to extend special thanks to Toby Chai.

Of course the author, Yuan, Tao, takes charge of the opinions of this book.

Tianjin, China
October 2017

Tao YUAN
Associate Professor of Economics
Chinese Director of the Confucius
Institute at Cheju Halla University
The Republic of Korea

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Chapter 1
The Dollar-Center Global Financial System Is Non-sustainable

When we talk about the global financial system, we refer to: Which currencies are popularly used in international trade? What are foreign exchange reserves of countries? What currencies are used for purposes of international investment and trade financing? Which main markets are most important for international trade actors and investors? Which main organizations are most important for world economy and world financial stability? What are important legal agreements and institutions for the global financial system?

There are some main currencies in the world, but only U.S. Dollar is the world currency, and the U.S. is the world economic and financial center, which can be called as the Dollar-Center Financial System. The U.S. Dollar is the most popular currency in international trade in goods and in services. The U.S. Dollar and U.S. sovereign debts have the biggest share in most governments' foreign exchange reserves. The U.S. Dollar is the most popular currency in international financial market and is popularly used in international investment and international mergers. There are many most important financial markets, which have worldwide effect, financial organizations, who hold world financial rules, and financial corporations, who dominate world financial markets, in New York, Chicago and other U.S. cities.

1.1 Characteristics of the Present World Financial System

U.S. Dollar is world currency or center currency in the world, and this is one of the basic characteristics of the Dollar-Center Financial System. Besides, there are 3 more characteristics of today's world financial system.

First, as world currency, U.S. Dollar has structural power. This structural power can help the U.S. to get great economic and political interests. The world currency has some functions, for example, storing value, medium of exchange and unit of account, which make the users of other countries as an inseparable community, so the U.S., the country who control the world currency, can get others to want what

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the U.S. wants them to do. The world currency can always affect the behaviors of other countries and make these countries' decisions serve the interests of the country who controls the world currency.

The International Monetary Fund (IMF), the World Bank[1] and the World Trade Organization (WTO) are the institutional anchors of today's international economic and international financial system, the first two of which are mainly controlled by the U.S., and these organizations help U.S. Dollar to keep being world currency. There emerges some new international economic and financial organizations recently, but these new organizations cannot overturn the existing international economic and international financial system as long as U.S. Dollar is still the world currency.

Secondly, there is only one center currency, U.S. Dollar, in the world, which is the world currency, although there are some international currencies such as Euro, U.K. Pound and Japanese Yen. Different international currencies can coexist due to geographic limit, economic linking or political reason, but U.S. Dollar is absolutely competitive. The U.S. Federal Reserve in fact is the central bank of the world, so policies from the U.S. Federal Reserve, which are measures dealing with American economic problems, generally affect other countries' economies no matter whether these countries need these influences or not.

Some academics and organizations put forward "negotiated currency" or "peer competitors", which can't be applied in real monetary system, or can be used in limited domain, such as Special Drawing Rights (SDRs).[2]

Third, the U.S. Dollar is not only the public goods for the U.S. but also the public goods for the world. The dual roles of the U.S. Dollar make conflicting targets for monetary policies of the U.S. Federal Reserve. As the U.S. Dollar is the public goods for the U.S., the U.S. Federal Reserve should make some policies to keep appropriate CPI of the U.S., to maintain low unemployment rate, and to promote economic growth. As the U.S. Dollar is the public goods for the world, the U.S. Federal Reserve should make some policies to keep the world economy stable.

The reality is when the U.S. Federal Reserve made policies to solve problems of the U.S. economy it has hardly ever thought about the influence of these policies to world economy and other countries. For example, when the U.S. economic and

[1]The International Bank for Reconstruction and Development (IBRD) lends to governments of middle-income and creditworthy low-income countries. The International Development Association (IDA) provides interest-free loans (called credits) and grants to governments of the poorest countries. Together, IBRD and IDA make up the World Bank. Source: The website of the World Bank, http://www.worldbank.org/en/about.

[2]The SDR is an international reserve asset, created by the IMF in 1969 to supplement its member countries' official reserves. Its value is based on a basket of four key international currencies, and SDRs can be exchanged for freely usable currencies. As of March 17, 2015, 204 billion SDRs were created and allocated to members (equivalent to about $280 billion). Up to 2015, there are four currencies in the basket: the U.S. Dollar, the euro, the pound sterling and the Japanese yen, and the RMB is under consideration. Source: The website of the International Monetary Fund, http://www.imf.org/external/np/exr/facts/sdrcb.htm, and http://www.imf.org/external/np/exr/facts/sdr.htm.

financial crisis worsened in 2008, the U.S. Federal Reserve took quantitative easing (QE) to help the U.S. economy in spite of that too much currency was created for the world economy, especially for the emerging countries. After the U.S. economy recovered, the U.S. Federal Reserve ended QE in 2014 in spite of spillovers of the end of QE, such as many emerging countries' pain of capital outflow and economic downturn. The reason is: "the Federal Reserve, the central bank of the United States, provides the nation with a safe, flexible, and stable monetary and financial system."[3] As the Federal Reserve said, the Federal Reserve's duty is the U.S. economy but not the world economy.

The U.S. Dollar and Dollar-Center Global Financial System are public goods for the world, and other countries also pay for them.

1.2 Long-Term Imbalance of the U.S. External Trade

1.2.1 Huge Exports of the U.S. Had Helped the U.S. to Industrialize and Lay the Foundation of the Center Currency Status of the U.S. Dollar

Developing international trade was an important approach for the U.S. to realize its industrialization and laid the foundation of the center currency status of the U.S. Dollar. From 1790 to 1914, the U.S. imports and exports continuously rose, except for special years. Throughout the nineteenth century to the early twentieth century, the share of U.S. exports in the world exports was always large (Table 1.1). The tendency to export of the United States was stronger than that of any other countries.[4] As the exports of the United States continued to rise during the process of its industrialization, the importance of exports to the development of the U.S. and to the world market were increasing as well.

1.2.2 The U.S. Trade Deficit Is a Long-Term Problem

In 1971, when the U.S. trade deficit appeared, the U.S. transformed from a country with trade surplus to an opposite one. From then on, the amount of the U.S. trade deficit has been expanding, excluding in some particular periods.

When we analyze the U.S. external trade in 1992–2014, we find that before 2006 the U.S. trade deficit had enlarged continuously, and then became comparatively stable with huge amount of money. The U.S. trade deficit increased rapidly from

[3]Source: The website of the U.S. Federal Reserve, http://www.federalreserve.gov/default.htm.

[4]Engerman, Stanley L. & Robert E. Gallman, *The Cambridge Economic History of the United States* (in Chinese) Volume II, China Renmin University Press, 2008, p. 688.

Table 1.1 The share of the American exports in total world exports (1800–1913)

Year	The share of U.S. export in total world export (%)
1800	3.2
1860	9.8
1870	7.9
1880	13.2
1900	15.0
1910	12.3
1913	12.9

Source U.S. Bureau of the Census, historical statistics of the United States, Colonial Times to 1970 (Washington, DC, 1975), Engerman, Stanley L. & Robert E. Gallman, *The Cambridge Economic History of the United States* (in Chinese) Volume II, China Renmin University Press, 2008, p. 688

1992 to 2006, and in 2006 it reached the top of 752 billion Dollars, which is almost 20 times of the U.S. trade deficit in 1992 (39 billion Dollars). After 2006 the U.S. trade deficit did not enlarge any more. When the U.S. subprime mortgage crisis came to a head in 2008, consumption of the U.S. shrank and the U.S. importation simultaneously decreased. The growing U.S. trade surplus in services also helped the U.S. to control the trade deficit (Chart 1.1).

The key of the U.S. trade deficit problem is the U.S. economic structure and competitiveness. Besides the U.S. trade deficit with China, there are the U.S. trade deficit with Germany and Japan, which are developed countries. As we know, Japan's exports were the biggest source of the U.S. trade deficit in the 1980s and the 1990s.

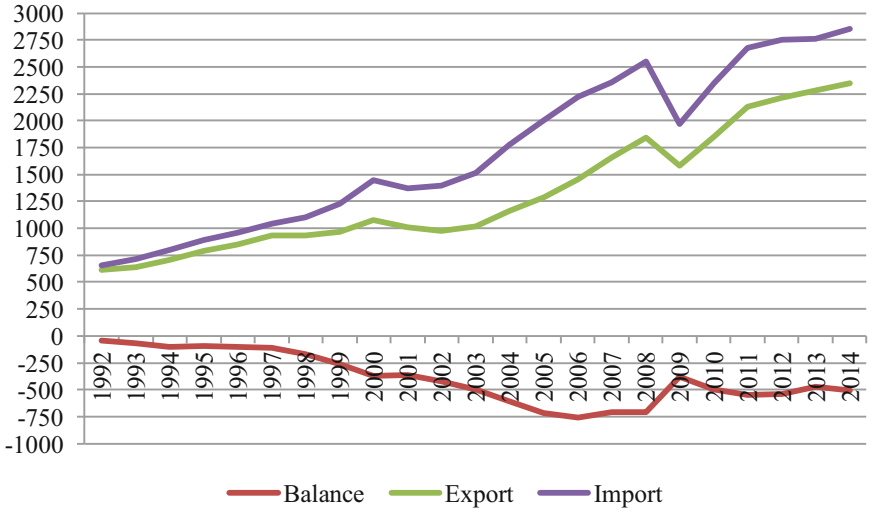

Chart 1.1 Trade balance of the U.S. (1992–2014, billion Dollars). *Source* The U.S. Department of Commerce, www.bea.gov/newsreleases/international/trade/tradnewsrelease.htm

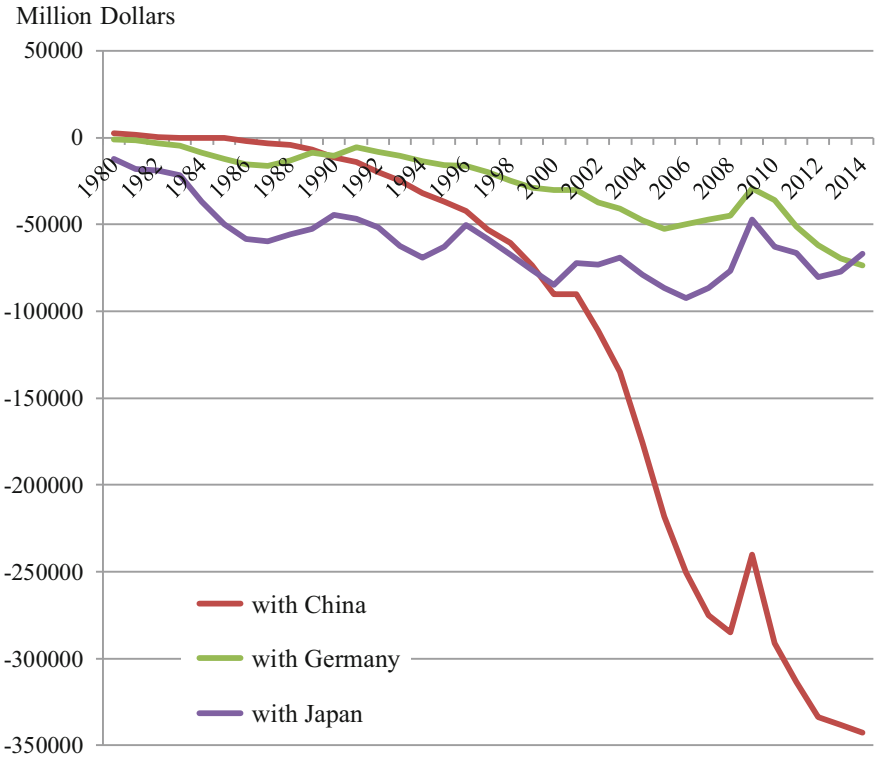

Chart 1.2 The U.S. merchandise trade balance with China, Germany and Japan, 1980–2014. *Source* Direction of Trade Statistics (DOTS), IMF, http://elibrary-data.imf.org/

It is the important reason for the U.S. trade deficit that the weak competitive advantage of the American goods, and it does not matter whether Japan's exports were the biggest source of the U.S. trade deficit or China's exports are the biggest source of the U.S. trade deficit (Chart 1.2).

1.2.3 Trade Deficit Is Necessary for the World Currency Status of the U.S. Dollar

According to the Triffin Dilemma (or the Triffin Paradox), the U.S. trade deficit is necessary for the world currency status of the U.S. Dollar. To satisfy the growing demand for world liquidity, the current account deficit of the U.S. international balance of payment lasted continually.

Robert Triffin[5] pointed out that, under the Bretton Woods system, for the U.S. Dollar's role as the reserve currency of the world, the U.S. government should keep confidence for the U.S. Dollar with the U.S. trade surplus, but with economic growth of the world the currency supply of the world should increase, which meant that the U.S. must be willing to supply the world with an extra supply of the U.S. Dollars, the world currency, and that caused chronic trade deficit of the U.S., and this was a big problem for the U.S. government.

Some scholars thought the Triffin Dilemma was a theory about the paradox of the U.S. Dollar, but the history told us that the Triffin Dilemma was a theory about the paradox of the Bretton Woods system. Since the Bretton Woods system officially ended on August 15, 1971, when the U.S. government unilaterally terminated convertibility of the Dollar to gold, it is clear that the U.S. Dollar still is the world currency up to now.

The U.S. trade deficit never indeed hurt the U.S. economy and Dollar hegemony, because the base of Dollar hegemony is the America's hegemonic status in the world instead of the U.S. trade surplus. After the Bretton Woods system collapsed there is no restriction for the U.S. Dollar to gold any more, and the U.S. trade surplus is not necessary for the confidence for the U.S. Dollar and Dollar hegemony. In fact, the U.S. keeps the U.S. Dollar global confidence by the America's hegemonic power in the world, since international economy is inseparable from international politics. John Maynard Keynes, the British, and Harry Dexter White, the American policy maker, created the principal architects of the Bretton Woods system, the postwar international monetary system. After the collapse of the Bretton Woods system, the U.S. Dollar has continued to play the role of world currency. Although the Japan's trade surplus had continued (until 2011) and Japanese Yen had appreciated a lot (until 2013), Japanese currency had never been the world currency. This reminds us that Dollar hegemony is based on a mixture of political power, economic power, and military ability, and the U.S. never really concerns about its trade deficit

Today it is not necessary for the U.S. government to maintain trade surplus for keeping confidence for the U.S. Dollar, and the global economy still needs more and more the U.S. Dollars with economic growth, so the U.S. trade deficit is a good manner for the U.S. to supply world currency, the U.S. Dollar.

Sometimes the U.S. trade deficit is also a weapon to influence other countries' economy. The U.S. government frequently emphasizes the problem of the U.S. trade deficit with China, and says that underestimation of Chinese RMB (Renminbi, Yuan, CNY) is one important reason, so the U.S. government has been asking Chinese RMB to appreciate. The exchange rate of the U.S. Dollar to Chinese Yuan changed from 8.2 to 6.2 within 10 years (2005–2015). China is lucky because the appreciation of RMB is slow and steady, but Japan was not as lucky as China. Under the pressure of the U.S. who had trade deficit with Japan, Japanese

[5]Triffin, Robert (1960), *Gold and the dollar crisis: the future of convertibility*, New Haven: Yale University Press.

government signed Plaza Accord (or Plaza Agreement)[6] on September 22, 1985 at the Plaza Hotel in New York City. From then on, the U.S. trade deficit with Japan has not disappeared at all, but Japanese economy had a Lost Decade in 1990s and another Lost Decade in the first ten years of the twenty-first century, since the Japanese yen appreciated continuously and tempestuously. The trade deficit with Japan was just an excuse of the U.S. to ask Japan to adjust Japanese economy and currency exchange rate.

1.2.4 Continuous Trade Deficit Will Erode the World Currency Status of the U.S. Dollar

The reason why the U.S. Dollar can be the world currency and transferable tool for the world is all the people believe the U.S. Dollar's purchasing power. When people and companies hold the U.S. Dollars, they hold goods and services, because the U.S. has giant production capacity, and people and companies can buy anything from the U.S. with the U.S. Dollars.

Even when the U.S. has continuous trade deficit and people suspect the U.S. Dollar's purchasing power, people and companies have no choice but to use the U.S. Dollars as the world currency, because people and companies can only believe the American economic power when the American GDP, production capacity, service capability and capability of high technology is the No. 1 in the world.

The U.S. continuous trade deficit may erode the capabilities of the American manufacture sector, which undermines the basis of the American economy. The U.S. exports the U.S. Dollars and financial services, and imports industrial products. When other countries have bigger capability of producing industrial products than the U.S., people and companies will ask one question: whether can they get the goods they want from the U.S. when they hold the U.S. Dollars?

Continuous trade deficit will erode the world currency status of the U.S. Dollar and people may refuse to use the U.S. Dollar as the world currency if there is another strong currency, when the purchasing power of the U.S. Dollar cannot be guaranteed and the U.S. loses the No. 1 status of GDP, production capacity, service capability and capability of high technology in the world.

[6]The Plaza Accord (or Plaza Agreement) was an agreement between the governments of France, West Germany, Japan, the U.S., and the UK, to depreciate the U.S. Dollar (USD) in relation to the Japanese yen (JPY) and German Deutsche Mark (DEM) by intervening in international currency markets.

1.3 Decline of the American Manufacturing Industry

The most important reason for continuous trade deficit of the U.S. is decline of the American manufacturing industry, which also weakens the base of the U.S. economy and the center currency status of the U.S. Dollar.

Decline of the American manufacturing industry is accompanied by rise of the American service industry, especially the financial service industry. In 1980s, the percentage of the American industrial production in GDP began to be below 50%, and this percentage continuously goes down (Chart 1.3). The center position of the U.S. Dollar gives the country a more simple, convenient and speedy economic development model to acquire wealth. Globalization of financial markets gives the U.S. very good opportunity to make profits with the support from the world center currency. Manufacturing industry, which needs more labor force and resource, is not the industry whose comparative advantage the U.S. has, and manufacturing industry transferred gradually to other countries, especially the Asian countries.

From 1970s the proportion of the American industrial production to the GDP began to decrease, and we know that the Bretton Woods system collapsed in 1971, when President Richard Nixon severed the link between the dollar and gold. In 1971 the U.S. threw off the shackles of the link between the dollar and gold, and the U.S. Federal Reserve could issue as much money as it wanted, and of course this was what the U.S. government did. Although it was a rocky transition, characterized by the western countries' high inflation, skyrocketing oil prices, unstable stock prices, and bank failures, the structure of the American economy changed, and the U.S. economy recovered in 1980s. For the U.S. economy, the U.S. Federal Reserve can do anything even when these actions perhaps hurt other countries' economy, which can be seen from what the U.S. government did in 1970s and after 2008. With aggressive and checkless monetary policy, the U.S. economy found another competitive advantage, and this is the reason why decrease of the American industrial production and collapse of the Bretton Woods system occurred synchronously.

Facing the severe global financial and economic crisis from 2008, the U.S. more focused on export. The U.S. president Obama proposed the five-year plan to double exports on 27th January 2010 in Washington DC Capitol Hill. Obama said "we need to export more of our goods. Because the more products we make and sell to other countries, the more jobs we support right here in the United States. So tonight, we set a new goal: we will double our export over the next five years, an increase that will support two million jobs in the United States. To help meet this goal, we're launching a National Export Initiative that will help farmers and small businesses increase their exports, and reform export controls consistent with national security".

Actions to promote exports of the U.S. were not castles in the air. Obama signed a presidential decree on 11th March 2010, which specified legal support including the Export Enhancement Act of 1992, 301 terms and so on. They decided to help enterprises, especially small businesses to overcome barriers to enter new trade markets through financial support, and to use other measures to find ways to export.

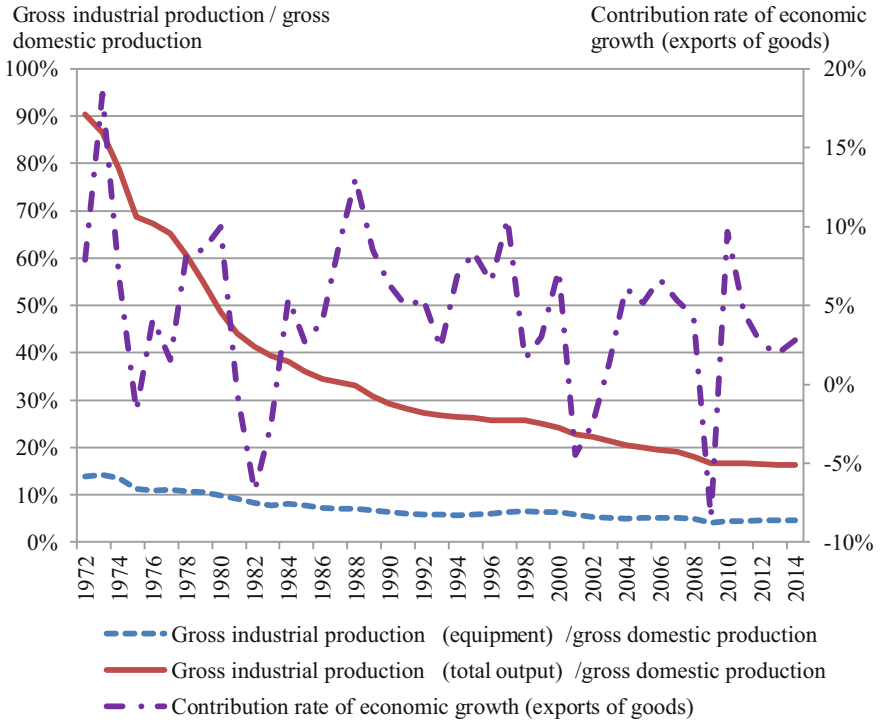

Chart 1.3 The American manufacturing industry development. *Note* Considering the continuity and consistency, the data are from Wind Info. The gross industrial production (total output) includes all final products, and the gross industrial production (equipment) is part of gross industrial production (total output). They are counted by current prices. *Source* Wind Info

The United States formed the Export Promotion Cabinet, which consists of senior government officials from the United States: the Secretary of State, the Secretary of the Treasury, the Secretary of Commerce, the United States Trade Representative, the President of the Export–Import Bank of the United States, and other administrative departments, agencies, and office members designated by the President from time to time. The cabinet can set up suborganizations, and should cooperate with the Trade Promotion Coordinating Committee.

The Export Promotion Cabinet has developed recommendations to address the eight priorities. The priority 1 is "Exports by Small and Medium-Sized Enterprises (SMEs)". Tremendous opportunity existed for the U.S. Government to help SMEs participate more actively and effectively in export markets through advocacy and promotion as well as export financing. The priority 2 is "Federal Export Assistance". Improving the Federal Government's core trade promotion programs could substantially enhance the ability of U.S. companies to export. The priority 3 is "Trade Missions". By participating in trade missions, U.S. companies received individually selected, one-on-one meeting with business contacts, including

potential agents, distributions, and partners in the local market. This assistance allowed U.S. companies to enter or expand their presence in the global marketplace. The priority 4 is "Commercial Advocacy". Commercial advocacy was designed to help level the playing field on behalf of U.S. businesses competing for international contracts against foreign firms that might benefit from strong home government support. The priority 5 is "Increasing Export Credit". Government trade and investment financing agencies such as the Ex–Im Bank stepped into fill market gaps that arose because the private sector was unable to provide adequate credit to support certain transactions with greater real or perceived risk. The priority 6 is "Macroeconomic Rebalancing". A key determinant of the U.S. export growth over the next few years would be the economic growth of the U.S. trading partners. In the short term, working to sustain a strong global economic recovery would require concerted and continued efforts by the United States and its G-20 partners to ensure that the global economy shifts smoothly to more diversified sources of economic growth. Over the medium and longer term, shifts in the composition of economic growth in the U.S. trading partners would also be crucial to U.S. export growth. The Export Promotion Cabinet believed that a broad range of countries needed to take policy actions that could reduce their surpluses by stimulating domestic demand (especially consumption) and thereby increasing their demand for imports. Strong, sustainable, and more balanced global growth was therefore crucial to U.S. export growth. The priority 7 is "Reducing Barriers to Trade". The United States Trade Representative (USTR), working with other members of the Export Promotion Cabinet, took steps to improve market access overseas for U.S. manufacturers, farmers, ranchers, and service providers. A crucial part of continued export growth was removing trade barriers through negotiations. The priority 8 is "Export Promotion of Services". As the largest component of the U.S. economy, services account for nearly 70% of the U.S. GDP and are the largest driver of job creation in the United States.

Obviously, one of the goals of Obama's plan to double exports of the U.S. was employment, but to drive the restructuring of the U.S. economy was the ultimate goal. Obama specifically stressed that the future American economy should transform to sustainable growth, export-driven and manufacturing growth, which issued a signal to return to real economy. Re-industrialization has become an important strategy to reshape competitive advantage of the U.S.

The determination of Obama and the U.S. government to promote the American industrial production and exports in goods is very strong, but the achievement is a little disappointed. From Chart 1.3 we can find that the proportion of the U.S. gross industrial production to GDP was still very low from 2010 to 2014, and there is no signal to increase. What's more, the proportion of the American equipment production to GDP was also very low, which means that the capability of the American industry cannot increase in short term.

The U.S. Dollar's center status helped the American corporations to make money comparatively easily than other countries' companies, and it also helped the U.S. built a very strong financial industry, but the American manufacturing industry

is crowded out, and the U.S. trade deficit in goods is ineluctable, which weaken the base of the U.S. economy and the center currency status of the U.S. Dollar.

1.4 Military and Diplomatic Cost

Aiming to secure the U.S. Dollar's center currency status in the world, the U.S. government must make people believe the power of the U.S., as the strength and power of the U.S. is the endorsement of the U.S. Dollar.

Military force, which means much military spending, and diplomatic power, which means expensive foreign assistances and costly sanctions, are all factors to influence the U.S. financial balance, to make people suspect the American ability to develop economy, to sustain the value of the U.S. Dollar.

1.4.1 The Sky-High Military Spending Is an Unbearable Burden

Strong military force is an important symbol of the American comprehensive national strength and it has been the vital element to maintain the U.S. Dollar-center currency position in the world. When people and corporations hold the world currency, they should hold safe assets. The world currency must be the currency of the world economic superpower, and this superpower must be able to protect its economic interests.

It is a bad news for the U.S. that the cost of strong military force is very high, and the American economy and finance will be not able to afford it in a few years if the U.S. will not cut the expenditure on military.

The American military spending is always at the top in the world. As the GDP of the U.S. is the No. 1 in the world, the American military spending is the No. 1 in the world is understandable, but from Tables 1.2 and 1.3 we can find that the military expenditure of the U.S. is so high that the American military expenditure is even more than the sum of No. 2–No. 8, which means that the financial burden of the U.S. from military spending is much more than other countries.

For a long time, the American military expenditure has been very high, and the proportion of it in GDP has been much higher than other countries, which means that it is non-sustainable without the support of the outpouring U.S. Dollars which the U.S. Federal Reserve issued.

From Chart 1.4 we can see the American military expenses showed a downward trend from Dissolution of the Soviet Union to 2000 and the proportion of it in GDP also decreased gradually from 5.5 to 3%. During the first decade of the twenty-first century, the American military expenses increased quickly again and the U.S. was bogged down in Iraq and Afghanistan, and the proportion of it in GDP increased to

Table 1.2 World military balance 2015 (for 2014), (list by the International Institute for Strategic Studies)

Rank	Country	Spending ($, billion)	% of GDP
1	United States	581.0	3.3
2	China	129.4	1.2
3	Saudi Arabia	80.8	10.7
4	Russia	70.0	3.7
5	United Kingdom	61.8	2.1
6	France	53.1	1.8
7	Japan	47.7	1.0
8	India	45.2	2.2
9	Germany	43.9	1.1
10	South Korea	34.4	2.4
11	Brazil	31.9	1.3
12	Italy	24.3	1.1
13	Israel	23.2	7.6
14	Australia	22.5	1.5
15	Iraq	18.9	8.5

Note 1 The figures for Saudi Arabia include expenditure for public order and safety and might be slightly overestimated

Note 2 The International Institute for Strategic Studies (IISS) is a world-leading authority on global security, political risk and military conflict. The IISS was founded in the UK in 1958 with a focus on nuclear deterrence and arms control. Today, it is also renowned for its annual military balance assessment of countries' armed forces and for its high-powered security summits, including the Shangri-La Dialogue. *Source* http://www.iiss.org/en/about-s-us

Source International Institute for Strategic Studies, The military balance 2015, London: Routledge, ISBN 1857437667, 11 February 2015

4.8%. Because of the American subprime lending crisis, from 2010 the American military expenses decreased a little, but the proportion of it in GDP still wanders about 4%.

The proportion of the American defense budget in the American total budget has been in the scope of 16–21.9%, which is much higher than other countries. From Table 1.4 we can see the American defense budget showed an upward trend from 1996 to 2007 and the proportion of it in the American total budget also increased gradually from 16 to 21.9%. Because of the American subprime lending crisis, from 2008 the American defense budget decreased, and the proportion of it in the American total budget also decreased to 16%, but the American defense budget is still above 600 billion Dollars, which is a sky-high spending for other countries.

To ease the financial pressure, the U.S. Department of Defense announced on 8th January 2015 that the U.S. would reorganize the military bases in the U.K., Germany and other 4 European countries and would close 15 U.S. military bases or facilities in Europe in the next few years. The U.S. Department of Defense

Table 1.3 The 15 countries with the highest military expenditure in 2014 (list by the Stockholm International Peace Research Institute)

Rank	Country	Spending ($, billion)	% of GDP
–	World total	1776.0	2.3
1	United States	610.0	3.5
2	China[a]	216.0	2.1
3	Russia[a]	84.5	4.5
4	Saudi Arabia[b]	80.8	10.4
5	France	62.3	2.2
6	United Kingdom	60.5	2.2
7	India	50.0	2.4
8	Germany[a]	46.5	1.2
9	Japan	45.8	1.0
10	South Korea	36.7	2.6
11	Brazil	31.7	1.4
12	Italy	30.9	1.5
13	Australia	25.4	1.8
14	United Arab Emirates[a]	22.8	5.1
15	Turkey	22.6	2.2

[a, b]SIPRI estimate

Note 1 The figures for Saudi Arabia include expenditure for public order and safety and might be slightly overestimated

Note 2 The Stockholm International Peace Research Institute (SIPRI) is an independent international institute dedicated to research into conflict, armaments, arms control and disarmament. Established in 1966, SIPRI provides data, analysis and recommendations, based on open sources, to policymakers, researchers, media and the interested public. Based in Stockholm, SIPRI also has a presence in Beijing, and is regularly ranked among the most respected think tanks worldwide. *Source* http://www.sipri.org/about

Source Stockholm International Peace Research Institute, The 15 countries with the highest military expenditure in 2014 (table), Retrieved 13 April 2015

calculated that it could save $500 million annually by transferring the military bases to the host countries, in response to the slash of the defense budget. But compared to the huge defense expenditure, the effect of this saving measure is obscure.

1.4.2 Sanction and Foreign Aid Are Costly

Besides military force, diplomatic power, which includes two tools of sanction and foreign aid, is another method to support the center currency status of the U.S. Dollar.

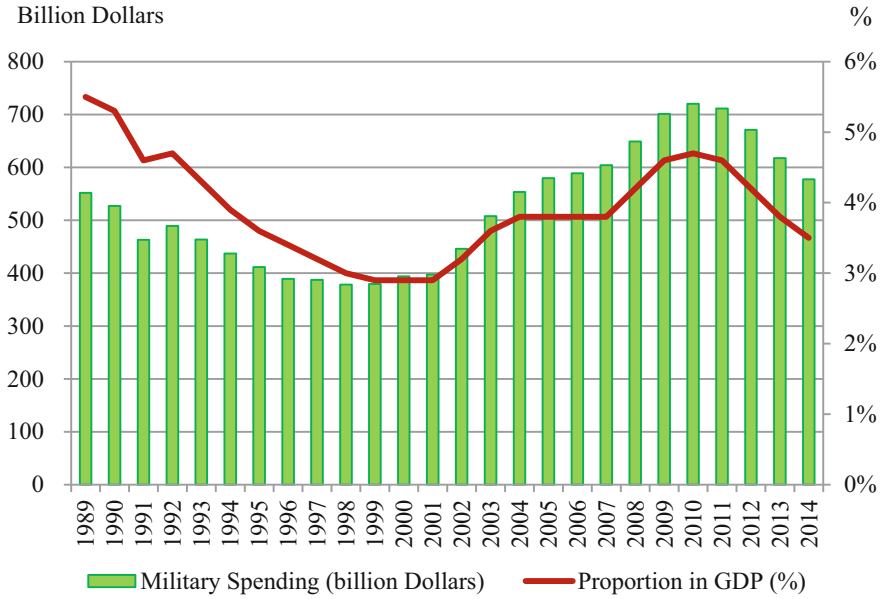

Chart 1.4 The military spending of the U.S. (1989–2014), (list by the Stockholm International Peace Research Institute). *Note 1* Military spending figures from 1989 to 2013 are at constant 2011 prices and exchange rates except for the year of 2013 which is at 2013 prices and exchange rates. And the figure in 2014 is obtained according to the institute's published research report. Because of frequent emending, the numbers in different time points may be not the same, just as the numbers in Table 1.3 and Chart 1.4. *Source* The Stockholm International Peace Research Institute, http://www.sipri.org/databases

Sanction is a tool to maintain the international political and economic system which is dominated by the U.S., and this U.S. dominated international political and economic system is one of the bases for the center currency status of the U.S. Dollar.

For the country that imposes sanction on another country, sanction is a double-edged sword, and sanction is always costly. Sanction is costly for the U.S., even though the U.S. operated these sanctions smartly. Because of the Ukraine crisis which started in 2014, the United States and the European Union imposed sanctions against Russia. As the EU has much more economic interests in Russia than the U.S., the sanctions brought more economic loss to the EU than the U.S., and these sanctions till maintain the U.S. dominated international political and economic system.

Foreign aid is another important diplomatic tool to support the center currency status of the U.S. Dollar. As foreign aids are conducive to economic development

Table 1.4 The U.S. historical spending on defense (1996–2015), (list by the United States Government)

	Defense budget (Billions)	Total budget (Trillions)	Defense budget (%)	Defense spending change (%)
1996	266	1.58	16.8	−0.1
1997	270	1.64	16.5	1.6
1998	271	1.69	16	0.2
1999	292	1.78	16.4	7.8
2000	304	1.82	16.7	4
2001	335	1.96	17.1	10.1
2002	362	2.09	17.3	8.2
2003	456	2.27	20.1	26
2004	491	2.41	20.4	7.6
2005	506	2.58	19.6	3.1
2006	556	2.78	20	10
2007	625	2.86	21.9	12.5
2008	696	3.32	20.9	11.3
2009	698	4.08	17.1	0.2
2010	721	3.48	20.7	3.4
2011	717	3.51	20.4	−0.6
2012	681	3.58	19.1	−5
2013	610	3.48	17.5	−10.5
2014	614	3.64	16.8	0.6
2015	637	3.97	16	3.8

Note Spending for 2014–15 is estimated
Source United States government publishing office, historical tables: budget of the United States Government, Fiscal Year 2015, Retrieved 2015-01-13

of recipients, recipient countries want aids from the U.S. even these aids are in the form of the U.S. Dollars, the U.S. domestic currency. These foreign aids are helpful for the center currency status of the U.S. Dollar since more and more recipient countries use the U.S. Dollars in international business.

Generally, when recipient countries get the foreign aids from the U.S. they also receive some political and economic terms. These political and economic terms help the U.S. to maintain the American interests around the world, to keep the U.S. dominated international political and economic system and the center currency status of the U.S. Dollar.

Although it is a very low-cost measure for the U.S. government to aid other countries with the U.S. Dollars, as the U.S. Dollars are issued by the U.S. Federal Reserve, foreign aid still brings financial problems for the U.S.

As shown in Table 1.5, the American large-scale foreign aid started from the 1940s and it continuously increased. The Marshall Plan not only helped the western countries to recover economy, but also helped the U.S. Dollar to be the world currency. The continuous American foreign aid during 1950s–1990s consolidated

Table 1.5 Foreign assistance of the U.S. (1946–2012, billion Dollars)

Program	Postwar relief period 1946–1948	Marshall plan period 1949–1952	Mutual security act period 1953–1961	Foreign assistance act period 1962–2012	Total loans and grants 1946–2012
Economic assistance	12,482.00	18,634.30	24,050.00	20,224.50	675,390.90
Military assistance	481.2	10,064.20	19,302.20	289,902.50	319,750.00
Non-concessional loans				2098.20	2098.20
Annual obligations to international organizations				37,115.50	37,115.50

Note Total Economic Assistance contains 5 parts. 1. USAID and Predecessor: economic support fund/security support assistance; development assistance; child survival & health; other USAID assistance. 2. Department of Agriculture: food for education; other food aid programs; other USDA assistance. 3. State Department: global health and child survival; global HIV/aids initiative; narcotics control; migration and refugee assistance; nonproliferation, antiterrorism, demining & related; other state assistance. 4. Other Economic Assistance: millennium challenge corporation; peace-corps; department of defense security assistance; other active grant programs; inactive programs. 5. Voluntary Contributions to Multilateral Organizations
Non-concessional U.S. Loans contains 2 parts. Export–Import bank loans and OPIC (Overseas Private Investment Corporation) & other non-concessional U.S. loans
Source U.S. Agency for International Development (USAID), U.S. Overseas Loans and Grants (Green book), http://pdf.usaid.gov/pdf_docs/pbaaa800.pdf

the leading position of the U.S. in the western world, and isolated the Soviet Union and Communist countries in the Eastern Europe. The Mutual Security Act is an example that the U.S. could get political interests with economic advantage (foreign aid).

In consideration of the U.S. huge sovereign debt, although the American foreign aid is not very huge, it is still a problem for the U.S. For the center currency status of the U.S. Dollar and the U.S. dominated international political and economic system, foreign aid is necessary for the U.S. government, but it is suspected by scholars whether the U.S. government still has the financial ability to afford ever-increasing foreign aid.

Appendix

See Tables 1.6, 1.7, 1.8 and 1.9.

Table 1.6 Trade balance of the U.S. (1992–2014, billion Dollars)

Year	Balance	Export	Import
1992	−39.212	616.882	656.094
1993	−70.311	642.863	713.174
1994	−98.493	703.254	801.747
1995	−96.384	794.387	890.771
1996	−104.065	851.602	955.667
1997	−108.273	934.453	1042.726
1998	−166.14	933.174	1099.314
1999	−258.617	969.867	1228.485
2000	−372.517	1075.321	1447.837
2001	−361.511	1005.654	1367.165
2002	−418.955	978.706	1397.66
2003	−493.89	1020.418	1514.308
2004	−609.883	1161.549	1771.433
2005	−714.245	1286.022	2000.267
2006	−761.716	1457.642	2219.358
2007	−705.375	1653.548	2358.922
2008	−708.726	1841.612	2550.339
2009	−383.774	1583.053	1966.827
2010	−494.658	1853.606	2348.263
2011	−548.625	2127.021	2675.646
2012	−537.605	2216.54	2754.145
2013	−476.392	2280.194	2756.586
2014	−504.711	2344.528	2849.239

Source the U.S. Department of Commerce, www.bea.gov/newsreleases/international/trade/tradnewsrelease.htm

Table 1.7 The U.S. merchandise trade balance with China, Germany and Japan, 1980–2014 (million Dollars)

Year	Partner								
	With Germany			With Japan			With China		
	Export	Import	The U.S. merchandise trade balance with Germany	Export	Import	The U.S. merchandise trade balance with Japan	Export	Import	The U.S. merchandise trade balance with China
1980	10,959.80	12,257.00	−1297.20	20,790.00	32,972.80	−12,182.80	3755.00	1164.40	2590.60
1981	10,276.60	11,917.60	−1641.00	21,823.00	39,904.20	−18,081.20	3602.70	2062.40	1540.30
1982	9291.30	12,502.80	−3211.50	20,966.10	39,931.30	−18,965.20	2912.00	2502.40	409.60
1983	8736.90	13,229.20	−4492.30	21,894.30	43,559.00	−21,664.70	2173.10	2476.80	−303.70
1984	9083.90	17,810.10	−8726.20	23,574.90	60,371.30	−36,796.40	3004.30	3381.40	−377.10
1985	9049.30	21,231.50	−12,182.20	22,630.90	72,380.10	−49,749.20	3855.70	4224.20	−368.50
1986	10,560.60	26,128.10	−15,567.50	26,881.60	85,456.60	−58,575.00	3106.30	5240.60	−2134.30
1987	11,747.70	28,028.30	−16,280.60	28,248.60	88,073.90	−59,825.30	3497.30	6910.40	−3413.10
1988	14,269.00	27,380.30	−13,111.30	37,619.60	93,127.60	−55,508.00	5016.80	9261.30	−4244.50
1989	16,882.87	25,672.42	−8789.55	44,583.91	97,109.53	−52,525.62	5807.37	12,900.99	−7093.63
1990	18,752.10	29,080.30	−10,328.20	48,584.80	93,069.50	−44,484.70	4807.20	16,295.80	−11,488.60
1991	21,316.50	26,985.10	−5668.60	48,146.50	95,010.40	−46,863.90	6287.10	20,305.10	−14,018.00
1992	21,235.80	29,596.20	−8360.40	47,763.70	99,481.00	−51,717.30	7469.60	27,412.50	−19,942.90
1993	18,956.90	29,461.60	−10,504.70	47,949.50	110,417.70	−62,468.20	8767.10	33,512.70	−24,745.60
1994	19,236.80	32,690.40	−13,453.60	53,480.70	122,469.50	−68,988.80	9286.90	41,362.40	−32,075.50
1995	22,376.30	38,042.50	−15,666.20	64,298.00	127,195.30	−62,897.30	11,748.50	48,520.70	−36,772.20
1996	23,473.90	39,989.40	−16,515.50	67,535.70	117,962.90	−50,427.20	11,977.90	54,408.90	−42,431.00
1997	24,466.80	44,192.70	−19,725.90	65,672.70	124,265.80	−58,593.10	12,805.40	65,831.70	−53,026.30
1998	26,641.90	51,283.20	−24,641.30	57,887.90	125,090.80	−67,202.90	14,258.00	75,109.20	−60,851.20

(continued)

Table 1.7 (continued)

Year	Partner								
	With Germany			With Japan			With China		
	Export	Import	The U.S. merchandise trade balance with Germany	Export	Import	The U.S. merchandise trade balance with Japan	Export	Import	The U.S. merchandise trade balance with China
1999	26,990.70	55,825.90	−28,835.20	57,733.40	134,009.10	−76,275.70	12,943.60	86,480.60	−73,537.00
2000	29,216.70	59,480.50	−30,263.80	64,537.60	149,520.30	−84,982.70	15,963.70	106,214.70	−90,251.00
2001	30,113.90	60,492.30	−30,378.40	57,639.10	129,708.20	−72,069.10	19,234.90	109,391.60	−90,156.70
2002	26,628.50	63,884.00	−37,255.50	51,439.60	124,633.00	−73,193.40	22,052.70	133,490.40	−111,437.70
2003	28,847.90	69,617.50	−40,769.60	52,063.70	121,232.70	−69,169.00	28,418.50	163,255.30	−134,836.80
2004	31,380.80	79,116.90	−47,736.10	54,400.00	133,339.10	−78,939.10	34,721.00	210,525.80	−175,804.80
2005	34,149.20	86,937.60	−52,788.40	55,409.60	141,950.40	−86,540.80	41,836.70	259,837.80	−218,001.10
2006	41,319.60	91,222.00	−49,902.40	59,649.30	152,244.10	−92,594.80	55,224.00	305,787.60	−250,563.60
2007	49,652.00	96,639.80	−46,987.80	62,664.90	149,423.00	−86,758.10	65,238.40	340,117.70	−274,879.30
2008	54,732.30	99,764.40	−45,032.10	66,579.20	143,351.80	−76,772.60	71,457.00	356,318.90	−284,861.90
2009	43,298.40	72,640.60	−29,342.20	51,179.70	98,401.50	−47,221.80	69,576.00	309,557.70	−239,981.70
2010	48,201.20	84,373.40	−36,172.20	60,545.40	123,556.10	−63,010.70	91,878.30	382,982.90	−291,104.60
2011	49,134.10	100,408.30	−51,274.20	66,168.30	132,442.20	−66,273.90	103,878.60	417,354.10	−313,475.50
2012	48,785.70	110,611.80	−61,826.10	70,046.50	150,401.20	−80,354.70	110,590.10	444,469.30	−333,879.20
2013	47,442.20	116,924.70	−69,482.50	65,144.90	142,148.50	−77,003.60	122,016.40	460,090.60	−338,074.20
2014	49,442.58	123,181.04	−73,738.46	66,964.12	133,938.72	−66,974.60	124,023.95	466,656.49	−342,632.54

Source IMF, Direction of Trade Statistics (DOTS), http://elibrary-data.imf.org/

Table 1.8 The American manufacturing industry development (1972–2014)

Year	Gross industrial production (total output)/gross domestic production (%)	Gross industrial production (equipment)/gross domestic production (%)	Contribution rate of economic growth (exports of goods) (%)
1972	90.43	13.80	7.90
1973	86.52	14.15	18.41
1974	78.82	13.56	6.84
1975	68.76	11.32	−1.70
1976	67.28	10.85	4.16
1977	65.23	11.01	1.56
1978	60.45	10.76	8.35
1979	54.99	10.58	8.53
1980	48.67	9.87	9.98
1981	44.00	9.16	−0.53
1982	41.33	8.25	−6.76
1983	39.31	7.73	−2.53
1984	38.09	8.04	5.48
1985	35.97	7.78	2.66
1986	34.43	7.14	4.01
1987	33.86	7.09	8.78
1988	33.01	7.09	13.04
1989	30.87	6.69	8.52
1990	29.29	6.43	6.33
1991	28.13	6.09	4.88
1992	27.33	5.85	5.42
1993	26.87	5.74	2.33
1994	26.49	5.69	6.85
1995	26.28	5.79	8.38
1996	25.75	5.92	6.46
1997	25.75	6.27	10.45
1998	25.74	6.56	1.59
1999	25.04	6.39	3.03
2000	24.17	6.32	7.25
2001	22.86	5.81	−4.47
2002	22.23	5.31	−2.47
2003	21.44	5.10	1.33
2004	20.54	5.00	6.11
2005	20.02	5.07	5.14
2006	19.40	5.18	6.67
2007	19.02	5.18	5.32
2008	17.97	5.00	4.31
2009	16.72	4.16	−8.47

(continued)

Table 1.8 (continued)

Year	Gross industrial production (total output)/gross domestic production (%)	Gross industrial production (equipment)/gross domestic production (%)	Contribution rate of economic growth (exports of goods) (%)
2010	16.73	4.45	9.68
2011	16.58	4.49	4.52
2012	16.49	4.63	2.54
2013	16.38	4.59	1.96
2014	16.35	4.61	2.78

Note Considering the continuity and consistency, the data are from Wind Info. The gross industrial production (total output) includes all final products, and the gross industrial production (equipment) is part of gross industrial production (total output). They are counted by current prices
Source Wind info

Table 1.9 The military spending of the U.S. (1989–2014) (list by the Stockholm International Peace Research Institute)

Year	Military spending (billion Dollars)	Proportion in GDP (%)
1989	551,766	5.5
1990	527,097	5.3
1991	462,941	4.6
1992	489,166	4.7
1993	463,457	4.3
1994	437,145	3.9
1995	411,631	3.6
1996	389,240	3.4
1997	387,227	3.2
1998	378,483	3.0
1999	379,414	2.9
2000	394,097	2.9
2001	397,298	2.9
2002	446,089	3.2
2003	507,723	3.6
2004	553,378	3.8
2005	579,768	3.8
2006	588,771	3.8
2007	604,229	3.8
2008	648,932	4.2
2009	700,984	4.6
2010	720,220	4.7
2011	711,338	4.6

(continued)

Table 1.9 (continued)

Year	Military spending (billion Dollars)	Proportion in GDP (%)
2012	670,897	4.2
2013	617,687	3.8
2014	577,511	3.5

Note Military spending figures from 1989 to 2013 are at constant 2011 prices and exchange rates except for the year of 2013 which is at 2013 prices and exchange rates. And the figure in 2014 is obtained according to the institute's published research report

Source The Stockholm International Peace Research Institute, http://www.sipri.org/databases

Note 1 Military spending figures from 1989 to 2013 are at constant 2011 prices and exchange rates except for the year of 2013 which is at 2013 prices and exchange rates. And the figure in 2014 is obtained according to the institute's published research report

Note 2 Because of frequent emending, the numbers in different time points may be not the same, just as the numbers in Tables 1.3 and 1.9

Source The Stockholm International Peace Research Institute, http://www.sipri.org/databases

Chapter 2
The U.S. Strong Desire to Maintain the Center Currency Status of the U.S. Dollar

It is both an outcome of global economic development and a result of the U.S. continuous political measures that the U.S. Dollar became the world center currency. The U.S. Dollar was successful in competing with the U.K. Pound for the world center currency position in 1940s, and it was related to the adjustment and reconstruction of the world monetary system.

The U.S. has strong desire to maintain the center currency status of the U.S. Dollar since there is so much economic and political, direct and indirect interests in it. As the issuer of the world"s reserve currency, the U.S. has been benefited a lot. The U.S. not only gets seigniorage from other countries, but also has infinite money to pay for the huge trade deficit and public debt (sovereign debt) of the U.S.

2.1 The Seigniorage Revenue from Other Countries

As a medium of circulation, the U.S. Dollar is the same as other currencies in seigniorage revenue, and the differences between the U.S. Dollar and other currencies are the scale (quantity) of seigniorage revenue and where seigniorage revenue comes from.

Seigniorage is profit from money creation, a way for governments to earn revenue. Seigniorage is the difference between the face value of money and the cost to produce and distribute it. Ordinarily seigniorage is only an interest-free loan to the issuer (ordinarily is a central bank) of the coin or paper money, because the issuer buys it back at face value.[1] When the currency is collected, or is taken permanently out of circulation, the currency is never returned to the central bank, so the issuer of the currency keeps the whole seigniorage profit or revenue. As we know, just little

[1]Some economists regarded seigniorage as a form of inflation tax, since issuing new currency can redistribute real resources to the currency issuer and may cause inflation in the long run.

T. YUAN, *The Dual-Center Global Financial System*,
https://doi.org/10.1007/978-981-10-7993-1_2

currency can be returned to the central bank, so the issuer of the currency (central bank) keeps almost the whole seigniorage profit, by not having to buy issued currency back at face value.

Especially the U.S. has another very profitable type of seigniorage which is from the international circulation of the U.S. Dollars. The cost of issuing the U.S. Dollars is minimal, but the foreign entities must provide goods and services at the face values of the U.S. Dollars to obtain them. The U.S. Dollars are retained because the foreign entities value them as store of value since the U.S. Dollar is the world center currency. Based on the center position of the U.S. Dollar, the U.S. collects seigniorage from everyone who holds it.

There are some disputes about the definition and classification of international seigniorage. In my opinion, there are 3 kinds of computing methods about the U.S. seigniorage revenue from the international circulation of the U.S. Dollars: the seigniorage of the U.S. Federal Reserve, the seigniorage of the U.S. and the generalized seigniorage of the U.S.

2.1.1 *The Seigniorage of the U.S. Federal Reserve from Other Countries*

The seigniorage revenue of the U.S. Federal Reserve is the monetary base issued by the U.S. Federal Reserve. When the currency issued by the U.S. Federal Reserve is in circulation in foreign countries or collected by foreign entities, the U.S. Federal Reserve gets the international seigniorage profit or revenue. What we concern is the international issuing seigniorage, revenue of which is the monetary base held by foreign countries.

As the main foreign exchange reserve in the world, the U.S. Dollar in circulation outside the U.S. is comparative stable. We can know the international seigniorage revenue the U.S. makes by:

$$S_t = B_t \cdot \alpha_t \tag{1}$$

where S_t is the international issuing seigniorage revenue the U.S. makes; B_t is the monetary base issued by the central bank of the U.S.; α_t is the share of the U.S. Dollar monetary base in circulation outside the U.S.

There exist different points of view on the scale of α_t. *The Use and Counterfeiting of United States Currency Abroad*[2] estimated that the share of foreign holdings of the Dollars in circulation was about 60% in the end of 2005,

[2]The Department of the Treasury & Board of Governors of the Federal Reserve System & United States Secret Service (2006), *The Use and Counterfeiting of United States Currency Abroad, Part 3: The final report to the Congress by the Secretary of the Treasury, in consultation with the Advanced Counterfeit Deterrence Steering Committee, pursuant to Section 807 of PL 104–132*, September, http://www.federalreserve.gov/boarddocs/rptcongress/counterfeit/default.htm.

$450 billion out of $760 billion. Jankowski, Rice and Porter[3] argued that the share of $100 bills held abroad had decreased from its peak of 70%, and more recently, held steady at about 65%. Feige[4] reestimated α_t, and it has been adopted by the U.S. Bureau of Economic Analysis (BEA) and the Federal Reserve. We employ Feige's technique to calculate S_t, where the U.S. Dollar monetary base is from the International Financial Statistics (IFS) Online Service database of IMF.

The U.S. Federal Reserve has gained extensive and increasing international issuing seigniorage revenue (Table 2.1). By the end of 2007, the U.S. Dollar monetary base was over $800 billion. From the last quarter of 2008, to boost domestic economy, the Federal Reserve, the central bank of the U.S., brought into effect the monetary policy of quantitative easing (QE), and much more the U.S. Dollars were issued. The sudden surges of the U.S. Dollar supply brought superfluous international liquidity and high inflation around the world, especially in the emerging countries, and the U.S. Dollar international issuing seigniorage revenue jumped in 2008 and 2009. It is very interesting and unfair that awful American economy led the world economy into economic crisis from the second half of 2008, but the U.S. Federal Reserve got more seigniorage revenue from it.

2.1.2 The Seigniorage of the U.S. from Other Countries

According to Michael McLeay, Amar Radia and Ryland Thomas,[5] in the modern economy, most money takes the form of bank deposits. Whenever a bank makes a loan, it simultaneously creates a matching deposit in the borrower's bank account, thereby creating new money. Rather than banks receiving deposits when households save and then lending them out, bank lending creates deposits. In normal times, the central bank does not fix the amount of money in circulation, nor is central bank money 'multiplied up' into more loans and deposits. Monetary policy acts as the ultimate limit on money creation.

The seigniorage of the U.S. is much more than the seigniorage revenue of the U.S. Federal Reserve since the former includes the U.S. Dollars which are in circulation outside the U.S. and banks create.

The key to measure the seigniorage of the U.S. is figuring out the way that the U.S. Dollar spreads from the U.S. to the world. We can find out from BoP (Balance of Payments) account three ways to help the U.S. Dollar to export to other countries, which are the current account, the capital account and the reserve account.

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[3]Jankowski Carrie, Tara Rice and Richard D. Porter (2007), "*Against the Tide-Currency Use among Latin American Immigrants in Chicago*", *Economic Perspectives*, 31(2): 2–21.

[4]Feige, Edgar L. (2009), "*New Estimates of Overseas U.S. Currency Holdings, the Underground Economy and the 'Tax Gap'* ", MPRA (Munich Personal RePEc Archive) Paper. Forthcoming in: *Crime, Law and Social Change* (2011).

[5]McLeay Michael, Amar Radia and Ryland Thomas, "*Money creation in the modern economy*", the Bank of England: *Quarterly Bulletin*, 2014 (Q1).

Table 2.1 The U.S. Dollar international issuing seigniorage revenue

Year	Monetary base ($, billion)	The share of the U.S. Dollar monetary base in circulation outside the U.S.	The U.S. Dollar international issuing seigniorage revenue ($, billion)
1985	203.56	0.2	40.711
1986	223.42	0.2	44.6832
1987	239.83	0.21	50.36409
1988	256.90	0.22	56.51734
1989	267.77	0.27	72.29682
1990	293.29	0.29	85.05323
1991	317.55	0.3	95.2638
1992	350.91	0.32	112.29184
1993	386.60	0.35	135.31
1994	418.35	0.35	146.42075
1995	434.59	0.37	160.79682
1996	452.03	0.4	180.8128
1997	479.91	0.4	191.9636
1998	513.89	0.4	205.5548
1999	593.84	0.39	231.59838
2000	584.93	0.39	228.12231
2001	635.56	0.39	247.86723
2002	681.63	0.39	265.83531
2003	720.40	0.39	280.95678
2004	759.07	0.39	296.03808
2005	786.98	0.38	299.05088
2006	811.13	0.36	292.00536
2007	822.36	0.37	304.27172
2008	1651.28	0.36	594.4608
2009	1941.70	0.36	699.012

Source calculated with: IMF Statistics Department, *The International Financial Statistics Yearbook 2010*

We define Ca = Export-Import as current account balance, and if Ca > 0, we call it current account surplus, which means that capital flows into the home country; but if Ca < 0, we call it current account deficit, which means that capital flows into other countries. We should notice international capital flows in the form of the U.S. Dollars, and in other words, if Ca < 0 in the U.S., the U.S. Dollars flow from the U.S. to other countries. Similarly, we define capital account balance as CF, and $\Delta CF = CF_{a,t} - CF_{a,t-1}$ represents capital account balance change. If $\Delta CF < 0$ in the U.S., that means capital account deficit of the U.S., and the U.S. Dollars flow into other countries by capital account. We define $\Delta R = R_{a,t} - R_{a,t-1}$, which represents reserve account change, and if $\Delta R > 0$ that means the U.S. Federal

Reserve increases the reserve assets. Then, we can describe the seigniorage of the U.S. as:

$$S = Ca + \Delta CF + \Delta R \tag{2}$$

From Table 2.2 we can see that the U.S. had achieved 7916.9334 billion U.S. Dollars as the nominal seigniorage revenue during 2000–2014, including 8092.919 billion U.S. Dollars as the current account outflow. We find out that the U.S. Dollar outflow relies on current account change, rather than capital account change nor reserve account change. We also know that when the U.S. exports the U.S. Dollars, the U.S. gets goods and services from other countries, and that is why they are the seigniorage revenue of the U.S. and they are not just the seigniorage revenue of the U.S. Federal Reserve.

From Table 2.2 we can see that there was an inflow of 117.4116 billion U.S. Dollars through the capital account and an inflow of 58.574 billion U.S. Dollars through the reserve account. These inflows of the U.S. Dollars decreased the seigniorage revenue of the U.S., but they were very important capital for the American economic growth.

When other countries' goods and services are exported to the U.S., the U.S. exports the U.S. Dollars to them and gets seigniorage revenue, and when other countries' investment of the U.S. Dollars flows into the U.S., the U.S. gets capital with low cost and gets revenue again. The base of this profitable circle is the center position of the U.S. Dollar in the world.

2.1.3 *The Generalized Seigniorage of the U.S. from Other Countries*

The generalized seigniorage not only contains the nominal seigniorage of the U.S., but also includes the inflation tax. When the U.S. domestic price level rises, the U.S. Dollar falls in value and its real purchasing power decreases, and other countries' reserve assets in form of the U.S. Dollars devaluate sharply.

We set I as inflation tax, S as nominal seigniorage, π as inflation rate, and n is on behalf of the period of time to get inflation tax, and t denotes time. Then, we can find that if $n = 1$, the 1 year's inflation tax is the product of the first year's nominal seigniorage and the second year's inflation rate:

$$I_t = S_t \pi_{t+1}$$

Then, we can conclude that when the time period is n,

$$I_t = S_t \left[1 - \prod_t^n (1 - \pi_{t+1}) \right]$$

Table 2.2 The seigniorage of the U.S. (2000–2014, million Dollars)

Year	Current account	Capital account balance change	Reserve account balance change	Nominal seigniorage
2000	−372,517	4247	−3869	−372,139
2001	−361,511	2743.4	1007	−357,760.6
2002	−418,955	990	10,352	−407,613
2003	−493,890	10,221.1	6932	−476,736.9
2004	−609,883	12,721.5	886	−596,275.5
2005	−714,245	10,554.1	−21,697	−725,387.9
2006	−761,716	14,751.4	768	−746,196.6
2007	−705,375	12,433.3	4670	−688,271.7
2008	−708,726	−8127.1	7083	−709,770.1
2009	−383,774	5127.1	53,112	−325,534.9
2010	−494,658	3320.9	1673	−489,664.1
2011	−548,625	4960.7	15,520	−528,144.3
2012	−537,605	7527.4	2222	−527,855.6
2013	−476,392	13,373.9	−5600	−468,618.1
2014	−505,047	22,566.9	−14,485	−496,965.1
Total	−8,092,919	117,411.6	58,574	−7,916,933.4

Source The results of nominal seigniorage are calculated by the writer based on the formula. The data are from: Board of Governors of the Federal Reserve System, http://www.federalreserve.gov/releases/h10/summary/indexb_m.htm; U.S. Bureau of Statistics: Guide to Foreign Trade Statistics—Description of the Foreign Trade Statistical Program, http://www.census.gov/foreign-trade/statistics/historical/

So the total inflation tax is I [6]:

$$I = \sum S_t \left[1 - \prod_{t}^{n} (1 - \pi_{t+1}) \right]$$

We set the year of 2000 as the base period, and its calculation period is from 2000 to 2014, and in other words, the generalized seigniorage in 2000 includes 14 years' inflation tax. Similarly, the generalized seigniorage in 2001 includes 13 years' inflation tax. And so on. The generalized seigniorage in 2014 includes no inflation tax.

As shown in Table 2.3, the total inflation tax from 2000 to 2014 is 949.4764 billion U.S. Dollars, accounting for 10.71% of the total nominal seigniorage, and the total generalized seigniorage is 8866.4098 billion U.S. Dollars.

[6]The formula is referenced from Yulu Chen (2002), "Financial Opening and Benefits of Currency Internationalization", International Finance, p. 82–148.

Table 2.3 The generalized seigniorage of the U.S. (2000–2014, million Dollars)

Year	Nominal seigniorage	Inflation rate (%)	Inflation tax	Generalized seigniorage
2000	372,139	3.4	99,309.79	471,448.8
2001	357,760.6	2.8	87,917.12	445,677.7
2002	407,613	1.6	95,168.89	502,781.9
2003	476,736.9	2.3	102,705.11	579,442
2004	596,275.5	2.7	115,476.14	711,751.6
2005	725,387.9	3.4	119,893.55	845,281.5
2006	746,196.6	3.2	102,742.32	848,938.9
2007	688,271.7	2.8	77,669.91	765,941.6
2008	709,770.1	3.8	55,223.17	764,993.3
2009	325,534.9	−0.4	26,524.06	352,059
2010	489,664.1	1.6	32,583.76	522,247.9
2011	528,144.3	3.2	18,846.83	546,991.1
2012	527,855.6	2.1	7917.83	535,773.4
2013	468,618.1	1.5	7497.9	476,116.0
2014	496,965.1	1.6	N.A.	N.A.
Total	7,916,933.4	N.A.	949,476.4	8,866,409.8

Source The results of inflation tax and generalized seigniorage are calculated by the writer based on the formula, and the data are from: Board of Governors of the Federal Reserve System, http://www.federalreserve.gov/releases/h10/summary/indexb_m.htm

The seigniorage revenue the U.S. continuously gets from other countries is very huge, and it is very important for the U.S. economy. From Table 2.3 we can see that the generalized seigniorage of the U.S. in the year of 2012 is about 0.54 trillion U.S. Dollars, and the GDP of the U.S. in the year of 2012 is 16.2 trillion U.S. Dollars,[7] and this means that the generalized seigniorage of the U.S. in 2012 is 3.3% of the GDP of the U.S. in 2012. The GDP growth rate of the U.S. in 2012 is 2.3%,[8] which is much lower than the generalized seigniorage of the U.S. as a percentage of the U.S. GDP in 2012.

It is really a convenient and easy way for the U.S. to seize huge wealth from other countries that the U.S. maintains the center currency status of the U.S. Dollar and continuously gets seigniorage revenue from other countries.

[7]The World Bank, World Development Indicators, http://search.worldbank.org/all?qterm=china+gdp+usa+japan+german&title=&filetype=.

[8]The World Bank, http://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG.

2.2 The Interests from the Structure Power

Based on the center status of the U.S. Dollar, the center country, the U.S., can strengthen its structure power, and create and maintain a stable international system which is on behalf of the U.S. interests. International system is like a huge machine, comprised by many parts including political system, trading system, financial system, money system and so on, and dominated by the center country. As we know, the most effective tool operating the machine of international system is structure power.

2.2.1 The Structure Power

According to Susan Strange, there are two different kinds of power in international relations, relation power and structure power. If A forces B to do something that B is extremely reluctant to do, but B has to do considering A's absolutely advantages, we call this as "relation power". We find out that relation power is hard power up to one's economic development, political and military strength, and foreign policy. How about structure power? According to Susan Strange, structure power belongs to soft power, which is "the power to decide how things shall be done, the power to shape frameworks within which states relate to each other".[9] As we know, getting others to want what you want them to want, this is "soft power", according to Nye.[10]

The structure power of the U.S. indirectly influences other countries' decisions without rejection, and it is more conducive to build and maintain the center status of the U.S. Dollar and the center status of the U.S. in the world, and especially it makes other countries enjoy the process, even though their decisions are not independent in fact. Of course, the center status of the U.S. Dollar is also one of the bases of the U.S. structure power.

2.2.2 Institutional Base of the U.S. Structure Power and Maintaining

The Bretton Woods System, the world financial system after the World War II, which was established and controlled by the U.S., is the institutional base of the

[9]Strange, Susan (1988), States and Markets, New York: Basil Blackwell, p 25.

[10]Nye, Joseph, Bound to Lead: The Changing Nature of American Power, New York: Basic Books, 1990. In this book, he wrote: "when one country gets other countries to want what it wants-might be called co-optive or soft power in contrast with the hard or command power of ordering others to do what it wants."

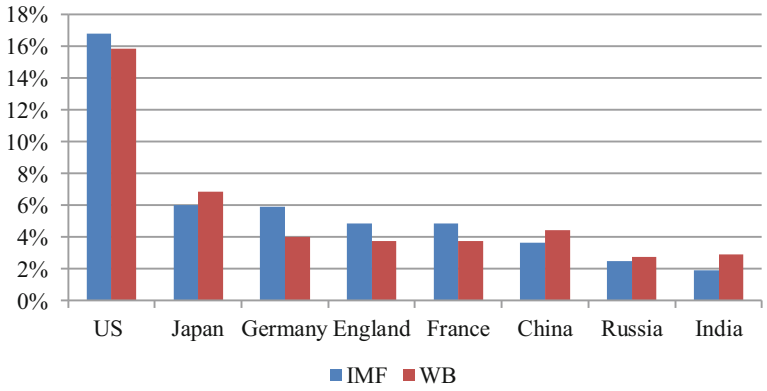

Chart 2.1 Major countries' votes in IMF and WB (2010). *Note* The countries' voting rights in IMF are based on the reform in 2006 and the countries' voting rights in WB are the result of the reform in 2010. *Source* World Bank: http://www.worldbank.org.cn/, International Monetary Fund: http://www.imf.org/external/pubs/ft/fandd/basics/gdp.htm

U.S. structure power in world economy. The U.S. dominating in the International Monetary Fund (IMF) and the World Bank (WB) helps the U.S. to get interests from other countries and maintain the center status of the U.S. Dollar.

From Chart 2.1 we can find out that the U.S. holds 16.77% of the votes in IMF and 15.85% of the votes in WB, and we know that only with at least 85% of the votes in these two international financial organizations supporting the important decision can be approved, so the U.S. in fact has the veto power in the IMF and the World Bank, which means that any important decision of the IMF and the WB can not be approved without support from the U.S.

It is a long way for China to have the same structure power as the U.S. By the end of 2014, China's GDP was the second largest in the world, which was about 2 times of the Japan whose GDP was the third largest in the world, but China only holds 3.66% of the votes in IMF and 4.42% of the votes in World Bank, which are not only much lower than the votes of the U.S. but also much lower than the votes of Japan.

The U.S. tries to find ways and means to maintain the institutional base of U.S. structure power in world economy. The voting reforms of the IMF and the WB are hot topics, according to which the votes of China and other emerging countries will become much more, but the U.S. Congress does not agree to them.

2.2.3 *Powerful Influence of the U.S. Structure Power*

Not only the world financial system, but also the numerous financial corporations, organizations and markets in the U.S., help the U.S. to maintain and use the structure power of the U.S. in the field of world finance.

From the world top 3 credit rating agencies, which are in the U.S., we see the U.S. structure power because of the unimaginable power and influence of these 3 credit rating agencies in the European sovereign debt crisis. Credit rating was derived from an assessment of railway bonds, and with the development of global financial markets the rating objects were extended to a variety of financial products. Credit rating agencies are indispensable for modern financial markets, and they assess the financial instruments and make professional judgment of their default risk, which provide investors with implied suggestions of finance investment. To some extent, the authoritative credit rating agencies determine the price of financial products.

Although the EU is the most powerful inter-governmental organization and economy in the world, which has the Euro as currency, which is one of the most popular and most important currencies in the world, the European sovereign debt crisis was caused by the U.S. credit rating agencies. With the changes of the sovereign credit ratings of the European countries like Greece and Portugal, these countries' stock market fell, and these countries' treasury maturity rate rose, and these countries' economies depressed, and some countries' government officially applied for loans from the IMF (Table 2.4).

Since there is no country which pays money to credit rating agencies for credit ratings of countries, it is public service to publish credit ratings of countries, but the world top 3 credit rating agencies are parts of the U.S. structure power. Credit rating agencies should rate credit of countries justly, but we can find some interesting facts from Tables 2.5 and 2.6, which show us that these credit rating agencies are not just and they really support the U.S. and the U.S. policies.

There are some important standards to judge one country's credit, such as "public debt as % of GDP", "total (gross) government debt as % of GDP" and "net government debt as % of GDP". From Table 2.5 we see that China's public debt as % of GDP and total (gross) government debt as % of GDP were all the lowest among the four countries, but China's ratings were significantly lower than the U.S., as Table 2.6 shows. Although Japan's public debt as % of GDP and total (gross) government debt as % of GDP were the highest and Japan's net government debt as % of GDP was the second highest among the four countries, Japan's ratings were almost the same as China's. Although Greece's public debt as % of GDP and total (gross) government debt as % of GDP were much lower than Japan's, the world top 3 credit rating agencies cut the credit ratings of Greece and caused the European sovereign debt crisis, and up to now (2015) Japan's ratings are still safe.

Table 2.4 Sovereign credit rating changes and the European sovereign debt crisis (2009–2013)

Time	Credit rating changes	Influences
2009 Dec.	Fitch changed Greece's sovereign credit rating from A- down to BBB + and public finances outlook to negative	Greek stock market fell 6%; 10-year Greek treasury maturity rate rose 52 basis points to 5.51%; the Euro fell sharply against the U.S. Dollar; the government was forced to promise to control the fiscal deficit
	Standard & Poor changed Greece's long-term sovereign credit rating from A down to BBB	
	Moody changed the Greek short-term sovereign credit rating from A1 to A2, the outlook to negative	
2010 Apr.	Fitch changed Greece's sovereign debt credit rating to BBB−	Greek bond market prices fell sharply, increasing the cost of financing (yield). Greek government officially applied for a loan from the IMF. It deepened the market fears of Greek debt crisis and led to global market shake
	Standard & Poor changed Greece's sovereign debt credit rating to BB+, the short-term sovereign credit rating from A2 to B	
	Moody changed Greece's sovereign debt credit rating from A2 to A3	
2010 Apr.	Standard & Poor changed Portugal's long-term sovereign credit rating from A+ to A−	The Greek sovereign debt crisis spread to the European area; the American and global stock markets plunged
2010 May	Moody changed Portugal's sovereign credit rating from Aa2 to negative watch list and it warned to cut it	
	Fitch changed Spain's sovereign rating from AAA down to AA+	
2010 Aug.	Standard & Poor downgraded Ireland's sovereign credit rating from AA down to AA-, with a negative outlook	Irish 10-year bond yields soared quickly and the yield gap between German government bonds hit a new historical record of 646 basis points. Ireland's credit crisis grew into a political crisis
2010 Nov.	Standard & Poor downgraded Ireland's sovereign credit rating from AA to a, and the short-term sovereign credit rating from A−1+ down to A−1	
	Moody announced to lower the Ireland's sovereign credit rating	
2011 Dec.	Standard & Poor cut the credit ratings of nine countries in the euro area, which changed France and Austria's rating from the highest AAA level down to AA+, Italy's rating from a down to BBB+, Spain's credit rating from AA down to a	The Euro fell to below 1.27 against the U.S. Dollar, the lowest record in 17 months and continuous decline in the sixth week

(continued)

Table 2.4 (continued)

Time	Credit rating changes	Influences
2012 July	Moody warned to downgrade Germany and another 2 Euro area countries' credit rating	It disrupted the pace of economic recovery in the Euro area
2013 July	Standard & Poor lowered the credit rating of Italy. Fitch cut France's long-term sovereign credit rating	The short-term debt ratio showed a rising trend and the Euro area's economy went into recession

Notes The contents are collected by the writer according to financial news, subject researches, government websites and other information

Source Net Ease Finance and Economics: Focus on the global sovereign debt crisis http://money.163.com/special/ireland/; Hexun Finance: European sovereign debt crisis report http://forex.hexun.com/2011-04-08/128581375_1.html; Xinhua net: European sovereign debt crisis http://news.xinhuanet.com/ziliao/2010-05/07/content_13471764.htm; Baidu encyclopedia: European sovereign debt crisis; and Wikipedia and so on

Table 2.5 List of the four countries by public debt

Country	Public debt as % of GDP (CIA)	Date	Total (Gross) government debt as % of GDP (IMF)	Net government debt as % of GDP (IMF)	Date
People's Republic of China	31.7	2012	22.849	–	2012
Greece	161.3	2012	158.546	155.378	2012
Japan	226.1	2013	237.918	134.325	2012
United States	72.50[a]	2012	106.525	87.859	2012

[a]Data cover only what the United States Treasury denotes as "Debt Held by the Public," if data for intra-government debt were added, "Gross Debt" would increase by about one-third of GDP

Source United States Central Intelligence Agency, Public debt, The World Factbook, accessed on March 21, 2013. International Monetary Fund, Government net & gross debt 2013, April 2013, World Economic Outlook Databse

Table 2.6 The four countries' ratings in different methods

Country	Standard & Poors			Fitch ratings			Moody's		
	Rating	Outlook	Date	Rating	Outlook	Date	Rating	Outlook	Date
People's Republic of China	19 AA −	Stable	2012/2/20	17A+	Stable	2011/11/21	18Aa3	Stable	2011/8/5
Greece	05 CCC−	Negative	2015/6/29	04CCC	Negative	2015/6/30	03Caa3	Negative	2015/7/1
Japan	19 A+	Stable	2015/9/16	17A	Stable	2015/4/27	18A1	Stable	2014/12/1
United States	21 AA +	Stable	2013/6/10	21AAA	Stable	2014/3/21	21Aaa	Stable	2013/7/18

Source Standard & Poor's, Sovereigns Ratings List, Standardandpoors.com, Retrieved 2015-06-06. This source is continually updated. Fitch, Complete Sovereign Rating History, Retrieved 2013-02-25. Fitch, Fitch Affirms United States at "AAA": Outlook Stable, 2014-03-21, Retrieved 2013-03-21. Moody's, Sovereign Ratings Summary, Sovereign and supranational issuer ratings summary. Moody's, Rating Action: Moody's changes outlook on U.S. Aaa sovereign rating to stable from negative: rating affirmed, Moodys.com, 2013-07-18, Retrieved 2015-03-02

Appendix

See Table 2.7.

Table 2.7 Major Countries' Votes in IMF and WB (2010)

Country	IMF (%)	WB (%)
U.S.	16.77	15.85
Japan	6.02	6.84
Germany	5.88	4.00
England	4.86	3.75
France	4.86	3.75
China	3.66	4.42
Russia	2.49	2.77
India	1.90	2.91

Note The countries' voting rights in IMF are based on the reform in 2006 and the countries' voting rights in WB are the result of the reform in 2010

Source World Bank: http://www.worldbank.org.cn/, International Monetary Fund: http://www.imf.org/external/pubs/ft/fandd/basics/gdp.htm

Chapter 3
The Unstable U.S. Dollar and Harm of the U.S. Self-centred Economic Policies

There are some responsibilities for the country whose currency is the center currency in the world, but what the U.S. has done does not show us these responsibilities.

Most countries found that with beginning of the QE (quantitative easing) of the U.S. Federal Reserve from 2008 there was too much liquidity around the world and with quitting of the QE from 2014 many countries' money flowed to the U.S. from these countries. At the same time, many countries' economies were thrown from stable growth and they must pay for it by themselves although the reason of unstable economy of the world was the U.S.

Even when the U.S. economic policies are self-centered and irresponsible, other countries still accept U.S. Dollar as world currency or center currency in the world, because these countries have no option. The world economy needs a stable currency and a responsible country urgently to ensure most countries' economic development, international trade, and international settlement.

The dual-center global financial system can avoid self-centered policies of the center country. In this dual-center global financial system, there are two center currencies and countries around the world can choose one of them as center currency. Because a country can change the center currency when this country finds the center currency harm its interests, two center currencies and the two governments of these two center currencies will not be self-centered. In the future, the U.S. Dollar and Chinese Yuan can be the two center currencies of the dual-center global financial system.

3.1 The U.S. Dollar Is Unstable

As world currency or center currency in the world, the U.S. Dollar is used and held beyond the borders of the U.S., the issuing country. The U.S. Dollar is not merely used for transactions with residents of the U.S., but also used for transactions

T. YUAN, *The Dual-Center Global Financial System*,
https://doi.org/10.1007/978-981-10-7993-1_3

between residents and nonresidents, and the most important is that the U.S. Dollar is used for transactions between nonresidents of the U.S.

3.1.1 The U.S. Dollar Should Be Stable

As world currency or center currency in the world, the U.S. Dollar has three international functions. Firstly, the U.S. Dollar is unit of account for international transactions around the world. In private sector, the U.S. Dollar is trade invoicing and denomination of financial products. For governments of other countries, the U.S. Dollar is the anchor for pegging local currency and is the most important SDR (Special Drawing Rights) composition currency and denomination of government bonds.

Secondly, the U.S. Dollar is medium of exchange (settlement). In private sector, the U.S. Dollar is settlement currency for trade and financial transactions. For governments the U.S. Dollar is very important in currency circulation abroad, government financial transactions such as ODA (official development assistance), central bank swaps and currency intervention especially in foreign exchange market.

Thirdly, the U.S. Dollar is store of value. In private sector, the U.S. Dollar is the key for cross-border deposits, cross-border securities and wealth in the world. In official sector, the U.S. Dollar is the main of the foreign reserves (of other countries).

The three international functions of the U.S. Dollar give the U.S. Dollar some important responsibilities, among which the most important is that the U.S. Dollar should be stable.

3.1.2 The Unstable Exchange Rate of the U.S. Dollar

As the center currency, the U.S. Dollar should have stable exchange rate, but the reality is on the contrary. Charts 3.1, 3.2 and 3.3 are nominal indexes of exchange rate of the U.S. Dollar, from which we can find that the exchange rate of the U.S. Dollar is unstable. As Charts 3.1 and 3.3 show, during more than 40 years the U.S. Dollar has appreciated a lot, and there were many severe fluctuations. As Chart 3.2 shows, exchange rate of the U.S. Dollar has fluctuated widely and depreciated a little.

Charts 3.4, 3.5 and 3.6 are real indexes of exchange rate of the U.S. Dollar, from which we can find that the exchange rate of the U.S. Dollar is very unstable. During more than 40 years exchange rate of the U.S. Dollar has fluctuated violently. We also can find that the U.S. Dollar is not as strong as some scholars and the U.S. government said since in these more than 40 years the U.S. Dollar has appreciated little.

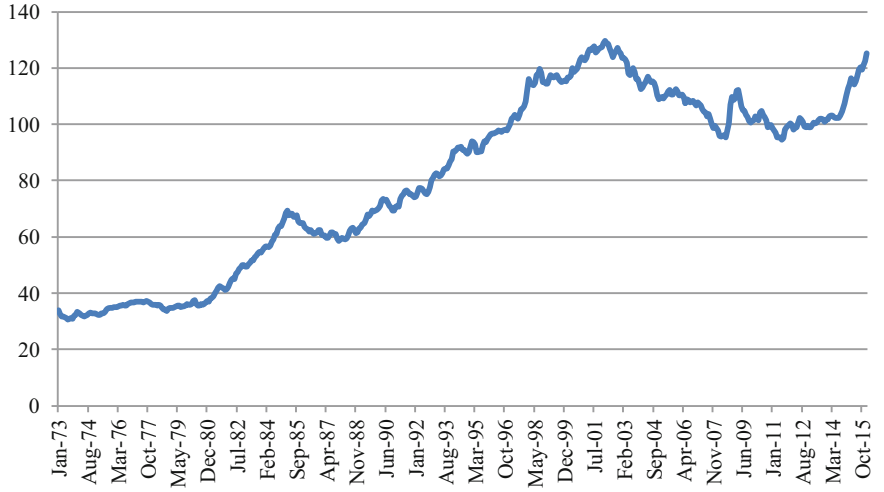

Chart 3.1 Nominal broad dollar index (monthly index, Jan 1973–Jan 2016). *Note 1* The broad index is a weighted average of the foreign exchange values of the U.S. Dollar against the currencies of a large group of major U.S. trading partners. The index weights, which change over time, are derived from U.S. export shares and from U.S. and foreign import shares. *Note 2* Rates in currency units per U.S. Dollar except as noted. *Source* http://www.federalreserve.gov/releases/h10/summary/indexb_m.htm

Chart 3.2 Nominal major currencies dollar index (monthly index, Jan 1973–Jan 2016). *Note 1* The major currencies index is a weighted average of the foreign exchange values of the U.S. Dollar against a subset of currencies in the broad index that circulate widely outside the country of issue. The weights are derived from those in the broad index. *Note 2* Rates in currency units per U.S. Dollar except as noted. *Source* http://www.federalreserve.gov/releases/h10/summary/indexn_m.htm

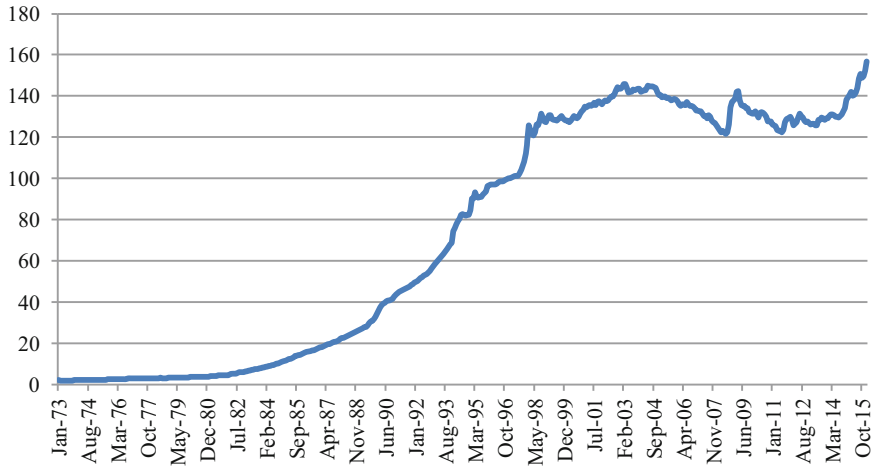

Chart 3.3 Nominal other important trading partners (OITP) dollar index (monthly index, Jan 1973–Jan 2016). *Note 1* The OITP index is a weighted average of the foreign exchange values of the U.S. Dollar against a subset of currencies in the broad index that do not circulate widely outside the country of issue. The weights are derived from those in the broad index. *Note 2* Rates in currency units per U.S. Dollar except as noted. *Source* http://www.federalreserve.gov/releases/h10/summary/indexo_m.htm

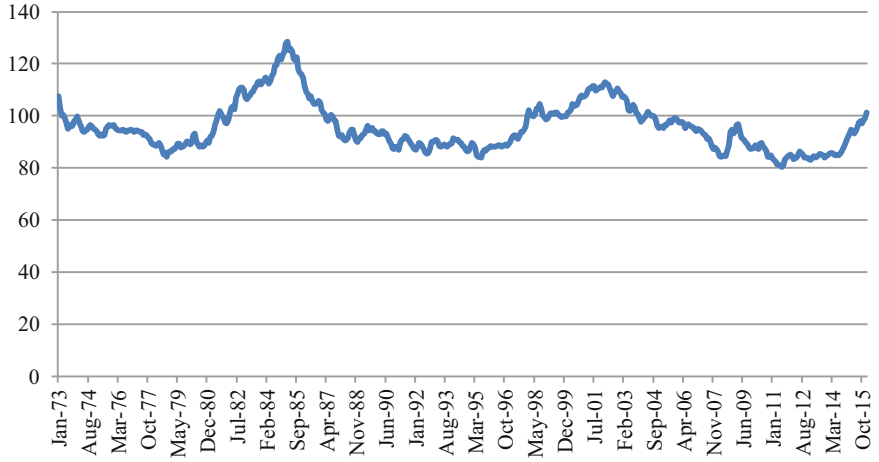

Chart 3.4 Price-adjusted broad dollar index (monthly index, Jan 1973–Jan 2016). *Note* Rates in currency units per U.S. Dollar except as noted. *Source* http://www.federalreserve.gov/releases/h10/summary/indexbc_m.htm

There exists a certain risk for the U.S. to balance the currency stability and monetary policies according to the domestic economic situation. The prestige of the U.S. Dollar is an intangible asset. In order to maintain the center position of the

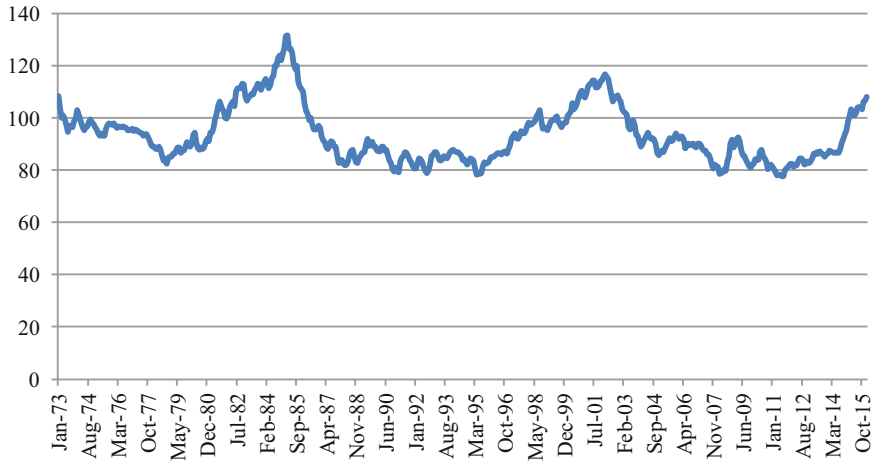

Chart 3.5 Price-adjusted major currencies dollar index (monthly index, Jan 1973–Jan 2016). *Note* Rates in currency units per U.S. Dollar except as noted. *Source* http://www.federalreserve.gov/releases/h10/summary/indexnc_m.htm

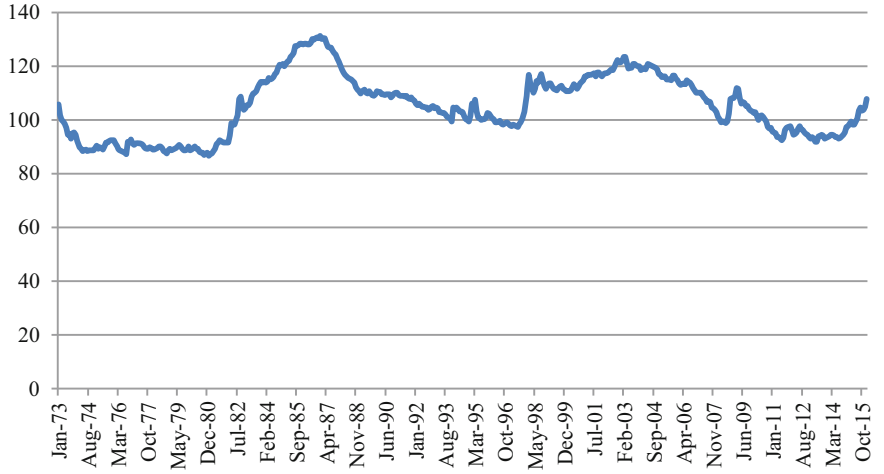

Chart 3.6 Price-adjusted other important trading partners (OITP) dollar index (monthly index, Jan 1973–Jan 2016). *Note* Rates in currency units per U.S. Dollar except as noted. *Source* http://www.federalreserve.gov/releases/h10/summary/indexoc_m.htm

U.S. Dollar, the U.S. should struggle to control the rate of inflation, to maintain exchange rate stability, and to guarantee the currency's value. When the U.S. economy is in recession the U.S. government and the U.S. Federal Reserve generally will increase public expenditure and release liquidity, which will influence the exchange rate of the U.S. Dollar, the interest rate and the currency's value. From

Charts 3.1, 3.2, 3.3, 3.4, 3.5 and 3.6, we know that the choice of the U.S. government and the U.S. Federal Reserve has always been the policies according to the domestic economic situation, but not the currency stability.

3.1.3 The Unstable Interest Rate of the U.S. Dollar

Since the economic policies of the U.S. government and the U.S. Federal Reserve always focus on the U.S. domestic growth, it is understandable that the interest rate of the U.S. Dollar fluctuated continuously and violently.

When the U.S. economy was booming the interest rate of the U.S. Dollar went up, and liquidity of the U.S. Dollar decreased, and sometimes too insufficient for other countries. When the U.S. economy was in recession the interest rate of the U.S. Dollar went down, and liquidity of the U.S. Dollar became abundant, and sometimes too abundant for other countries. When the U.S. economy was in great crisis from 2008 the interest rate of the U.S. Dollar became so low, and liquidity of the U.S. Dollar became so abundant, which brought worldwide huge inflation (Chart 3.7).

Since the economic policies of the U.S. government and the U.S. Federal Reserve always focus on the U.S. domestic growth, since exchange rate and interest rate of the U.S. Dollar are unstable, since the U.S. Dollar cannot bring stable economic environment for other countries, it is problematic that the U.S. Dollar is the exclusive center currency of the world.

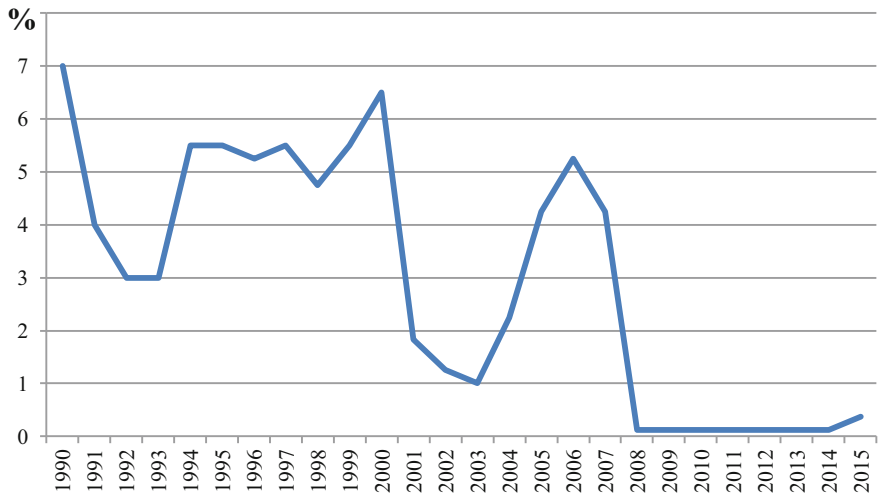

Chart 3.7 Central Bank policy rate of the U.S. *Source* http://data.imf.org/regular.aspx?key=60998111

3.2 The Harm of the U.S. Self-centred Economic Policies to Other Countries

As the world currency, the U.S. Dollar is medium of exchange for the world market, money of account for most countries, and value reserve for most countries and companies. The three functions of the center currency require the U.S. Dollar keeping stable objectively. As for the domestic currency, the interest rate and exchange rate of the U.S. Dollar need to be adjusted according to the change of the domestic economy. It seems that the U.S. Federal Reserve has not traded-off between the two in recent years, and it prefer to maintain and promote the development of the U.S. economy, rather than to guarantee the value of the U.S. Dollar and stabilize the U.S. Dollar. Unstable world currency brought a lot of problems for the world economy and the other countries' economies, which can be seen from what the U.S. did after the 2008 economic crisis happened.

Looking back on the financial crisis from 2008, we find out that Fed's monetary policy was based on the U.S. domestic economic situation rather than the global economy, which was irresponsible for dollar-center monetary system. As the central currency, the U.S. Dollar was expected by more and more people to stabilize the exchange rate and commodity prices. But how was the fact? What we have seen is the Fed issued dollar almost crazily ignoring the steady of international monetary system. With further spread of the financial crisis in the U.S., the Fed's monetary policy faced a liquidity trap situation where existed a knockdown rate, close to zero and then quantitative easing policy (QEP) was born. Due to the QEP, Fed realized the depreciation of the U.S. Dollar, which increased the U.S. exports, stimulated domestic consumption and investment, improved the balance of payment and promoted the recovery of the U.S. domestic economy. As for the U.S., QEP was not bad, and at least it released the economic situation, but as for the other countries, QEP was a way to recover the American economy with the expense of their interests.

3.2.1 Bringing Price Fluctuations of the World Market

QEP resulted in commodity price's fluctuations. As shown in Chart 3.8, the average price of crude oil showed a fluctuating trend after the first rise of 1998–2008. In 2008–2009, there was a very short time with dropping-down of crude oil price, and then the crude oil price rose sharply. From Chart 3.9 (Annual Price Index of Energy in Nominal 2005 U.S. Dollars), Chart 3.10 (Annual Price Index of Energy in Real 2005 U.S. Dollars), Chart 3.11 (The Average Price of Copper), Chart 3.12 (Annual Price Index of Raw Materials in Nominal 2005 U.S. Dollars), Chart 3.13 (Annual Price Index of Raw Materials in Real 2005 U.S. Dollars), Chart 3.14 (The Average Price of Rice), Chart 3.15 (Annual Price Index of Food in Nominal 2005 U.S. Dollars), and Chart 3.16 (Annual Price Index of Food in Real 2005 U.S. Dollars)

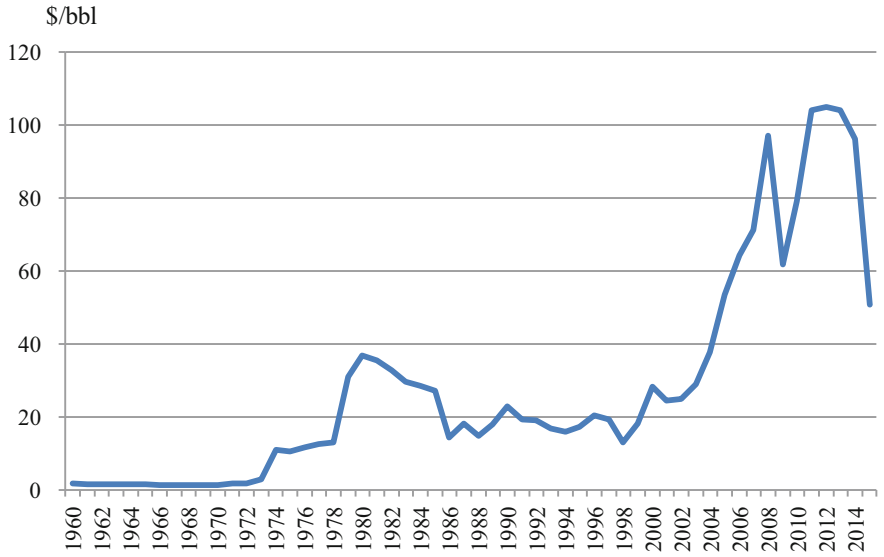

Chart 3.8 The average price of crude oil (1960–2015, nominal U.S. Dollars). *Source* World Bank Commodity Price Data: http://www.worldbank.org/en/research/commodity-markets#1

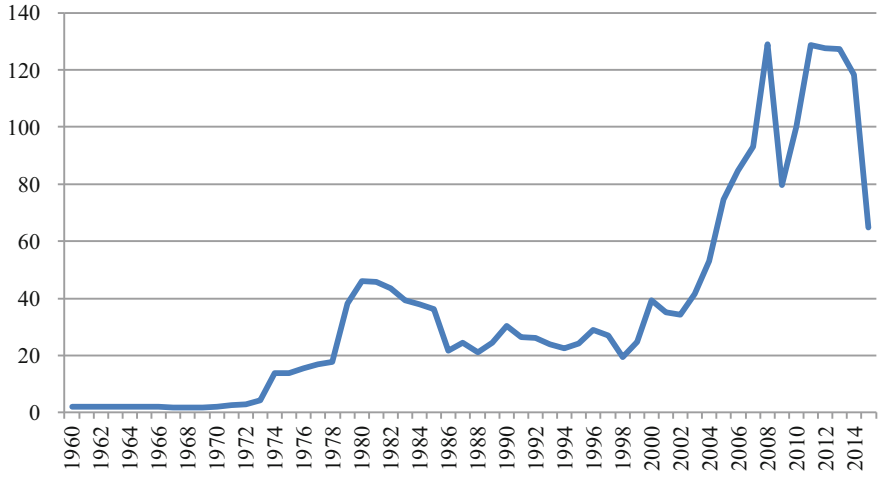

Chart 3.9 Annual price index of energy in nominal 2005 U.S. Dollars (1960–2015). *Note* 2010 = 100. *Source* World Bank Commodity Price Data: http://www.worldbank.org/en/research/commodity-markets#1

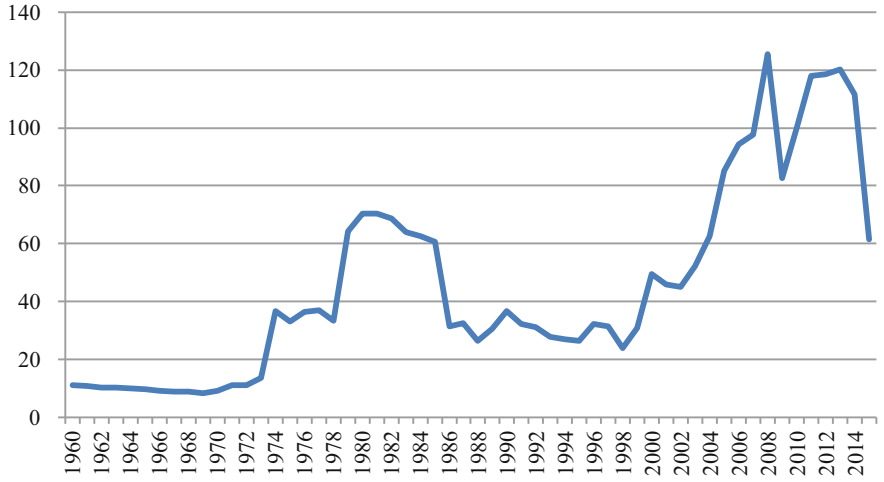

Chart 3.10 Annual price index of energy in real 2005 U.S. Dollars (1960–2015) *Note* 2010 = 100. *Source* World Bank Commodity Price Data: http://www.worldbank.org/en/research/commodity-markets#1

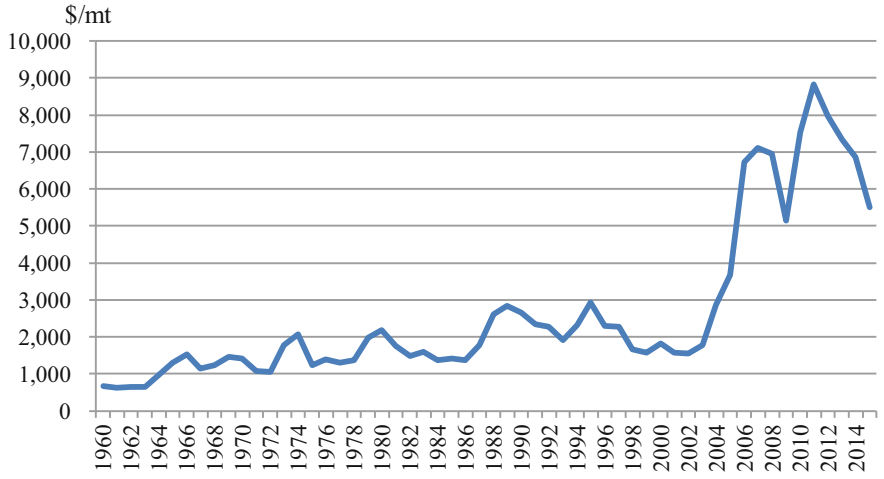

Chart 3.11 The average price of copper (1960–2015, nominal U.S. Dollars). *Source* World Bank Commodity Price Data: http://www.worldbank.org/en/research/commodity-markets#1

we also can find the same trend. From these charts we can see that after 2013 almost all the price indices went down sharply when the Fed declared to finish the QEP.

These facts tell us that unstable of the U.S. Dollar and Fed's policy is the main reason for fluctuations of international bulk commodity prices. During the first two rounds of QE, the U.S. Dollar came flooding in global market and led to

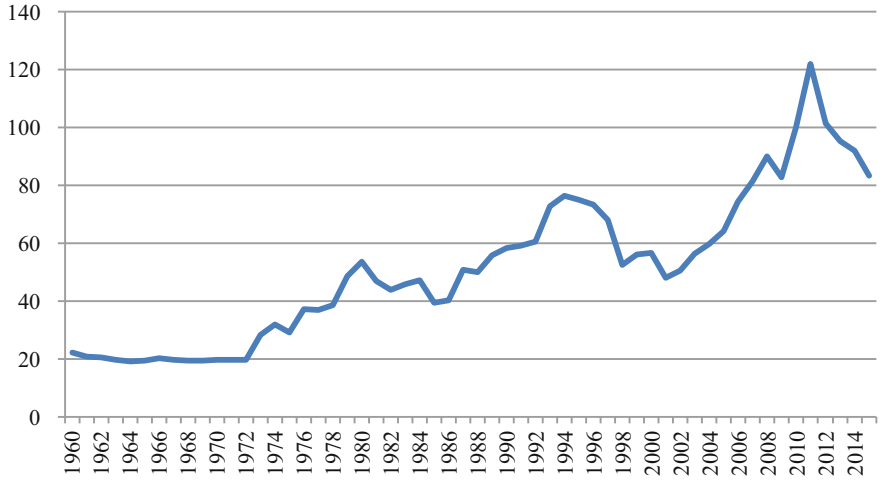

Chart 3.12 Annual price index of raw materials in nominal 2005 U.S. Dollars (1960–2015). *Note* 2010 = 100. *Source* World Bank Commodity Price Data: http://www.worldbank.org/en/research/commodity-markets#1

devaluation of the U.S. Dollar, which increased the commodity price indices. After the Fed declared to finish the QEP in 2013, the U.S. Dollar flowed back to the U.S. and there was short of the U.S. Dollar in global market, so the commodity price indices went down sharply again with appreciation of the U.S. Dollar. As money of account, the central currency fluctuations can cause relevant valuation changes in commodity prices, leading to domestic inflation or changes in prices of export products.

The birth of the central currency should reduce the cost of international trade, no matter in the settlement between banking institutions and nonbanking financial institutions, or in the settlement between banking institutions and the private sector, giving convenience to the trade between the countries all over the world. If the central currency is not stable, choosing the central currency just transfers the cost of trade transaction to the cost of exchange rate fluctuations. So market and governments are likely to choose an alternative currency, at least to reduce the reliance on the central currency, to reduce transaction costs and risks.

3.2.2 Causing Wealth Redistribution

The international bulk commodity prices have traded in the U.S. Dollars, and the U.S. Dollar price volatility directly affects the interests of commodity import and export country, including the domestic production and consumption.

Fluctuations of the U.S. Dollar intensify the price volatility and increase the risk of inflation, especially for emerging market economics. QE caused excess liquidity

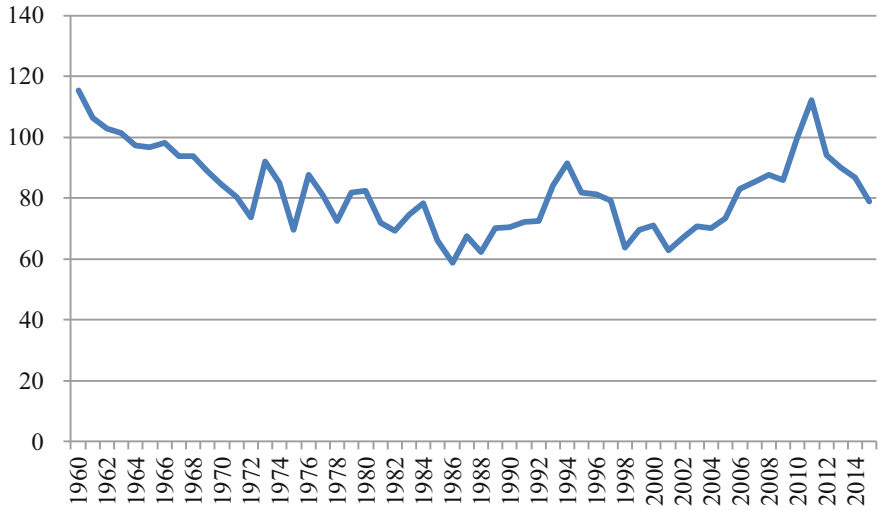

Chart 3.13 Annual price index of raw materials in real 2005 U.S. Dollars (1960–2015). *Note* 2010 = 100. *Source* World Bank Commodity Price Data: http://www.worldbank.org/en/research/commodity-markets#1

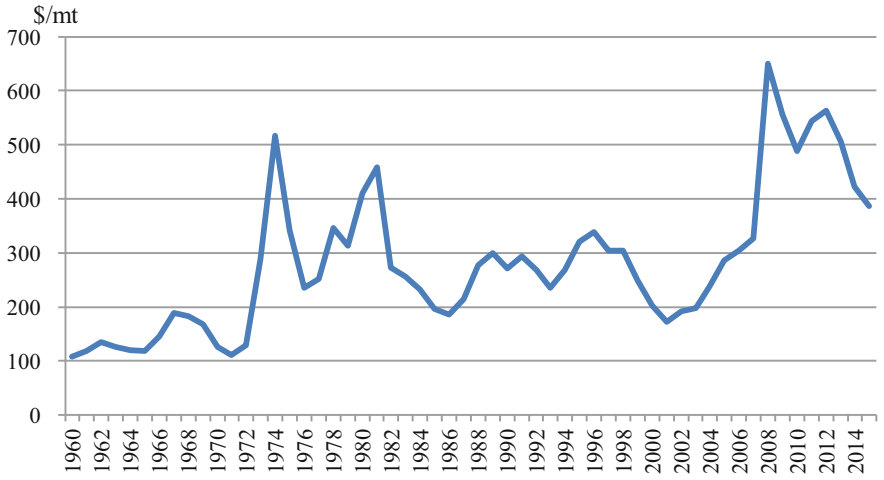

Chart 3.14 The average price of rice (Thai 5%, 1960–2015, nominal U.S. Dollars). *Source* World Bank Commodity Price Data: http://www.worldbank.org/en/research/commodity-markets#1

in global market and promoted global exchange rates to fluctuate frequently. Fluctuations in currency value spread among the countries by foreign trade, particularly by commodity trade. In detail, the imported inflation of most countries started from devaluation of the U.S. Dollar, and then price of dollar-denominated

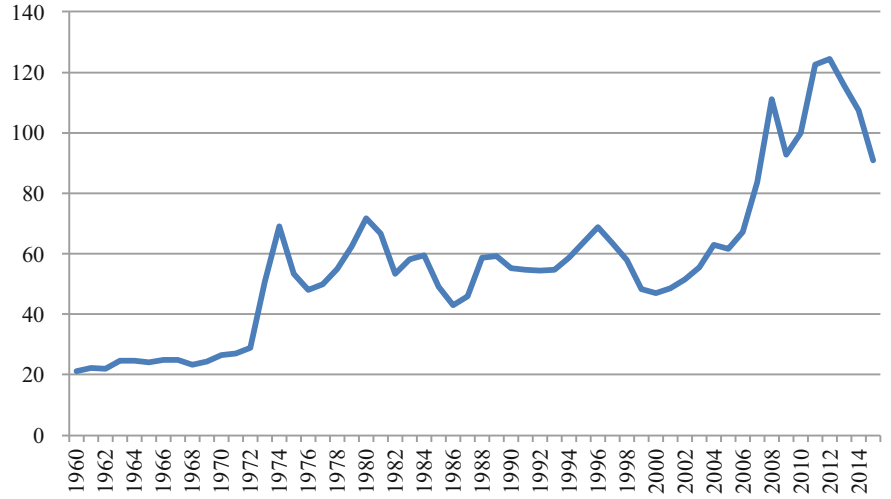

Chart 3.15 Annual price index of food in nominal 2005 U.S. Dollars (1960–2015). *Note* 2010 = 100. *Source* World Bank Commodity Price Data: http://www.worldbank.org/en/research/commodity-markets#1

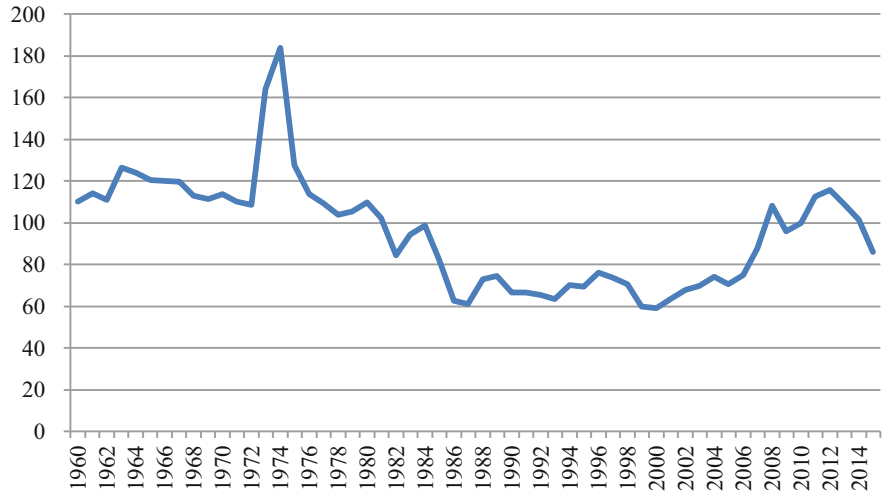

Chart 3.16 Annual price index of food in real 2005 U.S. Dollars (1960–2015). *Note* 2010 = 100. *Source* World Bank Commodity Price Data: http://www.worldbank.org/en/research/commodity-markets#1

commodity trade rose. For these countries' domestic markets, the rise in commodity prices led to a higher import costs, so domestic producer price index (PPI) rose and then pushed up the consumer price index (CPI). Because of rapid economic development, emerging economies were the major importers of commodities, whose prices rose sharply because of depreciation of the U.S. Dollar. Connected by international trade, most countries suffered higher inflation, and then the foreign inflation became domestic inflation.

The devaluation expectation in the U.S. Dollar drove the hot money flowing into emerging economies such as China and India, transferring the international liquidity into domestic liquidity of some countries.

In terms of the value reserve function, which is the most important, the U.S. Dollar's fluctuations make asset loss of currency reserves, and weaken the macroeconomic regulation of other countries. Therefore, the country storing central currency diversifies its currency reserve assets as well as its investment risk, bringing a great influence on the central currency status. The fluctuations of the U.S. Dollar price make central banks of other countries, for example, increased the proportion of reserve assets such as euro, yen, etc. to ensure the security of their assets and improve the ability to resist risks.

Moreover, QE affected the economic recovery in the Euro area and restricted the economic development of the emerging economies. The European debt crisis had seriously affected the situation of the Euro area's economy and finance, and the European Central Bank attempted to take an overall tightening policy and a series of remedial measures to reduce inflation, to maintain the stability of the Euro and to promote the development of the Euro area economy. However, QE forced the Euro to appreciate, further deteriorating the exports to America, and increasing difficulties of economic recovery. The recession happened in the Europe and many developed countries reduced their import demand from emerging markets. What was worse, QE forced these countries' currency value to appreciate quickly and further weakened the international competitiveness of products produced by emerging market countries, deteriorating their export environment.

After 2009 the cheap U.S. Dollar also struck the capital markets of emerging economies, hot money flooded in these countries' stock markets and real estate markets, formatting the asset bubbles and increasing the risk of these countries' economy. In the first three quarters of 2010, $86 billion of foreign capital flooded to bonds markets of India, Indonesia, South Korea, the Philippines, Thailand and Vietnam and other Asian countries, 90 times compared to the same period in 2009.

Exit of QE or declaration to exit of QE made the U.S. Dollar flow from the other countries to the U.S., and this weakened global liquidity, especially for the emerging markets, and caused instability in financial markets. When the Fed raised interest rate or declared to raise interest rate, the emerging markets inevitably suffered the devastating blow by the asset bubble burst. As we see, in 2015 and 2016 many Asian countries' currency depreciated sharply and the stock markets of these countries plummeted sharply.

Chapter 4
The Policies and Current Situation of RMB Internationalization

The Dollar-center global financial system is non-sustainable, and the dual-center global financial system can avoid self-centered policies of center countries. As EURO is the currency of one economic integrated organization, whose basement is not unquestionable, EURO is not the selected currency as one of the two center currencies of the dual-center global financial system. As the comparative small economical scale and economic impact of Japan and the UK, the Japanese Yen and the UK Pound are not the selected currencies as one of the two center currencies of the dual-center global financial system.

Because of huge economic scale and economic impact of the U.S. and China in the world, the U.S. Dollar and Chinese Yuan can be the two center currencies of the dual-center global financial system.

As the U.S. Dollar is already a global currency, we study internationalization of the Chinese Yuan (RMB).

4.1 Policies of RMB Internationalization

4.1.1 RMB Convertibility Under Capital Account

There are 40 sub-projects under the International Monetary Fund's classification of capital and financial projects. According to the data of People's Bank of China, the number of convertible and partially convertible projects of China has reached 37. And realization of the target of convertible capital account of RMB is not far away.

In 1996, RMB was allowed to be fully converted with foreign currencies, but only limited to the trade area. However, the capital and financial projects were not included.

On September 2013, China (Shanghai) Pilot Free Trade Zone was established. It has been regarded as the test area and branch of RMB internationalization, which

T. YUAN, *The Dual-Center Global Financial System*,
https://doi.org/10.1007/978-981-10-7993-1_4

included the first pilot of the RMB capital account convertibility, the interest rate marketization and cross-border using of RMB. In the late 2014, Tianjin Municipality, Fujian Province and Guangdong Province were approved to be the second group of Free Trade Zones (FTZs). In 2016, 7 new FTZs of Liaoning, Zhejiang, Henan, Hubei, Sichuan, Shaanxi and Chongqing were set up. All the FTZs have the same policies, including the policies and measures about the RMB capital account convertibility, the interest rate marketization and cross-border using of RMB.

In 2014, the successful launch of stock market trading interconnection mechanism of Shanghai and Hong Kong of China facilitated foreign institutions to issue RMB bonds in the territory. It also simplified the management of foreign exchange of capital account, as well as can gradually realize the convertibility of RMB capital account.

In 2015, the mainland of China achieved mutual recognition of funds with Hong Kong of China. The domestic inter-bank bond market and the inter-bank foreign exchange market are fully open to foreign institutions. And the foreign exchange management of capital account has been further simplified. The convertible of RMB under capital account is promoting.

4.1.2 The Market-Oriented Reform of Interest Rate

The core of the interest rate reform is to establish a formation and controlling mechanism of interest rate, which will adapt to the market, and improve efficiency of the central bank's controlling ability in the market of interest rate. Reviewing the process of China's reform of interest rate marketization, it can be mainly divided into three stages: the marketization of inter-bank offered rate and bond interest rate, the marketization of lending rate, and the marketization of deposit interest rate. On June 1st 1996, People's Bank of China relaxed the inter-bank interest rate, which was seen as a breakthrough in interest rate marketization.

Now China's reform of interest rate marketization has reached the final stage. In 2015, the remarkable results of the market-oriented reform have been achieved. First, the gradual removal of the deposit interest rate floating ceiling marked the basic liberalization of interest rate. Second, the pricing mechanism of market-oriented interest rate has been improved. Third, financial market benchmark interest rate system has been improved. Fourth, innovations of financial product are promoted.

4.1.3 The Reform of RMB Exchange Rate Mechanism

In 2005, choosing a variety of international currencies, the basket of RMB exchange rate was formed, rather than just pegging to the U.S Dollar. This was a

symbol of the RMB exchange rate reform. On July 21, 2005, the People's Bank of China (PBOC) said it had shifted to "a managed floating exchange rate based on market supply and demand with reference to a basket of weighted currencies." The Chinese Yuan against the U.S. Dollar appreciated a lot in the following years. From July 22, 2005, the PBOC began announcing the Yuan's closing rate against major currencies on the inter-bank foreign exchange market each trading day. From May 21, 2007, the Yuan's value was allowed to rise or fall by 0.5% from the central parity rate each trading day, from a previous limit of 0.3%.

From 2010 China began to build up direct trading system between the Yuan and other currencies. From Aug. 19, 2010, China started direct trading between the Yuan and the Malaysian ringgit. From Nov. 22, 2010, China started direct trading between the Yuan and the Russian ruble on the inter-bank foreign exchange market.

China also welcomed overseas market of the Yuan. From Dec. 15, 2010, the Yuan started trading in Russia, the first overseas market of the Chinese currency. From Jan. 13, 2011, the PBOC allowed qualified domestic enterprises to invest in foreign countries directly using the Yuan.

From April 16, 2012, The Yuan's value was allowed to rise or fall by 1% from the central parity rate each trading day, from the previous limit of 0.5%. From June 1, 2012, China started direct trading between the Yuan and the Japanese yen on the inter-bank foreign exchange market. From April 9, 2013, China started direct trading between the Yuan and the Australian dollar on the inter-bank foreign exchange market.

From March 17, 2014, the Yuan's value was allowed to rise or fall by 2% from the central parity rate each trading day, from the previous limit of 1%. From March 18, 2014, China started direct trading between the Yuan and the New Zealand dollar on the inter-bank foreign exchange market. From June 18, 2014, China started direct trading between the Yuan and the British pound on the inter-bank foreign exchange market. From Sept. 30, 2014, China started direct trading between the Yuan and the EURO on the inter-bank foreign exchange market.

On Aug. 11, 2015, the PBOC said daily central parity quotes reported to the China Foreign Exchange Trade System before the market opens should be based on the closing rate of the inter-bank foreign exchange market on the previous day, supply and demand in the market, and price movement of major currencies. On Aug. 12, 2015, the IMF described this policy change as "a welcome step" that allows market forces to have a greater role in determining the exchange rate.

4.1.4 Offshore Market of RMB

In 2008, Chinese government made it clear that "promoting the internationalization of RMB, accelerating monetary cooperation in East Asia as well as promoting implementation of the reform of the international monetary system", and the RMB internationalization strategy was in the core position.

Since the full convertibility of RMB in capital account has not been achieved, RMB internationalization mainly relies on cross-border settlement and offshore market. In 2004, Hong Kong of China promoted the RMB cross-border settlement market on the first time, which helped Hong Kong of China to become the first offshore financial market of RMB. In recent years, trading volume of RMB in Hong Kong of China has expanded greatly. The construction of Hong Kong offshore market of RMB has achieved a big success.

People's Bank of China and Hong Kong Monetary Authority signed Currency Swap Agreement on 20 January 2009. With the establishment of a currency swap arrangement, short-term liquidity support is provided to the Mainland operations of Hong Kong banks and the Hong Kong operations of Mainland banks in case of need. This bolsters confidence in Hong Kong's financial stability, and also helps to promote financial stability in the region and the development of RMB-denominated trade transactions between Hong Kong and the Mainland. The currency swap agreement has a term of three years, which can be extended upon agreement by both parties. Up to 2017, the size of the agreement is RMB 400 billion, equivalent to HK$505 billion.

4.2 The Current Situation of RMB Internationalization

In recent years, with the accelerating of RMB internationalization, there are some significant achievements in global share and ranking of RMB international payment, RMB settlement of cross-border trade, RMB settlement of cross-border direct investment, RMB-denominated international bonds, domestic RMB financial assets held by non-residents, RMB exchange rate indexes and RMB as an international reserve currency.

4.2.1 The Global Share and Ranking of RMB International Payment

According to the data reported by SWIFT, on January 2013, RMB was the 13th largest global payment currency. With the promoting of RMB internationalization, the ranking of RMB international payment in the world has rising. On Nov. 2016, RMB became the 5th payment currency in the world, only behind the U.S. Dollar, the EURO, the UK Pound and the Japanese Yen, as Chart 4.1 and Table 4.1 show.

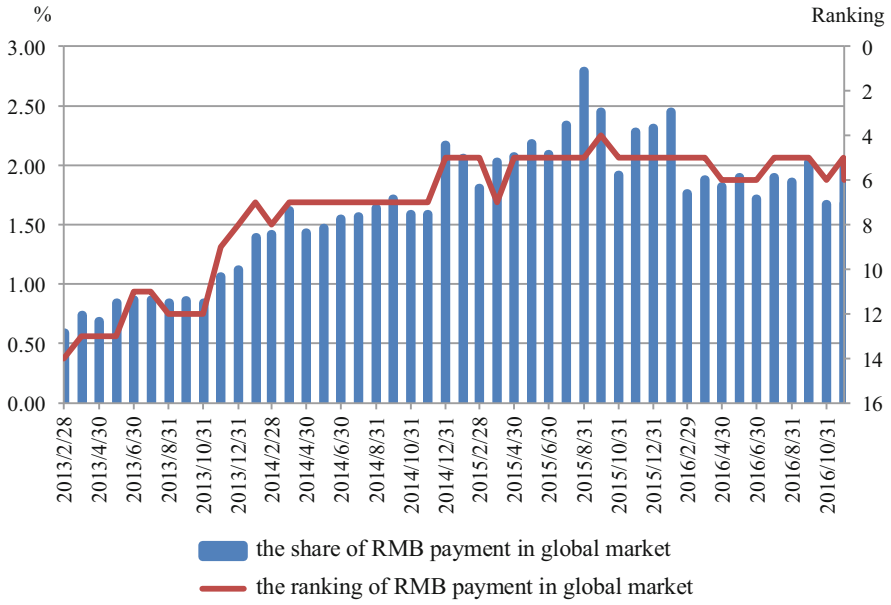

Chart 4.1 The share and ranking of RMB payment in global market. *Source* Wind, and SWIFT, (https://www.swift.com)

4.2.2 RMB Settlement of Cross-Border Trade

RMB settlement of cross-border trade, which means that RMB is directly used as settlement currency for international trade (exports and imports), and residents can pay RMB to non-residents, allowing non-residents to hold RMB deposit accounts.

The Chinese government first allowed trials of cross-border trade settlements in Yuan in July 2009. *Administrative Rules on Pilot Program of Renminbi Settlement of Cross-border Trade Transactions* was promulgated by the People's Bank of China, the Ministry of Finance, the Ministry of Commerce, the General Administration of Customs, the State Administration of Taxation and the China Banking Regulatory Commission on July 1, 2009. It expanded the trial scheme to 20 provinces, municipalities and autonomous regions in 2010, and in Aug. 2011 China announced that all parts of the country are able to use its national currency, the Yuan or Renminbi, in cross-border trade settlements.

Overseas, the program was extended to all countries and regions after being piloted in Hong Kong, Macao, and ASEAN (Association of Southeast Asian Nations).

In 2013 China's central bank, the People's Bank of China (PBOC), released *the Circular Concerning the Simplification of Cross-Border RMB Procedures and Improvement of Relevant Policies* (hereinafter referred to as "Circular") to provide a series of new measures to help simplify cross-border RMB transaction procedures

Table 4.1 The proportions and ranking of currencies payments in global market

Ranking	2013–01		2016–11	
	Currencies	Share (%)	Currencies	Share (%)
1	EUR	40.17	USD	41.07
2	USD	33.48	EUR	31.55
3	GBP	8.55	GBP	7.36
4	JPY	2.56	JPY	3.38
5	AUD	1.85	CHN	2
6	CHF	1.83	CAD	1.82
7	CAD	1.80	AUD	1.73
8	SGD	1.05	CHF	1.57
9	HKD	1.02	HKD	1.20
10	THB	0.97	SEK	1.02
11	SEK	0.96	THB	0.96
12	NOK	0.80	SGD	0.93
13	CHN	0.63	NOK	0.69
14	DKK	0.58	PLN	0.51
15	RUB	0.56	MYR	0.50
16	ZAR	0.42	DKK	0.44
17	NZD	0.35	ZAR	0.42
18	MXN	0.34	MXN	0.34
19	TRY	0.29	NZD	0.34
20	HUF	0.25	RUB	0.27

Source SWIFT https://www.swift.com

and to improve the efficiency of the implementation of any relevant policies. The Circular stated that domestic Chinese banks could directly process cross-border RMB settlements for enterprises based on the principles of "know your client", "know your business", and "due diligence." It further encouraged domestic banks to offer cross-border RMB trade financing services. In addition, automatic RMB fund collections can be processed prior to the authentication and verification of the relevant trade background. The Circular also allows for domestic Chinese non-financial institutions to apply for loans from domestic banks to be distributed to their foreign affiliates through a RMB cash pool with the stipulation that the loans are repaid in RMB. To qualify, the non-financial institutions should have a RMB special deposit account with a domestic Chinese bank in order to support the loans that are sent across the Chinese border in accordance with "Measures for the Administration of RMB Bank Settlement Accounts (PBOC Order [2003] No. 5)." In addition, non-financial institutions in China that have opened RMB special deposit accounts with a Chinese domestic bank may use their account to reserve funds raised from issuing RMB denominated bonds to offshore capital markets. Furthermore, non-financial institutions in China are also allowed to offer RMB

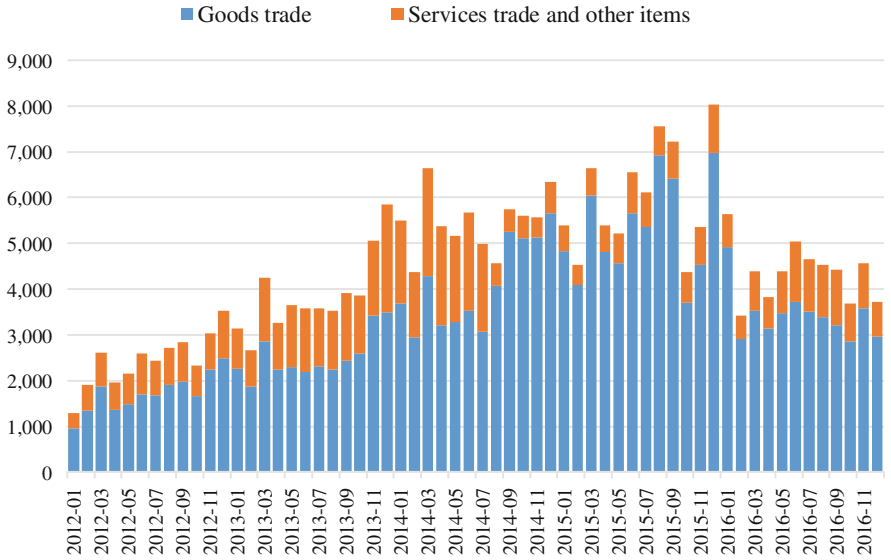

Chart 4.2 Monthly RMB settlement under current account (2012–2016). *Unit* 100 million Yuan. *Source* Wind database

guarantees to other similar institutions in compliance with the provisions of China's Property Law and Guarantee Law (Chart 4.2).

Cross-border RMB trade settlement developed rapidly. The amount of RMB settlement of cross-border trade surged from 2 billion 560 million Yuan in 2009 to 350 billion 100 million Yuan in 2010, an increase of about 138 times in just one year (as shown in Table 4.2). In the year of 2016, the amount of RMB settlement of cross-border trade was 5227 billion.

Table 4.2 RMB settlement under current account

Period	Goods trade	Services trade and other items	Total
2009	19.5	6.1	25.6
2010	3034.0	467.0	3501.0
2011	13,810.7	2078.6	15,889.3
2012	26,039.8	2757.5	28,797.3
2013	41,368.4	4999.4	46,367.8
2014	58,946.5	6563.7	65,510.2
2015	63,911.4	8432.2	72,343.6
2016	41,209.0	11,066.0	52,275.0
Total	207,130.3	25,304.5	232,434.8

Unit 100 million Yuan
Source 2016 RMB internationalization report

Table 4.3 RMB settlement of cross-border direct investment

Period	ODI	FDI	Total	Annual growth (%)
2010	56.8	223.6	280.4	–
2011	265.9	1006.8	1272.7	353.89
2012	311.9	2592	2903.9	128.17
2013	866.8	4570	5436.8	87.22
2014	2244.1	9605.5	11,849.6	117.95
2015	7361.7	15871	23,232.7	96.06
2016	10,619	13,988	24,607	5.92
Total	11,107.20	33,868.90	44,976.10	–

Unit 100 million Yuan
Source Wind database and "2016 RMB internationalization report" published by the People's bank of China

To the year of 2016, the total amount of it was 23,243,480 million Yuan. RMB settlement of trade in goods accounted for 89.11%, while trade in services and other items accounted for 10.89% in total.

4.2.3 RMB Settlement of Cross-Border Direct Investment

With growth of FDI (Foreign Direct Investment) from other countries and regions and ODI (Outward Foreign Direct Investment) from China to other countries and regions, RMB settlement of cross-border direct investment surged, as shown in Table 4.3. In 2010, the amount of RMB settlement of ODI was 5680 million Yuan, and the amount of RMB settlement of FDI was 22,360 million Yuan. In the following years, the amount of RMB settlement of cross-border direct investment grew rapidly. In 2016, the amount of RMB settlement of ODI was 1,061,900 million Yuan, and the amount of RMB settlement of FDI was 1,398,800 million Yuan (Chart 4.3).

Although the amount of RMB settlement of cross-border direct investment is huge now, the RMB ODI (Chinese companies invest in other countries and regions with RMB directly) is still not the major in all the Chinese ODI.

4.2.4 RMB-Denominated International Bonds

According to the *2016 RMB internationalization report* published by People's bank of China, by the end of 2014, 535.118 billion Yuan RMB-denominated bonds were issued, including 530.48 billion Yuan issued in the offshore market and 4.63 billion Yuan issued in the onshore market. According to the statistics of the Bank for

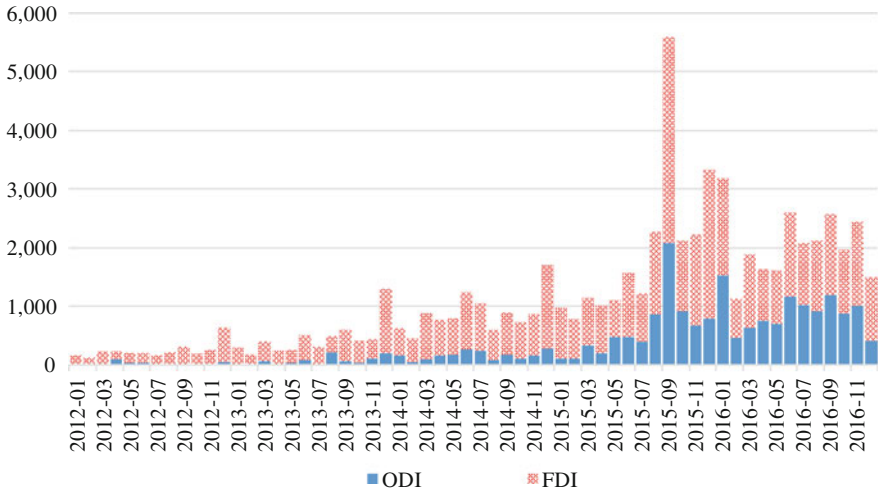

Chart 4.3 Monthly RMB settlement of cross-border direct investment. *Unit* 100 million Yuan. *Source* Wind database and "2016 RMB internationalization report": http://www.pbc.gov.cn/huobizhengceersi/214481/214511/214695/3223865/2016123011063632789.pdf

International Settlements (BIS), as of the end of 2015, international bonds denominated in RMB were 599.65 billion, up 12.04% year on year. Among them, the RMB-denominated bonds issued by offshore institutions in the offshore market were 581.15 billion Yuan, up 9.55% year on year. The RMB-denominated bonds issued in the mainland of China amounted to 18.5 billion Yuan, an increase of 299.56%.

4.2.5 Domestic RMB Financial Assets Held by Non-residents

As of December 2016, the domestic RMB financial assets held by non-residents were 3033.7 billion Yuan totally. Among them, the market value of shares held by foreign institutions was 649.185 billion Yuan, and the bonds were 852.624 billion Yuan. The balance of loans made by foreign institutions to domestic institutions was 616.435 billion Yuan, and the amount of RMB deposits held by non-residents was 915.473 billion Yuan. Shown as Table 4.4, from 2014 to 2016, the amount of RMB shares and bonds held by foreign institutions and individuals had been rising, but the amount of loans and deposits had declined in 2016.

Qualified Foreign Institutional Investor (QFII) Scheme is a transitional arrangement that allows institutional investors who meet certain qualification to invest in a limited scope of cross-border securities products, in the context of incomplete free flow of capital accounts. Foreign investments in China are

Table 4.4 Domestic RMB financial assets held by overseas entities

Item	2013.12	2014.12	2015.12	2016.12
Equities	3448.43	5555.41	5986.70	6491.85
Bonds	3989.81	6715.80	7517.10	8526.24
Loans	5309.80	8190.46	8515.60	6164.35
Deposits	16,049.10	23,721.80	15,380.70	9154.73
Total	28,797.14	44,183.47	37,400.10	30,337.17

Unit 100 million Yuan
Source People's Bank of China, http://www.pbc.gov.cn/diaochatongjisi/116219/index.html

restricted due to foreign exchange control. The quota, products, accounts, and fund conversions are strictly monitored and regulated. QFII scheme was introduced in 2002, allowing foreign investor's direct access to China's capital market.

RMB Qualified Foreign Institutional Investor (RQFII) Scheme was initiated in late 2011, it allows RMB funds, raised in Hong Kong of China (hereinafter referred to as "Hong Kong subsidiaries"), to invest in the Chinese domestic securities market. To invest in the Chinese domestic securities market, a Hong Kong subsidiary must obtain the approval of the China Securities Regulatory Commission (CSRC) and obtain the investment quota approved by the State Administration of Foreign Exchange (SAFE).

RQFII holders may issue public or private fund or other investment products using their RQFII quotas. RQFII funds give retail investors access to invest in the securities markets of the mainland of China as they can invest RMB directly in the bond and equity markets of the mainland of China.

By the end of 2016, 17 countries and regions had received RQFII quota, amounting to 1 trillion and 460 billion Yuan. Table 4.5 is the details.

4.2.6 RMB Exchange Rate Indexes

In December 2015, the China Foreign Exchange Trade System (CFETS) website released CFETS RMB exchange rate indexes.

CFETS RMB Index mainly refers to CFETS currency basket, including CNY versus FX currency pair listed on CFETS. The sample currency weight is calculated by international trade weight with adjustments of re-export trade factors. The sample currency value refers to the daily CNY Central Parity Rate and CNY reference rate.

RMB Index based on BIS Currency Basket mainly refers to BIS currency basket. The sample currency weight is directly BIS sample currency weight. As to CNY versus FX currency pair listed on CFETS, the sample currency value refers to daily CNY Central Parity Rate and CNY reference rate. For those currencies not listed on CFETS yet, the sample currency value is calculated as the cross currency FX rate

Table 4.5 Countries/regions' composition of RQFII quota

NO.	Countries/regions	Amounts (100 million Yuan)
1	Hong Kong of China	2700
2	USA	2500
3	KOR	1200
4	SGP	1000
5	GBR	800
6	FRA	800
7	DEU	800
8	CHL	500
9	HUN	500
10	THA	500
11	CHE	500
12	MYS	500
13	LUX	500
14	CAN	500
15	AUS	500
16	ARE	500
17	QAT	300
Total		14,600

Source The data released by the People's Bank of China, http://www.pbc.gov.cn/huobizhengceersi/214481/214511/214541/index.html

based on cross currency method with the daily USD/CNY Central Parity Rate and FX spot rate of this currency against USD.

RMB Index based on SDR Currency Basket mainly refers to SDR currency basket. The sample currency weight is calculated as the relative weights in SDR currency basket. The sample currency value refers to the daily CNY Central Parity Rate.

The rise in value of indexes indicates appreciation of RMB. Shown as Chart 4.4, since released, these three RMB exchange rate indexes had showed a downward trend, which indicated depreciation of RMB. But since Dec. 2016, the three indexes have showed a recovery trend slowly, achieving a slight appreciation.

4.2.7 RMB as an International Reserve Currency

On November 30, 2015, the Executive Board of the International Monetary Fund (IMF) decided that the RMB met all the existing criteria and, effective on October 1, 2016, the RMB was determined to be a freely usable currency and to be included in the SDR (Special Drawing Right) basket as the fifth currency, along with the U.S. Dollar, the EURO, the Japanese YEN and the British Pound. The revised SDR

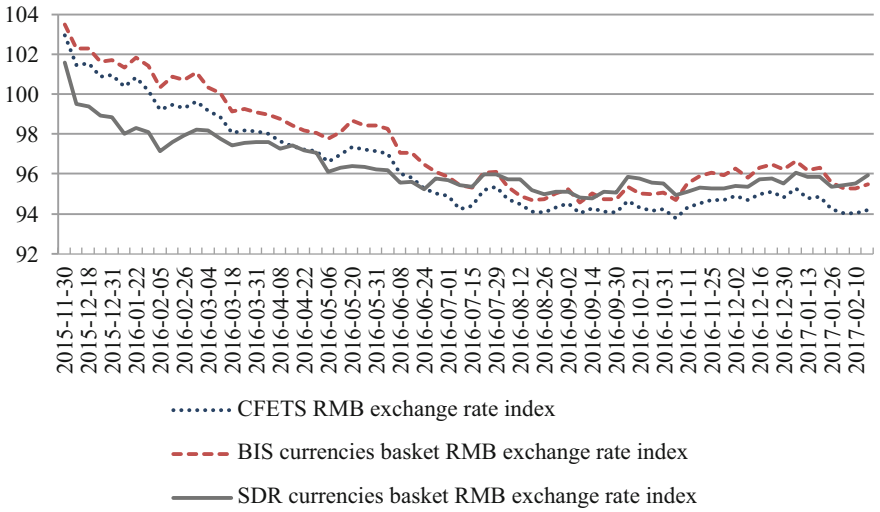

Chart 4.4 RMB exchange rate index (Nov. 2015–Feb. 2017). *Source* http://www.chinamoney.com.cn/fe/Channel/16384256

basket based on the following weights: 41.73% for the U.S. Dollar, 30.93% for the EURO, 10.92% for the Chinese RMB, 8.33% for the Japanese YEN, and 8.09% for the British Pound. This adjustment diluted the share of the British Pound, the EURO and the Japanese YEN, and the share of the U.S. Dollar did not change much (Chart 4.5).

The importance of the RMB has been recognized by more countries and regions' monetary authorities, although compared with the U.S. Dollar, the EURO, and the British Pound, there is still a certain gap between the degree of recognition of the

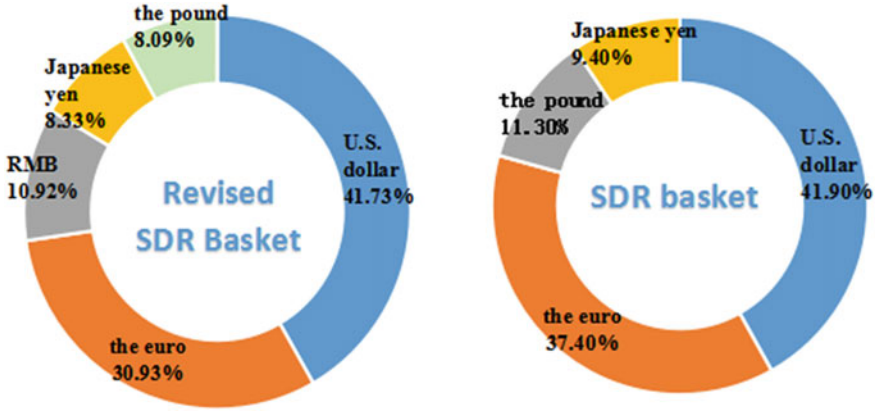

Chart 4.5 The SDR basket. *Source* IMF official website (www.imf.org)

Table 4.6 Number of countries/jurisdictions reporting assets by currency[a]

	2013	2014
Total currency holdings	130	130
U.S. Dollar	127	127
Pound sterling	108	109
EURO	109	108
Japanese YEN	87	88
Canadian dollar	84	85
Australian dollar	79	78
Swiss franc	73	69
Swedish krona	45	40
Norwegian krone	45	40
Chinese RMB	**27**	**38**
New Zealand dollar	27	29
Singapore dollar	16	18
South African rand	11	12
Russian ruble	5	8
Indian rupee	4	6
Brazilian real	5	5
Other currencies	81	80

[a]The IMF has conducted an ad hoc survey of member countries on their holdings of currencies in Official Foreign Currency Assets. The survey asked for a by-currency breakdown for a selected set of currencies. Official Foreign Currency Assets include Monetary Authorities' holdings of both Official Reserve Assets and other foreign currency assets (both claims on non-residents and residents) not included in official reserve assets. The ad hoc survey was conducted during April–May, 2015, and requested end-position data for 2013–2014

Source IMF official website, www.imf.org, "Currency composition of official foreign currency assets"

RMB and these currencies. Shown as Tables 4.6 and 4.7, in 2013, of the 130 countries and regions which participating in the IMF survey, 27 countries and regions held RMB, accounting 0.57% of the total official foreign currency assets. In 2014, there were 38 countries and regions which holding the RMB, and the proportion of the RMB rose to 0.95%.

From 2009, the People's Bank of China signed currency swap agreements with other central banks and monetary authorities. The agreements allow for the exchange of local currencies between the two central banks (monetary authorities) of up to some amount. They are for an initial period of three years and can be activated by either party.

The main purposes of the swap agreement are to support trade and investment between two countries (or China and other region), particularly in local-currency terms, and to strengthen bilateral financial cooperation. The agreement reflects the

Table 4.7 The compositions of official foreign currency assets

	End of 2013		End of 2014	
	Amount	Percent of total (%)	Amount	Percent of total (%)
Total official foreign currency assets	**7,897,817.42**	**100**	**7,832,731.17**	**100**
1. Total holding in currencies	**6,779,830.42**	**85.84**	**6,738,534.06**	**86.03**
U.S. Dollar	4,158,921.34	52.66	4,290,575.54	54.78
Pound sterling	287,966.45	3.65	274,564.80	3.51
EURO	1,603,466.98	20.30	1,417,328.09	18.90
Japanese YEN	226,364.14	2.87	232,369.81	2.97
Canadian dollar	133,863.09	1.69	133,869.60	1.71
Australian dollar	151,026.62	1.91	142,451.37	1.82
Swiss franc	16,077.82	0.20	15,365.62	0.20
Swedish krona	13,819.59	0.17	13,224.57	0.17
Norwegian krone	13,956.93	0.18	12,050.16	0.15
Chinese RMB	**45,358.87**	**0.57**	**74,611.87**	**0.95**
New Zealand dollar	16,805.46	0.21	15,213.97	0.19
Singapore dollar	4388.19	0.06	3912.98	0.05
South African rand	2687.69	0.03	3140.54	0.04
Russian ruble	360.81	0.00	355.97	0.00
Indian rupee	459.23	0.01	1000.11	0.01
Brazilian real	3416.08	0.04	3335.65	0.04
Other currencies	100,891.13	1.28	105,164.00	1.34
2. Other assets	**1,117,987.00**	**14.16**	**1,094,197.11**	**13.97**
Monetary gold	720,135.84	9.12	727,181.42	9.28
SDR holding	261,099.94	3.31	254,117.58	3.24
IMF reserve position	136,751.22	1.73	112,898.11	1.44

Unit Million U.S. Dollars
Source IMF official website, www.imf.org, "Currency composition of official foreign currency assets"

increasing opportunities available to settle trade between the two countries in Chinese RMB and to make RMB-denominated investments.

Shown as Table 4.8, as of December 2016, there were 37 countries and regions signing the currency swap agreements with China, the cumulative scale of them were 3343.7 billion Yuan. The countries and regions who signed currency swap agreements with China are all over the world (Chart 4.6).

Table 4.8 The currency swap agreements signed by the people's bank of China and Foreign Central Banks or monetary authorities (As of December 2016)

No.	Countries/ regions	Date	The amounts of currency swap	Duration (year)
1	Hong Kong of China	2009.1.20 2011.11.22 (renewal) 2014.11.22 (renewal)	200 billion Yuan/227 Hong Kong/China dollars 400 billion Yuan/490 Hong Kong/China dollars (renewal) 400 billion Yuan/505 Hong Kong/China dollars (renewal)	3
2	Korea	2009.4.20 2011.10.26 (renewal) 2014.10.11 (renewal)	180 billion Yuan/38 trillion won 360 billion Yuan/64 trillion won (renewal) 360 billion Yuan/64 trillion won (renewal)	3
3	Malaysia	2009.2.8 2012.2.8 (renewal) 2015.5.10 (renewal)	80 billion Yuan/40 billion Malaysia Yalin Jeter 180 billion Yuan/90 billion Malaysia Yalin Jeter(renewal) 180 billion Yuan/90 billion Malaysia Yalin Jeter (renewal)	3
4	Belarus	2009.3.11 2015.5.10 (renewal)	20 billion Yuan/8 trillion Belarus ruble 7 billion Yuan/16 trillion Belarus ruble (renewal)	3
5	Indonesia	2009.3.23 2013.10.1 (renewal)	100 billion Yuan/175 trillion Indonesian Rupiah 100 billion Yuan/175 trillion Indonesian Rupiah (renewal)	3
6	Argentina	2009.4.2 2014.7.18 (renewal)	70 billion Yuan/38 billion Argentine Peso 70 billion Yuan/90 billion Argentine Peso (renewal)	3
7	Iceland	2010.6.9 2013.9.11 (renewal) 2016.12.21 (renewal)	3.5 billion Yuan/66 billion Iceland Krona 3.5 billion Yuan/66 billion Iceland Krona (renewal) 3.5 billion Yuan/66 billion Iceland Krona (renewal)	3
8	Singapore	2010.7.23 2013.3.7 (renewal) 2016.3.7 (renewal)	150 billion Yuan/30 billion Singapore dollar 300 billion Yuan/60 billion Singapore dollar (renewal) 300 billion Yuan/60 billion Singapore dollar (renewal)	3
9	New Zealand	2011.4.28 2014.4.25 (renewal)	25 billion Yuan/5 billion New Zealand dollar 25 billion Yuan/5 billion New Zealand dollar (renewal)	3
10	Kazakhstan	2011.6.13 2014.12.14 (renewal)	7 billion Yuan/150 billion Kazakh tenge 7 billion Yuan/200 billion Kazakh tenge (renewal)	3

(continued)

Table 4.8 (continued)

No.	Countries/ regions	Date	The amounts of currency swap	Duration (year)
11	Uzbekistan	2011.4.19 (invalid)	0.7 billion Yuan/167 Uzbekistan som	3
13	Mongolia	2011.5.6 2014.8.21 (renewal)	5 billion Yuan/1 trillion Mongolian Tugrik 10 billion Yuan/2 trillion Mongolian Tugrik 15 billion Yuan/4.5 trillion Mongolian Tugrik (renewal)	3
14	Thailand	2011.12.22 2014.12.22 (renewal)	70 billion Yuan/320 billion Thai Baht 70 billion Yuan/370 billion Thai Baht (renewal)	3
15	Pakistan	2011.12.23 2014.12.23 (renewal)	10 billion Yuan/140 billion Pakistan rupee 10 billion Yuan/165 billion Pakistan rupee (renewal)	3
16	UAE	2012.1.17 2015.12.14 (renewal)	35 billion Yuan/20 billion UAE Dirham 35 billion Yuan/20 billion UAE Dirham (renewal)	3
17	Turkey	2012.2.21 2015.9.26 (renewal)	10 billion Yuan/3 billion Turkish Lira 12 billion Yuan/5 billion Turkish Lira (renewal)	3
18	Australia	2012.3.22 2015.3.30 (renewal)	200 billion Yuan/30 billion Australia dollar 200 billion Yuan/40 billion Australia dollar (renewal)	3
19	Ukraine	2012.6.26 2015.5.15 (renewal)	15 billion Yuan/19 billion Ukraine Hryvnia 15 billion Yuan/54 billion Ukraine Hryvnia (renewal)	3
20	Brazil	2013.3.26 (invalid)	190 billion Yuan/60 billion Brazilian Real	3
21	Britain	2013.6.22 2015.10.20 (renewal)	200 billion Yuan/20 billion pound 350 billion Yuan/35 billion pound (renewal)	3
22	Hungary	2013.9.9	10 billion Yuan/375 billion Hungarian Forint	3
23	Albania	2013.9.12	2 billion Yuan/35.8 billion Albanian Lek	3
24	ECB	2013.10.8 2016.9.27 (renewal)	350 billion Yuan/4 billion 5 Euro 350 billion Yuan/4 billion 5 Euro (renewal)	3
25	Switzerland	2014.7.21	150 billion Yuan/21 billion Swiss Franc	3
25	Sri Lanka	2014.9.16	10 billion Yuan/225 billion Sri Lanka Rupee	3

(continued)

Table 4.8 (continued)

No.	Countries/ regions	Date	The amounts of currency swap	Duration (year)
27	Russia	2014.10.13	150 billion Yuan/815 billion Rouble	3
28	Qatar	2014.11.3	35 billion Yuan/20.8 billion Qatar Montreal	3
29	Canada	2014.11.8	200 billion Yuan/30 billion Canadian Dollar	3
30	Suriname	2015.3.18	1 billion Yuan/0.52 billion Surinamese dollar	3
31	Armenia	2015.3.25	1 billion Yuan/77 billion Dram	3
32	South Africa	2015.4.10	30 billion Yuan/54 billion South African Rand	3
33	Chile	2015.5.25	22 billion Yuan/2200 billion Chilean Peso	3
34	Tajikistan	2015.9.3	3 billion Yuan/3 billion Somoni	3
35	Morocco	2016.5.11	10 billion Yuan/15 billion Somoni Dirham	3
36	Serbia	2016.6.17	1.5 billion Yuan/27 billion Serbia Dinar	3
37	Egypt	2016.12.6	18 billion Yuan/47 billion Egyptian Pound	3
Total amount			3343.7 billion Yuan	

Source The People's bank of China
http://www.pbc.gov.cn/huobizhengceersi/214481/214511/214541/index.html

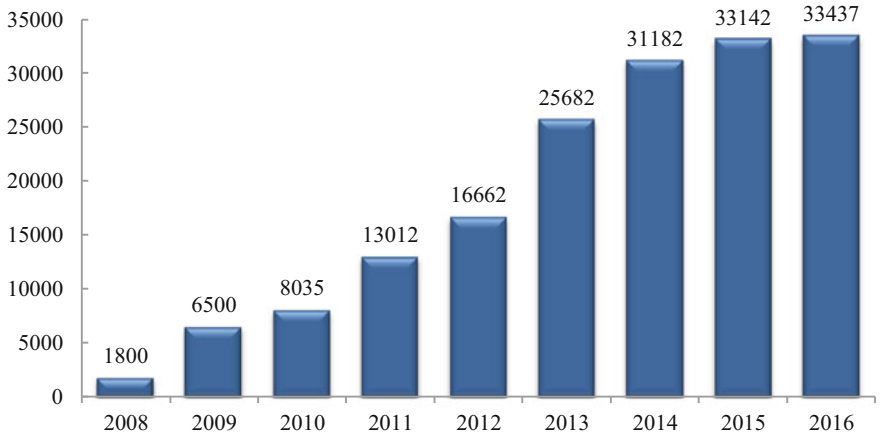

Chart 4.6 The value of the currency swaps between the people's bank of China and other monetary authorities. *Unit* 100 million Yuan. *Source* The People's bank of China. http://www.pbc.gov.cn/huobizhengceersi/214481/214511/214541/index.html

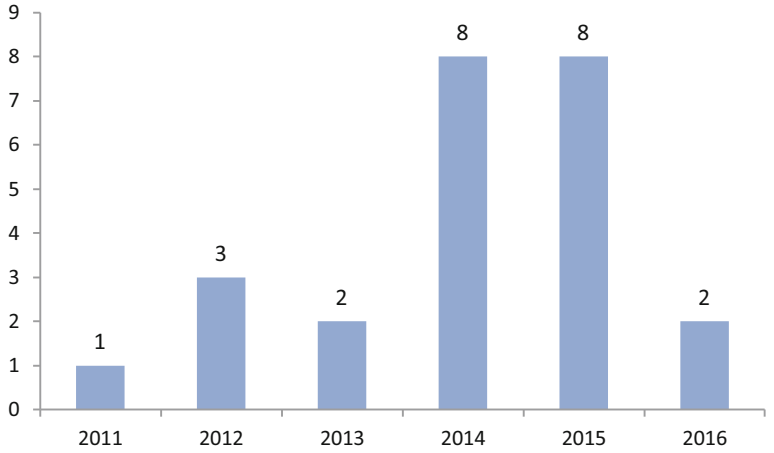

Chart 4.7 Numbers of establishment of RMB international clearing banks (2011–2016). *Source* The people's bank of China., http://www.pbc.gov.cn/zhengcehuobisi/125207/125227/125963/index.html

Table 4.9 The international clearing banks of RMB business (As of December 31, 2016)

Continent	No.	Country/region	International clearing bank	Date of establishment
Asia	1	Hong Kong of China	Bank of China (Hong Kong/China) Co., Ltd.	2011/11/4
	2	Macao of China	Bank of China Macao Branch	2012/9/24
	3	Taiwan of China	Bank of China Taipei Branch	2012/12/11
	4	Laos	ICBC Vientiane branch	2012/6/21
	5	Singapore	ICBC Singapore Branch	2013/2/8
	6	Cambodia	ICBC Phnom Penh Branch	2013/11/8
	7	Korea	Bank of Communications Seoul Branch	2014/7/4
	8	Qatar	Commercial Bank of China Doha Branch	2014/11/4
	9	Malaysia	Bank of China (Malaysia) Ltd.	2015/1/5
	10	Thailand	Commercial Bank of China (Thailand) Co., Ltd.	2015/1/6
	11	The United Arab Emirates	Agricultural Bank of China Dubai branch	2016/12/29
Oceania	12	Australia	Bank of China Sydney Branch	2014/11/18

(continued)

Table 4.9 (continued)

Continent	No.	Country/region	International clearing bank	Date of establishment
Europe	13	British	China Construction Bank (London) Co., Ltd.	2014/6/18
	14	Germany	Bank of China Frankfurt Branch	2014/6/19
	15	France	Bank of China Paris Branch	2014/9/15
	16	Luxembourg	ICBC Luxembourg Branch	2014/9/16
	17	Hungary	Bank of China Hungary Branch	2015/6/28
	18	Switzerland	Zurich branch of China Construction Bank	2015/11/30
North America	19	Canada	Commercial Bank of China (Canada) Co., Ltd.	2014/11/9
	20	USA	Bank of China New York Branch	2016/9/21
South America	21	Chile	China Construction Bank Chile branch	2015/5/25
	22	Argentina	ICBC (Argentina) Co., Ltd.	2015/9/18
Africa	23	South Africa	Bank of China Johannesburg branch	2015/7/7
	24	Zambia	Bank of China Zambia Branch	2015/9/30

Source The people's bank of China
http://www.pbc.gov.cn/zhengcehuobisi/125207/125227/125963/index.html

In 2011, the Bank of China set up RMB clearing bank in Hong Kong of China. As of December 31, 2016, the Chinese banks had set up international clearing banks for RMB business in more than 20 countries and regions, covering five continents, distributing in different time zones, which improved the RMB clearing efficiency greatly (Chart 4.7 and Table 4.9).

Chapter 5
The Factors Affecting the Share of Foreign Reserve Currencies

When Chinese Yuan becomes one of the two center currencies of the dual-center global financial system, the share of Chinese Yuan in world foreign reserves should be high enough.

5.1 Theoretical Analysis

There are a lot of scholars studied the factors affecting the share of foreign reserve currencies. Using the data of IMF, Heller and Knight (1978) studied the relative share of international reserve currencies. They believed that the determining factors including safety, liquidity, profitability and risk aversion ability. In addition, the exchange rate regime also played an important role. Eichengreen and Mathieson (2000) believed that the exchange rate system, the openness of capital account, international trade and reserve currency income are important factors affecting the structure of international reserve currencies. Chinn and Frankel (2007, 2008) pointed out that the externality of a country's financial market scale, the value stability of the currency, international trade and economic network are important factors affecting the share of international reserve currencies, and concluded the predict that the EURO would surpass the U.S. Dollar as the most important international reserve currency.

5.1.1 Political Stability and International Status

A stable political situation is an important guarantee for the steady development of a country's economy. The international reserve currencies should be accepted and trusted by governments and the private sectors. A stable political environment will

T. YUAN, *The Dual-Center Global Financial System*,
https://doi.org/10.1007/978-981-10-7993-1_5

help to strengthen the security of the country's currency and boost confidence in the country's currency.

In the international community, the countries with strong voice and capability can often participate in the formulating of international rules, and occupy certain advantages in international political games, so as to protect the interests of their own people and investors.

Therefore, in order to become an international reserve currency, the issuing country must have a stable political environment and international discourse right.

5.1.2 Economic Scale and Degree of Economic Internationalization

From the internationalization process of the U.S. Dollar, the EURO, the Japanese Yen, the UK Pound and other currencies, we can find that the powerful economy is the foot stone of them. Generally, economic scale is the key factor affecting the degree of internationalization of the currency. At present, the issuing countries of the international reserve currencies are all global economic powers. Huge economy will improve the countries' national status and international influence power. The countries with huge economic power have stronger ability to maintain the stability of their currencies.

Economic strength is often accompanied with the development in this country's international trade, FDI (foreign direct investment), OFDI (outward foreign direct investment) etc., and that's why this country's currency is demanded by other countries. The huge international trade, FDI, OFDI of the UK, the U.S., Japan and Germany played an important role in the internationalization of their currencies.

5.1.3 Degree of Financial Market Development

During the currencies internationalization process of the UK, the United States, Japan and Germany, the developed financial markets also played an important role. London, New York, Tokyo and Frankfurt are important financial transactions Center. These countries have relatively mature market, excellent regulations, good ability in continuous financial innovation and risk aversion, which promoting the stability of international status for their currencies. In order to promote the internationalization of RMB, the developed financial market, perfect financial legal system and powerful financial industry are indispensable.

5.1.4 Stability of the Currency

After the gold standard system and Bretton Woods System, the stability of currency becomes one of the important factors those determine whether it can become an international reserve currency. The stability of currency consists of two aspects, namely, the stability of internal value of the currency and external value of the currency. The stability of internal value of the currency is generally measured by CPI to reflect its domestic purchasing power, while the stability of external value of the currency is generally expressed as exchange rate stability, reflecting its international purchasing power. Countries prefer holding the currency which is more stable in value and using it in international transaction and international investment.

5.1.5 Network Externality

According to Chinn and Frankel (2008), an international currency, like domestic currency, derives its value because others are using it. It is a classic instance of network externality. There is a strong inertial bias in favor of using whatever currency which has been the international currency in the past. If a currency is held widely and heavily, the cost of transaction by using this currency will be reduced and new users will be attracted, thus the network externality being expanded. After the formation of a stable international reserve currency system, the traditional international reserve currency has a monopoly position in the global economy, so it is hard for the new international reserve currency to generate the new network externality.

5.2 Empirical Analysis

5.2.1 Model and Data

Chinn and Frankel (2008) studied whether the EURO would go beyond the U.S. Dollar in terms of the status of the international reserve currency. The two scholars analyzed the factors influencing the shares of the U.S. Dollar and the EURO as an international reserve currency by establishing a model and then estimated the trend of the two currencies. They hold the opinion that the affecting factors of the international reserve currency's share are as follows: international trade, the scale of financial market, the stability of the currency and the network externality. Based on Chinn and Frankel (2008), we extend the data term and adjust the explanatory variables, and make some improvements to the model.

For the first time in March 2017, IMF made a separate presentation of the RMB as the international reserve currency, so there's no way to do direct research by

using the history data of RMB. Therefore, we select the data of current major international reserve currencies to verify the main factors which affecting the international reserve currency shares (Chart 5.1).

The data used in this chapter are mainly derived from IMF Annual Report, IMF COEFR database, the World Bank's World Development Indicators, Chinn-Ito Index, WTO database, BIS database and so on. Taking the share of the international reserve currency as the dependent variable, we use the data of U.S. Dollar, UK Pound sterling, Japanese Yen and EURO, from 1999 to 2015. The share of the international official reserve currency is in the range (0,1), according to the method of Chinn and Frankel (2008), the dependent variable is logistic transformed, that is, logshare = ln [share/(1−share)], so that the variable fluctuation range becomes (−∞, +∞) (Table 5.1).

About the independent variables, there are some points should be noticed.

For the economic scale, we choose the proportion of the GDP of a country accounted for the whole world. Relevant studies suggest that a country's currency needs to be supported by a huge economic scale when it becomes an international reserve currency. The data comes from the World Bank's World Development Indicator, which is calculated at the buyer's price.

For the openness and development of financial market, we choose the two indexes, the openness of capital account and the shares trading accounted for GDP. The degree of financial market openness is represented by the index of opening degree of capital account (KAOPEN index). The data comes from Chinn-Ito Index website, and the higher of the value, the higher of the openness

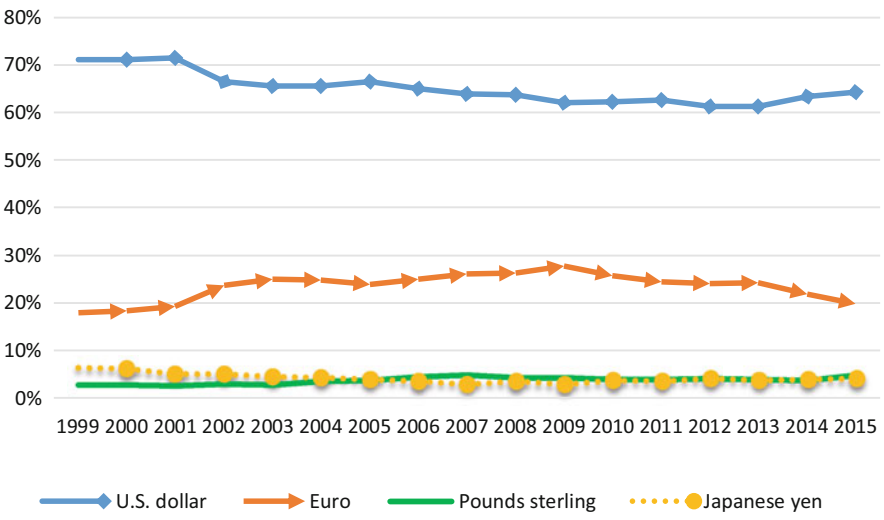

Chart 5.1 The shares of the major international reserve currencies in the world. *Source* International Monetary Fund COEFR database, http://data.imf.org/?sk=E6A5F467-C14B-4AA8-9F6D-5A09EC4E62A4

Table 5.1 Variables and data sources

Factors	Describes	Variables	Data sources
International reserve currency share	logshare = ln[share/(1−share)]	logshare	IMF Annual Report, IMF COEFR database
Economic scale of a country	The GDP of one country accounted for the proportion of the world	GDP	The world bank, World development indicators
Openness and development of financial market	Opening degree of capital account	KAOPEN	Chinn-Ito Index
	Shares trading accounted for GDP	stock	The world bank, World development indicators
Trade status	The proportion of imports and exports of a country to the total import and export volume of the world	trade	WTO database
Currency stability	Inflation rate	CPI	The world bank, World development indicators
	Monthly actual effective exchange rate index of the annual standard deviation (do 10 years average movement)	REER	BIS, REER (Real EER)

level of the country's capital account. Since there's no data of the EURO area, we use the data of Germany from 1999 to 2015. The development degree of financial market is represented by the proportion of stock trading accounted for GDP. The data comes from the World Bank's World Development Indicators.

The variable of international trade is measured by the proportion of the total import and export volume of a country accounted for the whole world. The data comes from the WTO database.

The stability of the currencies is measured by two variables, the inflation and the stability of exchange rate. The data of inflation comes from the World Bank's World Development Indicators, which is measured by the consumer price index (CPI). The stability of exchange rate is measured by the real effective exchange rate, which comes from the REER (Real EER) statistics[1] of the Bank for International Settlements (BIS).

[1]The BIS effective exchange rate (EER) indices cover 61 economies, including individual EURO area countries and, separately, the EURO area as an entity. The most recent weights are based on trade in the 2011–13 period, with 2010 as the indices' base year. Nominal EERs are calculated as geometric weighted averages of bilateral exchange rates. Real EERs are the same weighted averages of bilateral exchange rates adjusted by relative consumer prices. The weighting pattern is

5.2.2 Empirical Analysis

In this chapter, STATA13.0 software is used for data analysis. The number of samples is the same in each period, so it is the data of balanced panel. At the same time, the i is smaller than the t and thus it is the long panel. The model is tried firstly as follow:

$$\begin{aligned}\log \text{share}_{it} = {} & \alpha + \beta_1 \text{GDP}_{it} + \beta_2 \text{KAOPEN}_{it} + \beta_3 \text{stock}_{it} + \beta_4 \text{trade}_{it} + \beta_5 \text{CPI}_{it} \\ & + \beta_6 \text{REER}_{it} + \beta_7 \text{L.logshare}_{it} + \varepsilon_{it} + u_{it}\end{aligned} \tag{5.1}$$

i means different currencies, and t represents different periods. L.logshare is the first order lag of logshare. In model (5.1), the first order lag of the explained variable is added, so the panel data is changed into dynamic panel data. As a result, endogeneity may exist, and traditional OLS (ordinary least squares) estimation, fixed effects model and random effects model can't make unbiased estimation. So we try to use Generalized Method of Moments method. Unfortunately, this method is not applicable because there is strong self-correlation among individual perturbations of data. The model is adjusted to model (5.2).

$$\begin{aligned}\log \text{share}_{it} = {} & \alpha + \beta_1 \text{GDP}_{it} + \beta_2 \text{KAOPEN}_{it} + \beta_3 \text{stock}_{it} + \beta_4 \text{trade}_{it} + \beta_5 \text{CPI}_{it} \\ & + \beta_6 \text{REER}_{it} + \varepsilon_{it} + u_{it}\end{aligned} \tag{5.2}$$

Descriptive statistics of variables are shown in Table 5.2. Since it is panel data, the differences of data between groups represent the differences of the currencies or countries. While the differences of data within a group represent the differences of a currency or a country in different periods.

Compared with the number of i, the number of t is bigger, so we don't think about the heteroscedasticity problem. Before regression, the stationarity test has to be carried out firstly. The test results are shown in Table 5.3. Through the Johansen Fisher Panel Cointegration Test, the results show cointegration relationship.

In long panel, the problem of fixed effect can be solved by adding least square dummy variable, which is LSDV method. As for the time effect, it can be solved by adding time trending items (or square terms).[2] Time trending item added into model firstly, we use LSDV method to estimate two-way fixed effect model, but the regression result of model (a) is not good, and the time trending is not significant (Table 5.4).

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time-varying. The EER indices are available as monthly averages. An increase in the index indicates an appreciation.

[2]Chen Qiang. Advanced Econometrics and Stata Applications[M]. Higher Education Press, 2014.

Table 5.2 Descriptive statistics of variables

Variables		Average	Standard deviation	Min	Max
logshare	Overall	−1.745469	1.620964	−3.584547	0.9197932
	Between groups		1.846113	−3.266267	0.6280711
	Within a group		0.1824094	−2.106321	−1.278022
GDP	Overall	0.1507368	0.0890183	0.0354	0.3186
	Between groups		0.0977633	0.0452059	0.2601824
	Within a group		0.0254757	0.1162207	0.2091544
KAOPEN	Overall	2.385375	0.0314834	2.129574	2.389193
	Between groups		0.0076358	2.373921	2.389193
	Within a group		0.0307705	2.141028	2.400647
stock	Overall	1.121707	0.7463914	0.012587	3.20992
	Between groups		0.7404286	0.5666847	2.213066
	Within a group		0.3620207	0.2384884	2.118561
trade	Overall	0. 3433074	0.1277213	0.1835	0.6271
	Between groups		0.1378581	0.2665588	0.5499118
	Within a group		0.0429691	0.2503779	0.4424779
CPI	Overall	0. 0158515	0. 0140449	-0.013	0.045
	Between groups		0. 010566	0.0000588	0.0223529
	Within a group		0. 0105961	−0.0105015	0.043926
REER	Overall	102.5234	13.32535	73.55	127.19
	Between groups		10.16065	94.06529	114.86
	Within a group		9.948874	82.00809	126.9981

We take intra-group correlation into consideration in model (b). Different groups are asked to have the same regression coefficients, but the time trending is not significant. On the basis of model (b), the model (c) considers self-correlation within a group, and allows different groups to have different regression coefficients. The coefficients change slightly, and the goodness of fit decreases slightly.

The model (d) ignores the self-correlation problem, but considers the heteroscedasticity of individual disturbance items. The result of model (d) is almost the same with model (a), but the standard deviations of model (d) are smaller than model (a), and the significances of coefficients increase greatly. Model (a) tests cluster-robust standard errors, taking self-correlation of the same individual in different periods into consideration. However, the model (d) only considers the inter-group heteroscedasticity, ignoring the self-correlation. The intra-group self-correlation of individual disturbance may exist, so the further examinations are needed.

For a long panel, the number of t is bigger, and the hypothesis that $\{\varepsilon_{it}\}$ is independent and identical can be loosen. The specific form of the self-correlation of $\{\varepsilon_{it}\}$ is estimated, and then the FGLS (feasible generalized least squares) method is used to estimate the parameters. The heteroscedasticity test, the self-correlation test and the cross-sectional correlation test should be carried out.

Table 5.3 Stationarity tests

Variables	LLC test	IPS test	Fisher-type test	Stable or not
logshare	0.0921***	0.03979**	0.5093	Not stable[a]
First order difference of logshare	0.0119**	0.0000*	0.0000*	Stable
GDP	0.2656	0.9515	0.7543	Not stable
First order difference of GDP	0.0010**	0.0003**	0.0000**	Stable
KAOPEN	0.9997	0.0000*	0.9308	Not stable[b]
First order difference of KAOPEN	0.0082**	0.0000**	0.0000**	Stable
stock	0.2404	0.4224	0.6032	Not stable
First order difference of stock	0.0006**	0.0000**	0.0000**	Stable
trade	0.2381	0.0079*	0.8961	Not stable[c]
First order difference of trade	0.0000**	0.0000**	0.0000**	Stable
CPI	0.0000**	0.1079	0.0000*	Not stable[d]
First order difference of CPI	0.0000**	0.0000**	0.0000**	Stable
REER	0.0690***	0.4982	0.1180	Not stable[e]
First order difference of REER	0.0031**	0.0000**	0.0000**	Stable

Note The data above are the p values of tests. (*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$)

[a]The series passed the IPS test at the 5% significance level and the LLC test at the 1% significance level, but it did not pass the Fisher test, so it was determined to be not stable

[b]The series passed the IPS test, but it did not pass the LLC test and Fisher test, so it was determined to be not stable

[c]The series passed the IPS test, but it did not pass the LLC test and Fisher test, so it was determined to be not stable

[d]The series passed the Fisher test and LLC test, but it did not pass the IPS test, so it was determined to be not stable

[e]The series passed the LLC test, but it did not pass the IPS test and Fisher test, so it was determined to be not stable

About the inter-group heteroscedasticity, according to the LR test, P value = 0.5197, we can not reject the original hypothesis of "group with the variance", and that means there is no inter-group heteroscedasticity.

About the self-correlation test, according to the Wald test, P value = 0.0091, the original hypothesis that "there is no first-order group self-correlation" is strongly rejected, and that means there is intra-group self-correlation.

In order to test if there is inter-group cross-sectional correlation, we use Breusch-Pagan LM test and the matrix is shown in Table 5.5. If there is no inter-group cross-sectional correlation, the relationship coefficient between the individual perturbations based on residuals should be close to zero, i.e. the diagonal elements of the matrix should be close to zero. Shown as Table 5.5, the data in the matrix are far from 0, so it can be considered that there is inter-group cross-sectional correlation.

Table 5.4 OLS regression of long panel

logshare	(a)	(b)	(c)	(d)
GDP	3.594** (1.409)	2.428*** (0.348)	2.168*** (0.317)	3.594*** (0.447)
KAOPEN	−0.489 (0.340)	−0.072 (0.422)	0.075 (0.373)	−0.489 (0.499)
stock	0.0648 (0.096)	0.063* (0.036)	0.061* (0.032)	0.065 (0.517)
trade	−0.481 (1.279)	0.1445 (0.422)	0.514 (0.388)	−0.482 (0.304)
CPI	0.769 (0.611)	0.129 (0.172)	0.159 (0.206)	0.769 (0.304)
REER	0.007 (0.006)	0.006*** (0.002)	0.007*** (0.002)	0.007*** (0.002)
Country 2	−1.564 (0.203)	−1.664 (0.096057)	−1.654 (0.121)	−1.564 (0.075)
Country 3	−1.438 (0.203)	−1.278 (0.178)	−1.122 (0.166)	−1.438 (0.179)
Country 4	1.405* (0.488)	1.680*** (0.200)	1.842*** (0.176)	1.405*** (0.206)
t	0.009 (0.018)	0.002 (0.004)	0.002 (0.004)	0.009 (0.006)
_cons	−1.525 (1.446)	−2.441** (1.082)	−3.064*** (0.943)	−1.525*** (1.274)
R^2	0.9854	0.9661	0.9524	0.9854
N	68	68	68	68

Note The data above are the P values of tests. (*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$) The data in square brackets are cluster-robust standard errors and the data in parentheses are estimated standard deviations

Table 5.5 Residual correlation coefficient matrix

	_e1	_e2	_e3	_e4
_e1	1.0000			
_e2	−0.2828	1.0000		
_e3	−0.1133	−0.3687	1.0000	
_e4	−0.4016	−0.1008	−0.2574	1.0000

In summary, by testing the long panel data, we know that there is intra-group self-correlation and inter-group cross-sectional correlation, and there is no inter-group heteroscedasticity. It is necessary to use the FGLS to regress, since the FGLS can solve the problems above. The model without dummy variables is a random effect model, and otherwise it is a fixed effect model. The regression results are shown in Table 5.6.

Table 5.6 FGLS regression results

logshare	(a)	(b)	(c)	(d)
GDP	5.114*** (1.103)	8.91*** (0.779)	5.027*** (1.096)	6.19*** (0.771)
KAOPEN	0.956** (0.381)	1.563*** (0.443)	0.992** (0.363)	1.255* (0.425)
Stock	0.0265 (0.029)	0.139** (0.051)	0.0130 (0.027)	0.209*** (0.046)
Trade	−0.0636 (0.575)	2.124*** (0.508)	0.0503 (0.575)	0.248 *** (0.517)
CPI	1.987** (0.952)	1.631 (1.819)	2.432*** (0.929)	1.703 (1.562)
REER	0.00295 (0. 002)	0.00317* (0.003)	0.00396 (0.002)	0.0000305* (0.002)
Country2	−1.311 (0.299)		−1.679 (0.305)	
Country3	−1.382 (0.127)		−1.381 (0.129)	
Country4	1.451* (0.105)		1.462* (0.197)	
t	0.0202*** (0.005)	0.0610*** (0.006)	0.0214*** (0.005)	0.0561*** (0.005)
_cons	−0.629 (0.924)	−3.190** (1.011)	−0.674 (0.887)	−2.361* (0. 932)
P	0.0000	0.0000	0.0000	0.0000

Note *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. Model (a) and Model (c) are fixed effect models, while model (b) and model (d) are random effect models. Model (a) and Model (b) take into account the existence of self-correlation, requiring every group has the same regression coefficients. Model (c) and model (d) allow the regressions of each group to have different regression coefficients

Compared with the fixed effect models, the regressions of the random effect models are more significant, which means the random effect models are more explanatory. The significant variables in model (b) and model (d) are the same, but they are different in significant levels and regression coefficients. We choose model (d) to analyze, and according to model (d), the regression result is formula (5.3).

$$\begin{aligned}\text{logshare} = {} & 6.19\text{GDP} + 1.255\text{KAOPEN} + 0.209\text{stock} + 0.248\text{trade} + 0.0000305\text{REER} \\ & + 0.0561\text{t} - 2.361\end{aligned} \tag{5.3}$$

According to model (d) and formula (5.3), GDP, KAOPEN, stock, trade, REER, as well as time trending have significant effect on the share of international reserve currencies. However, the impact of CPI is not significant.

It is obvious that economic scale (GDP) has very significant effect, since the international reserve currencies are supported by the huge economy of the country or region.

As for the opening up and development of financial market, the degree of openness of capital account is positively related to the explained variable, which shows that higher openness degree of the country's capital account is favorable for its currency to become the international reserve currency. The proportion of stock transactions to GDP is positively correlated with the explained variable, indicating that the higher development degree of financial market of the country, the more conducive to improvement of the share of the international reserve currency of this currency.

In terms of international trade, the proportion of a country's total import and export volume to the world's has a significant impact on the explained variable, which shows that the development of one country's international trade is conducive to raising the share of this country's currency as international reserve currency.

As for stability of a currency, the effect of CPI on the explained variable is not significant, and the real effective exchange rate index is positively related to the explained variable, which indicates that the appreciation of the currency helps to raise its' share as international reserve currency.

Chapter 6
The Prospect for RMB Becoming One of the Two Center Currencies of the Dual-Center Global Financial System

For stability and development of the world economy and global financial market, the dual-center global financial system is needed. As one of the two center currencies, Chinese YUAN will become a global currency as the U.S. Dollar.

6.1 Advantages RMB Already Has

6.1.1 The Huge Economic Scale and International Trade

According to the analysis of last chapter, GDP and the total amount of international trade are the important factors which affect the international reserve currency's share in the world. The international reserve currencies are supported by the huge economic strength and higher international trade status. In recent years, with the development of reform and opening-up, China's socialist market economy has made remarkable progress, and the national economy has greatly developed. Under the impact of the global financial crisis in 2008, the average growth rate of global economy was very low. Relying on national policies, government measures and the ability of resisting financial crisis, China recovered from the economic crisis soon.

The Gross Domestic Product (GDP) in China was worth 11,199.15 billion U.S. Dollars in 2016. The GDP value of China represents 18.06% of the world economy. The GDP in the Euro Area was worth 11,885.66 billion U.S. Dollars in 2016, which was bigger than in China. When we consider the big difference between the Euro Area and China in economic growth rate, we can know that Chinese economy will be bigger than the economy in the Euro Area in the near future. In term of economic scale, Chinese RMB will get more support than the EURO for becoming a global currency (Table 6.1).

A country's international trade is very important for currency internationalization of this country. As for merchandise trade, China is the biggest exporter and the

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Table 6.1 Top 10 of the biggest economies in the world in 2016

Ranking	Economy	GDP (millions of U.S. Dollars)
1	United States	18,569,100
2	China	11,199,145
3	Japan	4,939,384
4	Germany	3,466,757
5	United Kingdom	2,618,886
6	France	2,465,454
7	India	2,263,523
8	Italy	1,849,970
9	Brazil	1,796,187
10	Canada	1,529,760

Source The World Bank, "GDP ranking", http://data.worldbank.org/data-catalog/GDP-ranking-table

second biggest importer in the world (Table 6.2). In 2016 China's exports was worth 2098 billion Dollars, which was more than the exports of the EU and the U.S., and China's imports was worth 1587 billion Dollars (Table 6.3).

As for trade in commercial services, China is the 5th biggest exporter and the second biggest importer in the world. In 2016 China's exports was worth 207 billion Dollars and China's imports was worth 450 billion Dollars (Table 6.4).

Table 6.2 Leading exporters and importers in world merchandise trade, 2016 (billion dollars and percentage)

Rank	Exporters	Value	Share	Rank	Importers	Value	Share
1	China	2098	13.2	1	United States of America	2251	13.9
2	United States of America	1455	9.1	2	China	1587	9.8
3	Germany	1340	8.4	3	Germany	1055	6.5
4	Japan	645	4.0	4	United Kingdom	636	3.9
5	Netherlands	570	3.6	5	Japan	607	3.7
6	Hong Kong, China	517	3.2	6	France	573	3.5
	domestic exports	26	0.2				
	re-exports	491	3.1				
7	France	501	3.1	7	Hong Kong, China	547	3.4
					retained imports[a]	121	0.7
8	Korea, Republic of	495	3.1	8	Netherlands	503	3.1
9	Italy	462	2.9	9	Canada[b]	417	2.6
10	United Kingdom	409	2.6	10	Korea, Republic of	406	2.5

[a]Secretariat estimates
[b]Imports are valued f.o.b.
Source WTO, "World Trade Statistical Review 2017", https://www.wto.org/english/res_e/statis_e/wts2017_e/wts17_toc_e.htm

Table 6.3 Leading exporters and importers in world merchandise trade (excluding intra-EU (28) trade), 2016 (billion dollars and percentage)

Rank	Exporters	Value	Share	Rank	Importers	Value	Share
1	China	2098	16.8	1	United States of America	2251	17.6
2	Extra-EU (28) exports	1932	15.4	2	Extra-EU (28) imports	1889	14.8
3	United States of America	1455	11.6	3	China	1587	12.4
4	Japan	645	5.2	4	Japan	607	4.7
5	Hong Kong, China	517	4.1	5	Hong Kong, China	547	4.3
	Domestic exports	26	0.2				
	Re-exports	491	3.9		Retained imports[a]	121	0.9
6	Korea, Republic of	495	4.0	6	Canada[b]	417	3.3
7	Canada	390	3.1	7	Korea, Republic of	406	3.2
8	Mexico	374	3.0	8	Mexico	398	3.1
9	Singapore	330	2.6	9	India	359	2.8
	domestic exports	154	1.2				
	re-exports	176	1.4				
10	Switzerland	303	2.4	10	Singapore	283	2.2
					Retained imports	107	0.8

[a]Secretariat estimates
[b]Imports are valued f.o.b.
Source WTO, "World Trade Statistical Review 2017", https://www.wto.org/english/res_e/statis_e/wts2017_e/wts17_toc_e.htm

Table 6.4 Leading exporters and importers in world trade in commercial services, 2016 (billion dollars and percentage)

Rank	Exporters	Value	Share	Rank	Importers	Value	Share
1	United States of America	733	15.2	1	United States of America	482	10.3
2	United Kingdom	324	6.7	2	China	450	9.6
3	Germany	268	5.6	3	Germany	311	6.6
4	France	236	4.9	4	France	236	5.0
5	China	207	4.3	5	United Kingdom	195	4.1
6	Netherlands	177	3.7	6	Ireland	192	4.1
7	Japan	169	3.5	7	Japan	183	3.9
8	India	161	3.4	8	Netherlands	169	3.6
9	Singapore	149	3.1	9	Singapore	155	3.3
10	Ireland	146	3.0	10	India	133	2.8

Source WTO, "World Trade Statistical Review 2017", https://www.wto.org/english/res_e/statis_e/wts2017_e/wts17_toc_e.htm

Table 6.5 Leading exporters and importers in world trade in commercial services (excluding intra-EU (28) trade), 2016 (billion dollars and percentage)

Rank	Exporters	Value	Share	Rank	Importers	Value	Share
1	Extra-EU (28) exports	917	24.9	1	Extra-EU (28) imports	772	21.1
2	United States of America	733	19.9	2	United States of America	482	13.2
3	China	207	5.6	3	China	450	12.3
4	Japan	169	4.6	4	Japan	183	5.0
5	India	161	4.4	5	Singapore	155	4.2
6	Singapore	149	4.1	6	India	133	3.6
7	Switzerland	112	3.1	7	Korea, Republic of	109	3.0
8	Hong Kong, China	98	2.7	8	Canada	96	2.6
9	Korea, Republic of	92	2.5	9	Switzerland	95	2.6
10	Canada	80	2.2	10	United Arab Emirates	82	2.2

Source WTO, "World Trade Statistical Review 2017", https://www.wto.org/english/res_e/statis_e/wts2017_e/wts17_toc_e.htm

China's huge international trade helps internationalization of RMB, especially when China imports goods and services. China had huge trade deficit in trade in commercial services in 2016, but the U.S., the EU and the UK had trade surplus in trade in commercial services in 2016 (Tables 6.4 and 6.5). In 2016 China's trade deficit in travel was worth 217.1 billion Dollars (Table 6.6), which was 89% of China's trade deficit in trade in commercial services in 2016 (243 billion Dollars). When more and more Chinese people travel and consume in other countries and regions with Chinese RMB, more and more companies and people of other countries and regions receive and use RMB.

6.1.2 Stable Society and the Stability of RMB Currency

Stable society is very important for one country, the country's economy and the currency's credit of this country. China's society is stable, and this is the base for China's economic development and good credit of RMB. As the stabilizer of the world economy, China has more responsibility, such as improving economic globalization, improving free trade and free investment, improving co-operation among countries and regions.

The stability of RMB, the stability of internal value of RMB and external value of RMB, is very important for RMB's credit and RMB internationalization. On the one hand, RMB has comparatively stable internal value, which can be seen from the relatively stable growth rate of China's CPI (Chart 6.1). On the other hand, RMB has comparatively stable external value, which can be seen from the relatively

Table 6.6 Leading exporters and importers of travel, 2016 (billion dollars and percentage)

Exporters	Value	Share		Importers	Value	Share	
	2016	2010	2016		2016	2010	2016
European Union (28)	375.8	36.2	31.2	European Union (28)	348.8	38.0	29.1
Extra-EU (28) exports	123.2	11.2	10.2	Extra-EU (28) imports	110.8	12.9	9.2
United States of America	206.8	14.4	17.2	China	261.5	–	21.8
Thailand	49.9	2.1	4.1	United States of America	121.5	10.1	10.1
China	44.4	–	3.7	Canada	29.0	3.5	2.4
Australia	33.0	3.0	2.7	Korea, Republic of	26.6	2.2	2.2
Hong Kong, China	32.7	2.3	2.7	Australia	25.0	2.6	2.1
Japan	30.8	1.4	2.6	Hong Kong, China	24.1	2.0	2.0
Macao, China	30.0	2.3	2.5	Russian Federation	24.0	3.1	2.0
India	22.4	1.5	1.9	Singapore	22.1	2.2	1.8
Mexico	19.6	1.3	1.6	Saudi Arabia, Kingdom of	18.7	2.5	1.6
United Arab Emirates	19.5	–	1.6	Japan	18.6	3.2	1.5
Turkey	18.7	2.4	1.6	United Arab Emirates	17.1	–	1.4
Singapore	18.4	1.5	1.5	Chinese Taipei	16.6	1.1	1.4
Canada	18.2	1.7	1.5	India	16.4	1.2	1.4
Korea, Republic of	17.2	1.1	1.4	Switzerland	16.0	1.3	1.3
Above 15	**937.6**	**–**	**77.8**	**Above 15**	**985.9**	**–**	**82.3**

Source WTO, "World Trade Statistical Review 2017", https://www.wto.org/english/res_e/statis_e/wts2017_e/wts17_toc_e.htm

Bold The value numbers and share numbers of "Above 15" in the Table 6.6 do not include the numbers of "Extra-EU (28) exports"

stable exchange rate of Chinese RMB. During the Asian financial crisis which was from 1997, despite of the enormous economic pressure, China insisted that RMB would not depreciate and China really implemented the promise, so China not only supported stable external value of RMB, but also won good international reputation, since many other Asian countries' currencies depreciated a lot for these countries to exports more at that time.

6.1.3 International Opportunities

Since the international financial crisis in 2008, the global economy had been weak for a long time. After the U.S. Federal Reserve's QE and depreciation of the U.S. Dollar, the confidence for the U.S. Dollar from other countries and organizations was cut down. As for the European sovereign debt crisis from 2010 and the UK's

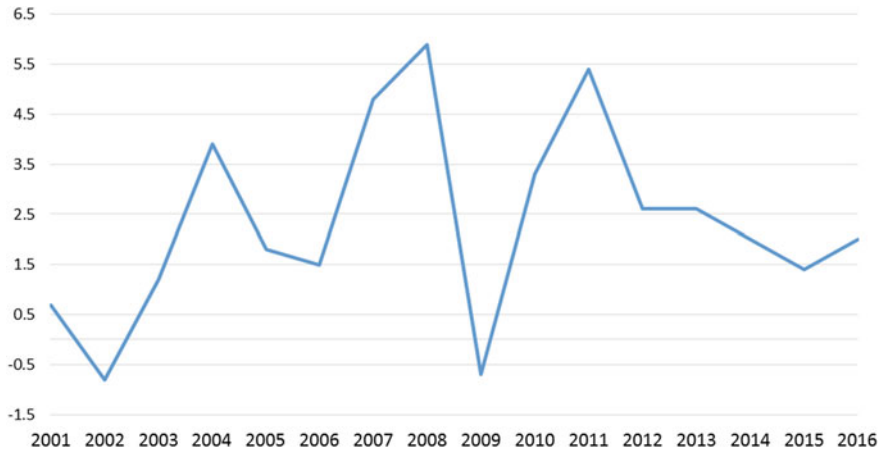

Chart 6.1 Year-on-year CPI increase in China (yearly, %). *Source* National Bureau of Statistics, http://data.stats.gov.cn/search.htm?s=CPI

decision to be out of the EU, it seems that the base of the EURO and the UK Pound are not as strong as other countries and organizations thought before. Since the Japan's GDP is just more than 1/3 of China's GDP and Japan's economic growth rate is much slower than China's, the Japanese Yen can not have the same economic influence as RMB.

The challenges such as the world economic crisis from 2008, the European sovereign debt crisis from 2010, the de-globalization from 2016 also remind countries and organizations to estimate the world financial institution (the Dollar-Center Global Financial System).

With continuously development and more economic influence in the world, China will have more international responsibility, including economic and financial responsibilities, which in accordance with the Dual-Center Global Financial System and the internationalization of RMB.

6.2 The Challenges Against RMB's Internationalization

6.2.1 Capital Account of China Is Not Fully Open Yet

According to the empirical analysis of last chapter, the degree of openness of capital account is positively related to the share of international reserve currency. At present, China's capital account has not been fully opened yet, and the RMB is not fully convertible yet since every Chinese people can exchange foreign currencies which are worth 50 thousand U.S. Dollars during one year. In recent years, China's opening degree of capital account has steadily improved. However, from the

perspective of international comparison, the opening degree of capital account of China is still not enough, and capital control is still relatively obvious. At present, the controversies are mainly focused on the advantages and disadvantages of capital account opening and risk controlling. In the future, China should further open the capital account, which is helpful for RMB's internationalization, and at the same time China should take measures to protect economy safe and finance safe of China.

6.2.2 The Financial Market of China Is Not Well-Developed Yet

A well-developed financial market and a well-developed financial market system had played an important role during the internationalization process of the U.S. Dollar, the EURO and the UK Pound. Since the reform and opening up, China's financial market and financial market system have been promoted persistently, and the relevant supervision system has also been gradually improved. Compared with the developed countries such the U.S. and the UK, there are still many problems in China's financial market and financial market system. China should take effort in the financial innovation and financial supervision, as well as improve the efficiency of China's financial market operations.

6.2.3 Short of Network Externalities

At present, RMB is short of network externalities in the international reserve currency system. Chinn and Frankel (2008) hold the opinion that the international reserve currencies had network externalities. After the formation and stabilization of the international reserve currency system, if there is no other strongly competitive currency, the existing international reserve currency system will continue to be stable. The network externalities also will help the U.S. Dollar and the EURO to maintain the existing international reserve currency system, in which the U.S. Dollar and the EURO are still in important positions.

6.3 Suggestions

6.3.1 To Strengthen RMB's Network Externalities

China should continue to promote international cooperation between RMB and other currencies, and accelerate the construction of offshore markets of RMB. As described above, China signed currency swap agreements with many monetary

authorities of countries and regions. Establishing a number of RMB clearing and settlement banks in other countries and regions, China continues to strengthen the international monetary cooperation, which has important significance for promoting the internationalization of RMB.

Since the capital account of China is not open fully yet, RMB internationalization mainly relies on cross border trade settlements and offshore markets. Hong Kong of China is an important offshore market of RMB. The implementation of the "Shanghai-Hong Kong Stock Connect"[1] and "Shenzhen-Hong Kong-Stock Connect" are conducive to the regional advantages of Hong Kong of China, which makes the cooperation between the Mainland and Hong Kong of China more closely. China has pushed forward the other world financial center cities such as Singapore, London, Frankfurt and Paris to be offshore markets of RMB through government co-operations between China and Singapore, the UK, Germany and France, and China is also pleased to see that there are more offshore markets of RMB in the world.

6.3.2 To Deepen the Reform of the Chinese Financial Market and Improve the Supervision Mechanism of China

The relatively imperfect financial market is a major bottleneck in the process of RMB internationalization. The reform of the Chinese financial market should be deepened, and the reform of the interest rate market and the exchange rate system should be steadily promoted, so that the interest rates and exchange rates will reflect the market situation and Chinese financial market will be more fit and convenient for foreign investors. While encouraging the innovation of financial products, China should strengthen the corresponding supervision and improve the supervision system and legal measures for the financial market.

6.3.3 To Open the Capital Account Prudently

As the world center currency, RMB should be convenient for foreigners to use and invest, which calls for fully opened capital account of China. After the opening of

[1]Shanghai-Hong Kong Stock Connect is a mutual market access programme that allows investment in eligible Shanghai-listed shares through the Stock Exchange of Hong Kong and eligible Hong Kong-listed shares through the Shanghai Stock Exchange. HKEx Chairman C. K. Chow said, "This is the first time that investors in Shanghai and Hong Kong markets, be them individuals or institutions, are able to trade listed shares in the other market, through their own local brokers and exchange. It is a breakthrough in the opening up of China's financial markets and a great milestone in the development of Hong Kong as a unique gateway between mainland and international investors."

capital account, the risks and uncertainties of China's financial market may also increase, and that's why China should open the capital account prudently.

6.3.4 To Maintain the Stability of RMB and Get More Confidence from Other Countries and Regions

The stability of RMB is important not only for China's economy and foreign trade but also for confidence from other countries and regions, which is very important for the world center currency. As the world center currency, RMB should be safe for foreigners to use and invest.

Chinese RMB has been included in SDR basket as fifth currency from October 1 2016, and this is a very important endorsement for the confidence of the RMB.

China's steady economic development, China's huge foreign trade and investment, China's effective financial market and stable exchange rate of RMB are base for China's internationalization and becoming one of the two center currencies of the Dual-Center Global Financial System.

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