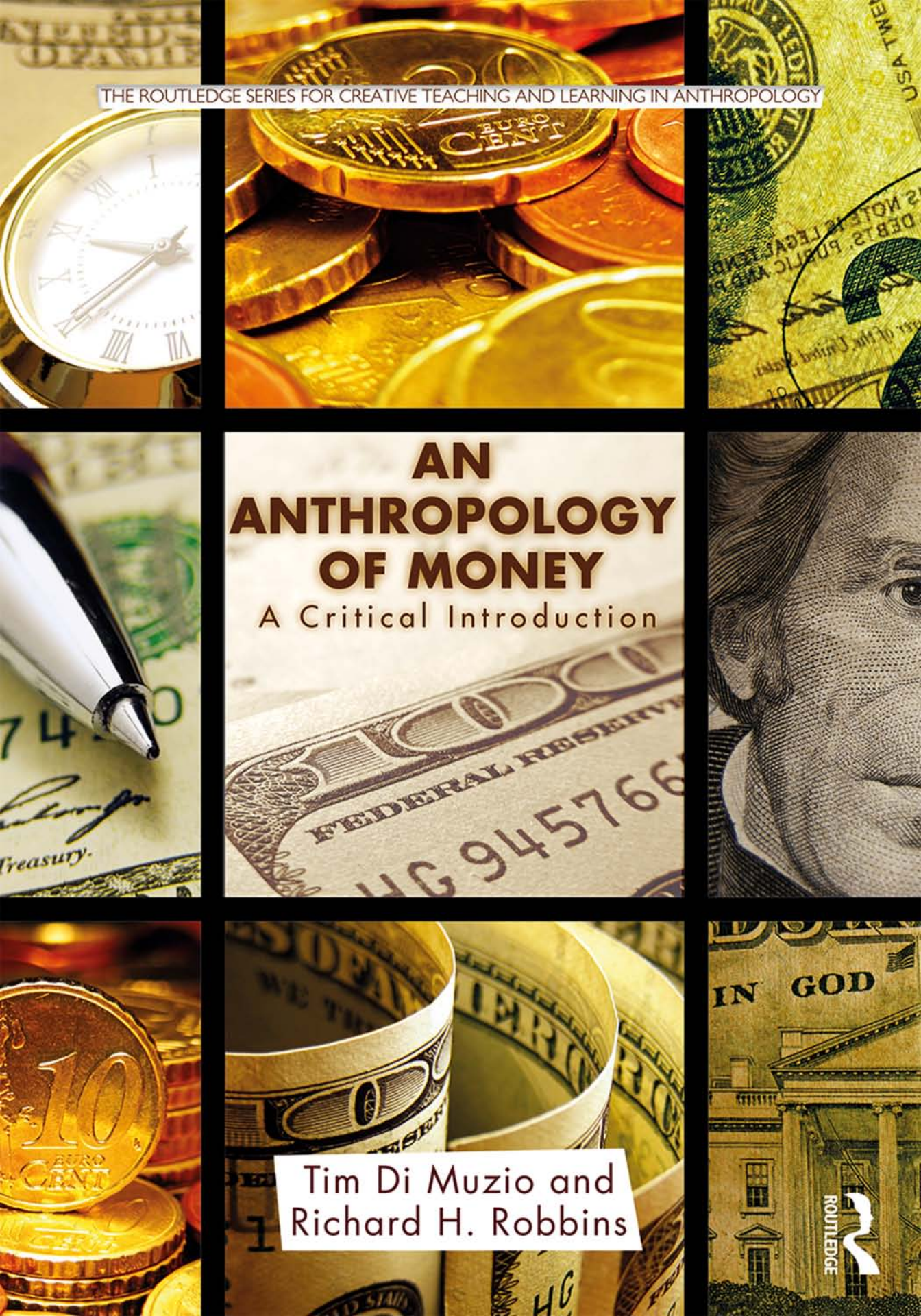

THE ROUTLEDGE SERIES FOR CREATIVE TEACHING AND LEARNING IN ANTHROPOLOGY
AN ANTHROPOLOGY OF MONEY
A Critical Introduction
Tim Di Muzio and Richard H. Robbins
ROUTLEDGE

This book is a must-read for all of those who are concerned with the real nature of our current debt-driven, hyper-consumerist, energy-intensive and patently unsustainable global political economy—governed by concentrations of privately created money that represent claims over the future of our societies, in a process that systematically enriches an already privileged few. The authors combine critical perspectives from political economy and anthropology to demystify money, analysing its various forms historically, including a fascinating analysis of its role in the valuation of both life and death in present day capitalism.

—Professor Stephen Gill, *Distinguished Research Professor, York University, Canada*

AN ANTHROPOLOGY OF MONEY

An Anthropology of Money: A Critical Introduction shows how our present monetary system was imposed by elites and how they benefit from it. The book poses the question: how, by looking at different forms of money, can we appreciate that they have different effects? The authors demonstrate how modern money requires perpetual growth, an increase in inequality, environmental devastation, increasing commoditization, and, consequently, the perpetual consumption of ever more stuff. These are not intrinsic features of money, but, rather, of debt-money. This text shows that, through studying money in other cultures, we can have money that better serves the broader goals of society.

Tim Di Muzio is Senior Lecturer, School of Humanities and Social Inquiry at the University of Wollongong.

Richard H. Robbins is Distinguished Teaching Professor of Anthropology at SUNY at Plattsburgh.

The Routledge Series for Creative Teaching and Learning in Anthropology
Editor: Richard H. Robbins, SUNY Plattsburgh and
Luis A. Vivanco, University of Vermont

This series is dedicated to innovative, unconventional ways to connect undergraduate students and their lived concerns about our social world to the power of social science ideas and evidence. We seek to publish titles that use anthropology to help students understand how they benefit from exposing their own lives and activities to the power of anthropological thought and analysis. Our goal is to help spark social science imaginations and, in doing so, open new avenues for meaningful thought and action.

Books in this series pose questions and problems that speak to the complexities and dynamism of modern life, connecting cutting edge research in exciting and relevant topical areas with creative pedagogy.

Available

An Anthropology of Money
A Critical Introduction
Tim Di Muzio and Richard H. Robbins

Coffee Culture, 2e
Local Experiences, Global Connections
Catherine M. Tucker

Re-Imagining Milk, 2e
Cultural and Biological Perspectives
Andrea S. Wiley

Reconsidering the Bicycle
An Anthropological Perspective on a New (Old) Thing
Luis Vivanco

Alcohol
Social Drinking in Cultural Context
Janet Chrzan

Forthcoming

Seafood
From Ocean to Plate
Richard Wilk, Shingo Hamada & Lillian Brown

AN ANTHROPOLOGY OF MONEY

A Critical Introduction

Tim Di Muzio and Richard H. Robbins

Routledge
Taylor & Francis Group
NEW YORK AND LONDON

First published 2017
by Routledge
711 Third Avenue, New York, NY 10017

and by Routledge
2 Park Square, Milton Park, Abingdon, Oxon, OX14 4RN

Routledge is an imprint of the Taylor & Francis Group, an informa business

Library of Congress Cataloging-in-Publication Data
A catalog record for this book has been requested

ISBN: 978-1-138-64598-1 (hbk)
ISBN: 978-1-138-64600-1 (pbk)
ISBN: 978-1-315-45345-3 (ebk)

Typeset in New Baskerville
by Apex CoVantage, LLC

CONTENTS

PREFACE

Money is the ultimate in stuff. With it, you can buy almost anything, and in that lies a tale. Economists generally don't spend that much time writing or talking about money. It is, for them, simply a tool we use to facilitate exchange—the buying and selling of stuff. But, as we will try to show in this book, the manner in which we create money and what we are (or are not) able to get and do with it matters a great deal. It determines how we live our life and the nature and quality of the world in which we live it. It is our goal to show why this is so.

Most of us have known only one type of money, and most don't even understand that money well. This money, for the most part, is not created by governments, as most people seem to think; it is created by private corporations, that is, banks, by lending it out as interest-bearing debt. Furthermore, in historical perspective, our monetary system is a relatively recent invention. It was preceded by thousands of years of attempts to develop an effective way to promote economic exchange, store wealth, and place a value on things. The monetary system we use emerged from the needs of a 17th-century English king. It may no longer meet present needs; that is another subject that we will explore.

By pushing the historical, as well as cross-cultural, study of monetary systems into the background, we forget, also, that there are hundreds, if not thousands, of monetary systems existent in the world today. We need to explore those other systems and examine what they have to offer. The fact that monetary systems change, and that different systems benefit or penalize different categories of people, means that it is possible to design one that does not create the kinds of problems we hope to show emerge from our present system. We want to show, also, that the only thing preventing us from implementing a more equitable monetary system is resistance from the very few benefiting from it.

That said, there are significant efforts to change the present monetary system. These range from the creation of electronic currency systems, such as Bitcoin, to local currencies such as Ithaca HOURS, to public referendums to challenge the private banking system and shift to public banking systems. There is even the suggestion that cash itself, that is, paper money, is outmoded, and that we should

eliminate it (see Rogoff 2016). We intend to closely examine those efforts and the differing impacts that they may have on our economy, society, and culture.

Finally, we have written this book for a general reader with no special expertise in economics. While there are some technical issues that need to be addressed, we hope to have explained and illustrated them in a way that fits with the flow of the book. The subject of money is, as we hope to show, too important not to be considered by everyone.

ACKNOWLEDGMENTS

We want to thank Alice Dowty, Rachel Dowty, Michael Robbins, Thomas Moran and the faculty at the Institute for Ethics in Public Life at SUNY at Plattsburgh for their helpful comments. Also thanks to the staff at Routledge including Samantha Barbaro and Athena Bryan, and reviewers of the project, Isha Sharma, Michael Blim, Derick Fay and Ann Marie Leshkowich.

Special thanks go to Amy Valentine and Rebecca Valentine Robbins, for their patience and their emotional support and Hanna Kivistö for commenting on portions of the draft manuscript.

1

INTRODUCTION

The Confusion over Money

> Apart from the most basic human emotions of love and fear, there is probably no more powerful motivating force in our lives than money.
>
> —Robert Guttmann

> Money is the last great taboo . . . still shrouded in darkness, assumed by many to be untouchable.
>
> —Bernard Lietaer and Jacqui Dunne

There is probably nothing as important to our lives of which we know so little as money. But money does, as we'll try to show in this short book, lay the groundwork for what is possible. Money manipulates us and is manipulated by us in so many ways that definitions and descriptions by economists never do it justice. Our present monetary system is over 300 years old, devised by elites in England to finance William III of England's war on France. In fact, as we'll see, the history of money—over the last 5,000 years or so—is tied intimately to war, violence, slavery and revolution. But, as we will argue, while money in the form most of us know it contributed to the massive growth of the global economy over the past three centuries, it also contributes to massive environmental despoliation, growing economic inequality and the centralization of power in the hands of a tiny global elite.

Yet, if money is so central to the daily lives of billions of people around the world, why don't we, including many economists, know more about it? The economic crash of 2007 and 2008 surprised the most vocal experts on money. Households in the United States lost almost $20 trillion. Globally, $35 trillion disappeared (a trillion, incidentally, is 1,000 billion, and a billion is 1,000 million). Where did that money go? When the English economy lost about £25 million during the financial crisis, Queen Elizabeth asked academics at the London School of Economics why, if the crisis was so large, no one saw it coming? After

Figure 1.1 **The artwork on money suggests that the money is created by governments. It is not. It is created primarily as interest-bearing debt by private corporations** (Source: ThinkStock).

some scrambling, leading academics at the University wrote a collective letter to the Queen in response to her query:

> The failure to foresee the timing, extent and severity of the crisis and to head it off, while it had many causes, was principally a failure of the collective imagination of many bright people, both in this country and internationally, to understand the risks to the system as a whole.
>
> (Stewart 2009)

But economists do understand risk. What they don't understand is money (see Figure 1.1).

Most economic theorists see money as a 'neutral veil' over the economy, a simple vehicle to facilitate exchange, and find the roots of modern money in barter. Ancient civilizations solved the problem of swapping things of unequal value by exchanging durable tokens such as cowrie shells, woodpecker scalps and stone disks, and by merely keeping accounting records of debts and credits (Einzig 1966; Ezzamel and Hoskin 2002; Garfinkle 2004; Keister 1963; Powell

1996; Weatherford 1997). But modern money is not a 'neutral veil,' simply helping us circulate goods and services. Anthropologists, historians, political economists, sociologists and others analyze how, culturally and historically, monies are created and used and how their mode of creation and use can either sustain societies or impoverish them (Akin and Robbins 1999: 3).

This book is an introduction to the creation and uses of money. Its aim is not only to educate, but also inspire readers to contribute their own ideas to the growing controversies that surround modern money. We clarify areas of confusion and create a platform for productive public debate on monetary reform. There is much to learn, discuss and debate. We hope that the extensive bibliography leads our readers to explore further.

In the remainder of this introduction we want to do two things. First, we will examine the nature of money and its impact on our lives and illustrate why treating money as a 'neutral veil' is either naïve or deceptive, and we argue, politically dangerous. Second, we will outline the main points about money that we wish to make in this book.

Some Basic Notions about Money

What Is Money and Why Does It Matter?

First, we might ask, what is money? A more or less standard textbook definition of money would be something like: "Money is any object that is generally accepted as payment for goods and services and repayment of debts."[1] The definition might include a list of its common functions as a 'means of exchange,' 'a store of value' and a 'unit of account,' functions we'll examine in some detail below. But it can take many different forms. If you have ever used airline miles, or received credits for buying something, you have used a form of 'loyalty' money, customer rewards that can then be exchanged for other goods or services. Beginning in the 1930s, customers at many stores in the United States and Great Britain would be given stamps (e.g. Plaid Stamps, Green Stamps, Pink Stamps) as a reward for shopping to be pasted into books and then exchanged for thousands of products (see Figure 1.2). Essentially this was a form of money. Before Congress passed the Federal Reserve Act of 1913 that standardized the monetary system in the United States to match monetary policy in other wealthy countries, there were thousands of forms of money issued, not only by banks, but also railroad companies, drug stores, grocery stores and private clubs.

During periods of financial crisis, people have found ways to create money. Richard A. Radford's (1945) classic article on the economy of prisoner of war (POW) camps during World War II described how cigarettes became the currency of choice. More recently, because of a decline in the quality and quantity of food in privately run American prisons, ramen noodles are becoming a

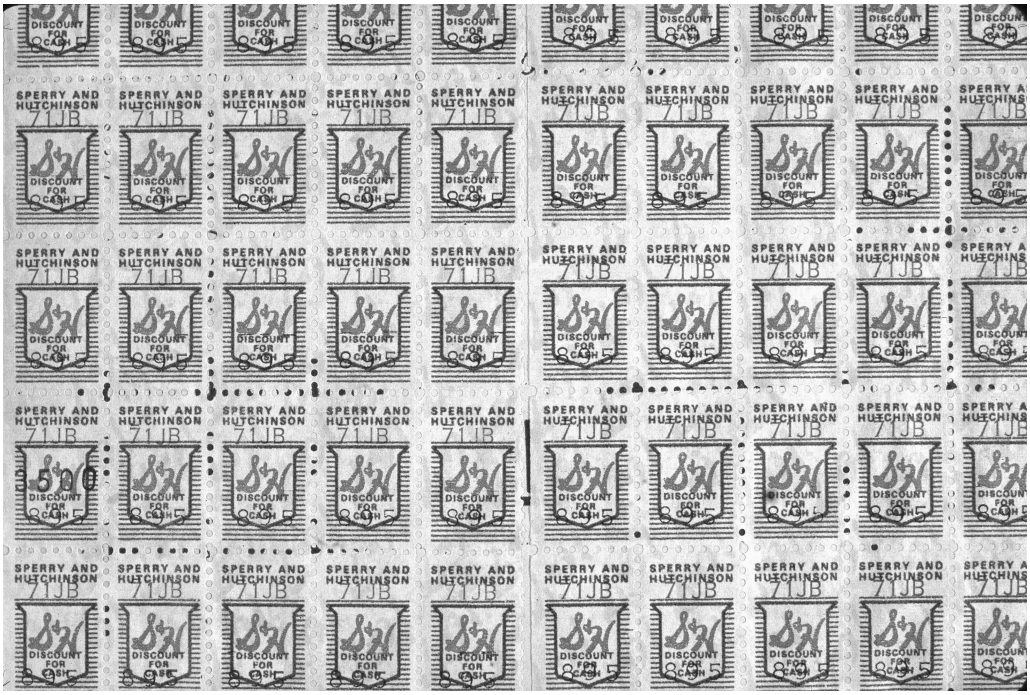


Figure 1.2 **S&H Green Stamps were a form of 'loyalty' money given to shoppers with each purchase that they could exchange for goods** (Source: Getty).

popular currency (Sidahmed 2016). A sweatshirt, worth about $10 in the prison commissary, can be bought for two packs of noodles and bunks cleaned for one pack. And, as we'll discuss later, there are thousands of local and alternative currencies present in the world today, not to mention emerging digital currencies such as Bitcoin, Dash, Dogecoin, and Mastercoin, to name just a few.

Ultimately, however, we need to understand money as a means of transferring value from one person or entity to another (Maurer 2015: 28), and the different ways this has been accomplished, as well as the social and cultural consequences of these variations. But because money is ultimately an abstract claim over society and resources measured in a unit of account, money is also about power relations. The more money you have, the more claims you can make upon society and natural resources.

Why Do We Need Money?

At first this may seem a strange question; we need money to purchase whatever it is we want and need. However, consider that for millennia, people, for the most part, got what they needed without money. They either provided for themselves, or they shared basic necessities and even luxuries with others. To understand how important this question is, note that even today, in a market economy,

economists estimate that virtually half of our needs are met without monetary exchange. Edgar Cahn (1992; Hallsmith and Lietaer 2011) refers to that as the "Core Economy."

To illustrate, one physician asks his students who delivers the most health care in the United States, doctors, nurses or allied health professionals? The answer is mothers! In 2000, when an economist calculated the unpaid work done by family, friends and neighbors to keep seniors out of nursing homes, it totaled over US$250 billion, which was six times greater than the money spent to purchase formal home health care for the elderly and twice what the federal government spent on nursing home care (Hallsmith and Lietaer 2011: 68). The point is that a significant portion of economic activity occurs outside the market. The problem, as we will discuss later, is that less and less of what we need is available without money; because of the structure of our monetary system, the unpaid work that families, neighbors and friends do for each other, is continually decreasing. For example, economists calculated the value of nonmarket household labor—childcare, cooking, household maintenance, gardening and so forth—and found that from 1965 to 2010 it declined relative to the GDP from 39 percent to 26 percent (Bridgman, Dugan, Lal, Osborne and Villones 2012).

While it may seem remarkable that people, largely women, do that much unpaid work, equally significant is the fact that more and more of what we do for and with each other requires money. We need to understand why.

How Is Money Created and Why Does It Matter?

Interestingly there is considerable confusion and even disagreement among even economists on the question of money creation, and even anthropologists studying exchange in traditional societies often neglected this question. It is important, of course, because creating money confers enormous power on whom or what has that right. Among the people of the Trobriand Islands of Papua New Guinea, for example, women are obligated, with the help of their husbands, to prepare bundles of banana leaves to be used to finance the funerals of members of their kin groups (see Weiner 1988). The power to make this 'money' helps cement the power that women have in their society. Most people, if asked, would probably say that governments created all the money in circulation. Given the design of modern currencies and the symbols of governmental authority that adorn them, it is an easy mistake to make. While governments typically have control over the issuance of notes and coins, in modern economies, the majority of new money is lent into existence largely as interest-bearing debt by commercial banks and other financial institutions.

But, as we'll see, there is a good deal of debate and confusion regarding how modern money comes into existence, and we will be focusing on this process in considerable detail. Suffice to say, by granting the right to private parties to

literally create money, as well as deciding on who gets it or not, creates many questions regarding the distribution of power in our society.

What Are the Kinds of Money and Why Does It Matter?

We generally assume that money is money; that it ultimately refers to a single standard, generally identified with government-backed legal tender. But it's not quite that simple. Different kinds of money or monetary systems produce very different effects in society and serve to illustrate how we can't take money for granted. We'll focus here on four sorts of distinctions: the distinction between special- and general-purpose money; the distinction between commodity- and what is variously called debt-, fiat- or credit-money;[2] the distinction between what economists and banks call M1, M2, and M3 monies; and how money users themselves categorize money. These are not necessarily the only kinds of distinctions we can make (and we'll examine other ways to categorize money, such as the distinction between dominant and subordinate money, or real and virtual money, as we go along), but we want to use these distinctions to illustrate the differences each of these types can have on people's lives.

The Distinction between Special- and General-Purpose Money

The distinction between general- and special-purpose monies has to do with boundaries. Airline or frequent flyer miles, for example, are primarily for purchasing airline tickets, although you can also use them to pay for hotels, rental cars, Broadway show tickets or even gift cards. You can even buy and sell them.[3] But, it is a special-purpose money (see Bohannan 1959; Dalton 1961; Polanyi 1957). It is different than general-purpose money, which, theoretically, enables one to buy a far greater range of goods and services.

Anthropologists long debated the differences between special- or limited-purpose money and general-purpose money, and, more importantly, what happens when a general-purpose monetary system is introduced into a society with only a special-purpose currency. Anthropologist Paul Bohannan (1959) began what became an extended debate in an article describing patterns of exchange among the Tiv of Nigeria. The Tiv economy, explained Bohannan, divided objects of exchange into three categories distinguished largely by the means by which a person could acquire the objects. First, there is the category of subsistence items that included all locally produced foodstuffs such as yams and cereals, along with vegetable side dishes and seasonings, along with small livestock such as chickens, goats and sheep. Included also were household utensils such as mortars, grindstones, baskets and pots. Items in this sphere were acquired either as gifts or through barter.

The second sphere consisted of prestige goods, and included slaves, cattle, ritual offices, special cloth, medicine, magic and brass rods that had been

imported from Europe and could be used to make jewelry. Brass rods, although rare, served, to some extent, as a means of exchange within the prestige sphere, and the Tiv quoted prices of slaves in cows and brass rods, and of cattle in brass rods and special cloth.

The highest sphere of exchange consisted only of women and all exchanges within this category are exchanges of rights in human beings, usually dependent women and children. Its values were expressed in terms of kinship and marriage (Table 1.1).

Generally exchange was limited only to items within a single sphere. However, there could be exchanges between these categories, but these carried strong moral connotations. As Bohannan (1959: 497) put it:

> Tiv say that it is 'good' to trade food for brass rods, but that it is 'bad' to trade brass rods for food, that it is good to trade your cows or brass rods for a wife, but very bad to trade your marriage ward for cows or brass rods.

Someone successful in converting wealth into higher categories—food into brass rods or brass rods into women—was said to have a 'strong heart' and to be feared and respected. The question is, what happened to exchange within the three spheres and the moral principles that divided them with the introduction of European general-purpose money?

European colonizers required the Tiv to pay taxes with coins and earn coins by growing cash crops. This general-purpose money created a common denominator, such that subsistence goods, cattle and women could all be purchased with coins. A man could get general-purpose money by selling subsistence goods, and once he had coins, the old obstacles that used to make prestige articles hard to come by melted away.

Some anthropologists questioned Bohannan's distinction between general- and special-purpose money, saying no money is completely general purpose as long as some things are not for sale (Dodd 2014: 294). Maurice Bloch and Jonathan Parry (1989) point out that the introduction of Western money did not revolutionize Tiv society to the point where people thought anything could be

Table 1.1 **Spheres of Exchange among the Tiv.**

Sphere	*'Goods' included*	*Means of Acquiring 'Goods'*
Subsistence Sphere	Foods, household utensils, small livestock	Gift exchange or barter
Prestige Sphere	Slaves, cattle, ritual offices, special cloth and brass rods	Other prestige goods or brass rods
Women and Children	Women and children	Marriage

translated into money (e.g. land was not). Furthermore, they say that it was generally the elders among the Tiv who distrusted money. Some anthropologists also questioned the idea that the Tiv population in general objected to the dissolution of trading barriers, and that general-purpose money had only negative consequences. As Keith Hart (2013) put it:

> This story has passed into anthropological folklore as a staple of what every student learns, even though it has been attacked by historians as factually wrong and found theoretically naïve and misleading by several anthropologists.

But there is another consequence of introducing new ways of obtaining prestige, status or power into traditional societies. It often created a situation of status conflict as the means of acquiring prestige, once available only to certain people (generally elder males), became available to others, particularly as a consequence of the introduction of money. That is, by changing the basis by which people gained access to symbols of power, a situation is created of increased conflict and competition. One of the best examples in the anthropological literature is the case of the potlatch among the indigenous people of the American and Canadian northwest. The potlatch is the prototype of economic activities that involves the maintenance or confirmation of a social position through feasting and gift-giving. A person demonstrated power by giving things away. Helen Codere (1950: 63) makes this clear in her definition of the potlatch among the Kwakiutl (or Kwakwaka'wakw) of British Columbia:

> The Kwakiutl potlatch is the ostentatious display and dramatic distribution of property by the holders of a fixed, ranked, and named social position to other position holders. The purpose is to validate the hereditary claim to the position and to live up to it by maintaining its relative glory and rank against the rivalrous claims of others.

In short, the potlatch is essentially a competition for power and status. According to Codere, Kwakiutl property was divided into two categories (or spheres): those things used for potlatching on the one hand and 'trifles' or 'bad things' on the other (Codere 1950: 63–64). The former category included items such as fur and cedar blankets, canoes and 'coppers,' plates intended to be given as gifts or destroyed as a symbol of the power of the owner (see Figure 1.3). Trifles, on the other hand, consisted of items such as deer skins, mats and baskets before contact with Europeans. After contact, trifles included flour, silk scarves and sewing machines. Potlatch goods were given away or destroyed at ceremonies

Figure 1.3 **Among the Indigenous Peoples of the Northwest coast of the United States, copper plates served as a unit of wealth and generally assumed the value of the number of blankets given away at the potlatch where they were exhibited. Most were named and decorated with crest figures** (Source: Moyan Brenn).

to demonstrate the high social position of the giver and to humiliate a rival. One feature of these ceremonies was a hymn or chant sung by the giver relating his own self-glorification and ridiculing his opponent:

> I am the great chief who vanquishes . . . I am the great chief who makes people ashamed . . . You are my subordinates . . . Oh, I laugh at them,

> I sneer at them who empty boxes (of treasure) in their houses, their potlatch houses, their inviting houses that are full only of hunger . . . I am the only great tree, I the chief.
>
> (Benedict 1959: 272)

Before contact with Europeans, access to potlatch goods, and hence status and power, was determined by inherited social rank, generally heads of extended families who held custodianship over the goods of the group (Drucker 1966: 142).

However, with the introduction of a wage-money economy two things changed: first, goods used for potlatching changed from locally produced items (cedar blankets, canoes) to Hudson's Bay Company products, most notably blankets. Second, the means of access to potlatch goods changed from inherited social rank to activities through which money could be obtained, such as wage labor (Codere 1950: 33). With these changes persons who, because of a low inherited social rank, were traditionally unable to potlatch, and hence claim power, could now improve their positions by obtaining money, purchasing blankets at the Hudson's Bay Company store, and potlatching.

Social mobility increased interpersonal competition. Those liberated by the new criteria for obtaining potlatch goods could now challenge the status of traditional elites. As Codere points out, these changes were accompanied by an increase in potlatch activity (1950: 96), particularly those in which vast quantities of wealth were ostentatiously destroyed.

The introduction of general-purpose money has profoundly affected many traditional societies by changing the way people compete for status and redistributing power. The introduction of a general-purpose money benefits some more than others.

Fast-forward to 19th-century America, when growing towns and cities offered new opportunities for wealth and independence. New goods and services came on the market, available only to those with enough money to buy them. The proportion of things that money could buy expanded quickly and the road to success took a sharp turn, just as it does when general-purpose money enters traditional societies. Although the number of things that can't be purchased tends to diminish in capitalist economies, we still recognize that certain things (academic credentials and rank, marriage partners, political honors, etc.) must be earned in other ways.

The Distinction between Commodity-Money and Fiat-Money and Why Does It Matter?

What cultural mechanism sets values, such that virtually anything can be exchanged for virtually anything else? What creates the authority to decree that dissimilar items can be variously grouped to create equal value?

Commodity-money has intrinsic value. Gold, for example, is a common form of commodity-money; its value comes from relative scarcity as well as the fact that it can be shaped into prestige ornamentation (see Figures 1.4a and 1.4b). Food on the hoof is one of the oldest forms of commodity-money. Cattle not only have the virtue of reproducing themselves, but they also feed themselves off vegetation indigestible to man and can be slaughtered at times and places most convenient for the owner.

Figures 1.4a and 1.4b **Gold and silver have been the most common commodities to serve as a backing for commodity-money, but other things such as furs, tobacco, rice and cattle have also been used** (Source: Shutterstock).

Furs, rice, salt and other items also serve as commodity-money, and they too have the values of necessity, scarcity and durability, or the option of deferred consumption.

Over much of the past three centuries, the currency of the United States was either made of gold or silver or represented a specified amount of those metals such that, in theory at least, banks would exchange paper currency for gold. This option came off the table in 1931 in Great Britain, and 1933 in the United States.

The international monetary system went completely off the gold standard in 1971 when President Nixon announced that the United States would no longer back dollars with gold. At that point we converted to credit-money—money backed, ostensibly, by nothing other than the fact that people accepted it as payment for goods and services, and, more importantly, was the only way to pay taxes.

When we speak of commodity and credit-money, we are not describing historical fact. Even on the gold standard, banks created money in excess of the amount of gold they had on hand or stored, and even credit-money is backed by something, as we'll see. But making the distinction is important, because it is at the heart of the debate over inflation, the amount of money in circulation and the campaign led by some politicians and entrepreneurs for countries such as the United States to return to the gold standard.

Inflation is often described as a situation in which the value of money, what it can buy, decreases. For example, an item purchased for $1.00 in 1913 would cost over $24 today, a rate of inflation over that time of 2,316 percent! The average cost of a loaf of bread in 1990 was $.70. In 2013 it was $1.98.

Why does money lose value? Economists claim that the answer lies in the ratio of the goods and services available to buy, and the amount of money available to buy them. If there is more money available than goods and services available, consumers are assumed to bid up prices. When economists think there is too much economic activity, that is increased spending, they like to say that the economy is 'heating up,' much like an overheated engine that needs to be cooled down. It's a highly misleading metaphor, but it does enable central banks to justify raising interest rates (the price of money), just enough to curtail the rate of buying and selling and supposedly reducing inflation.

However, the relative quantities of money to goods and services may not lie at the heart of inflation after all. As we'll discuss in more detail later, monetary inflation may be more related to the way modern monetary systems create money as interest-bearing debt.

The problem with a commodity-money like gold is twofold. First, with a gold standard there is the possibility of a major gold discovery that could lead to price inflation. This occurred in Western Europe, and most particularly Spain, when gold flooded in from the 'New World' from the 16th to the 17th centuries. The

event is known to history as the 'price revolution' (Hamilton 1934). The second danger of relying on a gold standard is that while a government could declare a statute that central banks can exchange paper notes for gold, it is extremely difficult to know with any certainty what the exchange rate will be. As Eichengreen (2011: 41–42) argues, if the rate is set too high then there will be huge amounts of gold-backed currency potentially chasing too little goods and services. This would be inflationary—precisely what proponents of the gold standard want to avoid. But if the rate is set too low, this will cause deflation (falling prices) and could lead to a severe economic contraction and high unemployment and demand spirals downward.

With credit-money, on the other hand, the amount of money available is theoretically unlimited and can be created to match the production of goods and services. The problem here is finding equilibrium in a world of theoretically unlimited currency and fluctuating levels of goods and services.

Inflation is not the only issue. Questions about the relative merits of commodity- and debt-money are important also because of other possible impacts on society and culture. The work of anthropologist David Graeber (2009, 2011) explores the possibility that different types of money affect a society's positions of power. In his articles and his book, *Debt: The First 5,000 Years*, Graeber suggests that the difference between commodity- and debt-money profoundly shaped global history and influenced the distribution of power, the nature of family and social relations and religious ideology.

Graeber's story begins with a mystery. Why, he asks, around the period roughly between 600 and 500 BC, did coinage emerge simultaneously in three different places: the Great Plain of Northern China, the Ganges Valley of northeast India and areas surrounding the Aegean Sea? Why did local rulers in Lydia, India and China decide to replace the debt systems they'd used for centuries with commodities, bits of precious metal (Graeber 2011: 212)? The single most important factor in these changes, Graeber says, is war.

Because commodity-money, generally gold and silver, has intrinsic value, it is worth stealing. Raiding for cattle, horses or gold makes sense, whereas stealing some other ruler's debt-money is much less rewarding. Similarly, money backed by bullion is more desirable during periods of tension and mistrust. Debt-money can be wiped out by an act of bookkeeping.

Graeber divides human history beginning in 3800 BC into five ages, each dominated either by the use of commodity- or debt-money:

- The Age of the First Agrarian Empires from 3800–3500 BC, dominated by the use of debt-money;
- The Axial Age (800 BC–AD 600), which saw a shift to metal bullion;

- The Middle Ages (600–1450), marked by a return to virtual debt-money;
- The Age of Capitalist Empires (1450–1971), characterized by a return to metal bullion and the vast expansion of slavery and debt peonage;
- The Empire of Debt, the current age that began in 1971, when Richard Nixon announced that the US dollar would no longer be redeemable in gold (Graeber 2011: 214).

In early Agrarian Empires, such as Mesopotamia, money served largely as an accounting measure in temples and palace complexes, with debts recorded on clay tablets. Whoever possessed the tablet owned the debt. Interest on loans may have developed during this time, emerging out of profit-sharing agreements when partners didn't trust each other to accurately report income on trade. In Egypt, before the advent of interest, debt could be treated as a criminal matter. A debtor was taken to court and could be sentenced to 100 blows. He could be forced to repay twice the amount owed.

The Axial Age was marked by the emergence of the great philosophical traditions and the world's major religions: Zoroastrianism, Prophetic Judaism, Buddhism, Jainism, Hinduism, Confucianism, Taoism, Christianity and Islam. The Axial Age was also marked by the invention of a relatively standardized electrum coinage (an alloy of gold and silver). This coinage was first introduced by King Croesus in Lydia, in what is now Turkey. While war and plunder were certainly not unknown before this time, violence reached new levels. The Phoenician city of Sido was destroyed by the Persian emperor Artaxerxes III in 351 BC, and 40,000 people allegedly committed suicide rather than surrender. Tyre was destroyed by Alexander in 332 BC; 10,000 died in battle and 30,000 survivors were sold into slavery. Rome destroyed Carthage in 146 BC. Hundreds of thousands of Carthaginians were said to have been raped and slaughtered, and 50,000 sold into slavery. To insure that Carthage never recovered, the city was razed and the fields sown with salt so that crops couldn't grow (Graeber 2011: 227–228).

The relationship between commodity-money and slavery is complex; the question is, how did human beings become commodities to be bought and sold? Two related questions are how did women, specifically, become commodities, and why did the idea of patriarchy emerge (see Figure 1.5)?

Anthropologists have noted that the marriage arrangements in many traditional societies involve the exchange of goods. In many patriarchal societies, bridewealth was given by the family of the groom to the family of the bride, ostensibly to compensate the bride's family for her loss, as well as to legitimize the fact that her offspring would belong to the groom's family. To what extent this practice involved the 'buying' of a bride has been a source of disagreement for years, but it does relate to the relationship between money, debt, slavery and patriarchy. It was not uncommon in societies when a debt could not be repaid,

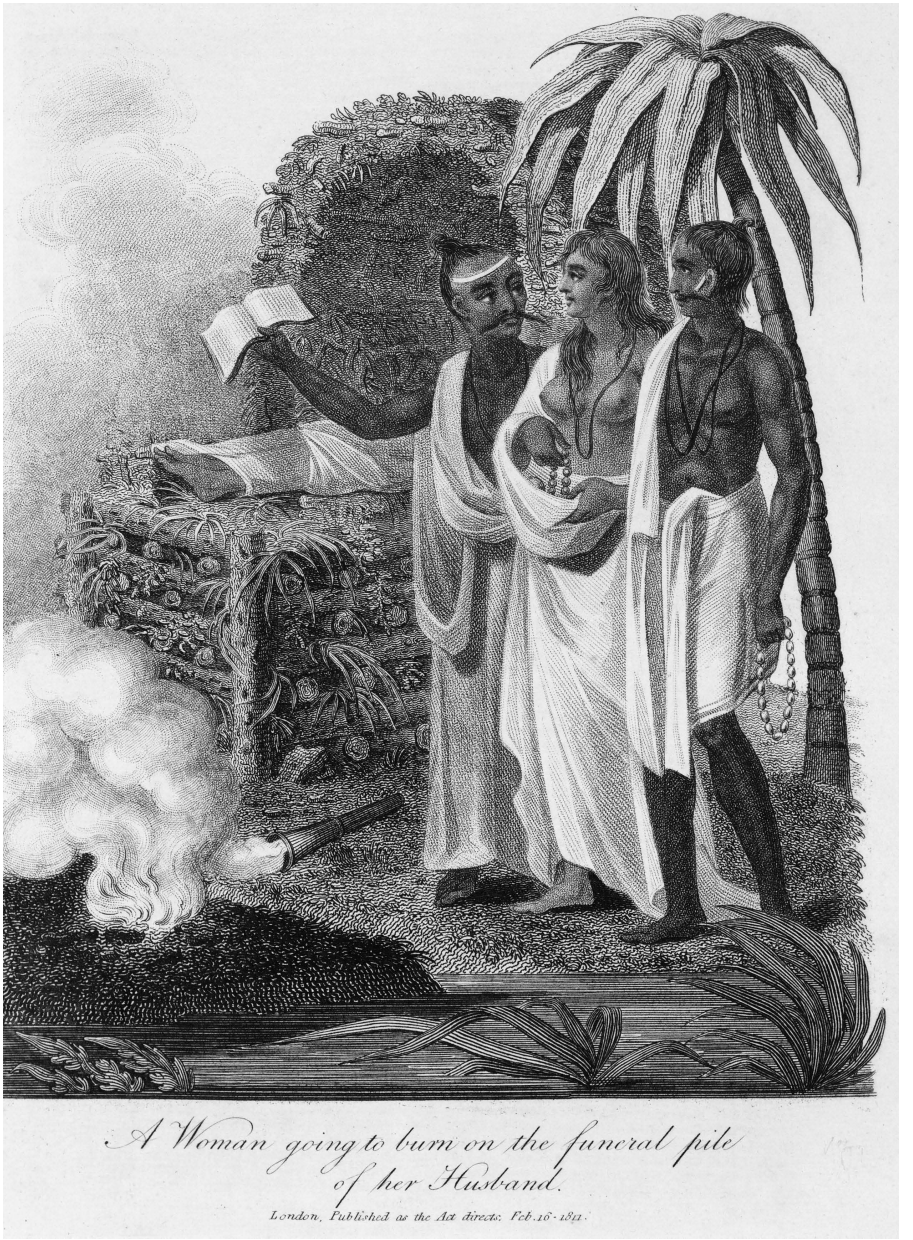


Figure 1.5 **Graeber sees the emergence of commodity-money as coinciding with the rise of patriarchy, slavery and violence. This engraving depicts the custom or Suttee or Sati, whereby a widow was expected to throw herself onto her dead husband's funeral pyre. Patriarchal attitudes to women and the perceived worthlessness of widows encouraged the practice** (Source: Getty).

for a family member, generally a woman, to be used in payment of that debt. This is still a common practice in some areas of the world where indebted farmers are forced to 'sell' their daughters into brothels or as servants. This, suggests

Graeber, was not uncommon in the Axial Age, when commodity-money was scarce. It was also reinforced by violence, common also during that period. As today, it was generally poor farmers who most suffered the indignity of having daughters serving as debt repayment.

The practice of turning daughters and wives into commodities to be bought, sold and used for debt repayment led to male family heads asserting more power over daughters and wives. Gerda Lerner (1987) suggests that the practice of selling daughters or wives into prostitution was so common in the second millennium BC that virginity in women became a financial asset for families. Consequently, families had to be able to distinguish between 'respectable' and 'non-respectable' women. As a result fathers and husbands demanded more control over daughters and wives and women became increasingly subservient to men, ideas encoded into the world's major religions that emerged during the Axial Age.

Expectations of subservience in women did not change when commercial economies replaced exchange economies. The reason? Money was still tied to a specific fixed commodity, such as gold and silver. The commodification of people increased as debts grew more difficult to repay.

Attitudes began changing in the Middle Ages with the increased use of debt-money. The status of women improved markedly, compared with societies under Roman law. Early converts to Christianity were largely women, and numerous social movements in the 13th and 14th centuries allowed women to take more control over their lives (Stark 1997: 94ff).

The end of the Axial Age also coincided with new attitudes about interest on loans. In both Christianity and Islam, interest was equated with usury and was forbidden. Debt forgiveness became a virtue, as it was during the Age of Agrarian Empires. Graeber speculates that religious authorities were reacting to violence and the abuses of slavery when they banned loans at interest. The Old Testament proclaimed the Jubilee, a time of debt forgiveness every fifty years.

In Europe, the church exacerbated the problem of gold and silver scarcity by using the precious metals to adorn places of worship.

When we get to the Age of Capitalist Empires, Europe returns to predominantly commodity-money. Enormous amounts of gold and silver flooded into Europe from the New World, and often, from there, into India and China. We also find a return to the violence, slavery and patriarchy that Graeber associates with the Axial Age.

When the United States exited from the gold standard in 1971, it entered an era Graeber calls the Empire of Debt. President Richard Nixon abandoned the gold standard largely because of wars in Asia, primarily in Vietnam.

Following Ingham, Graeber sees the circulation of commodity-money beginning with rulers paying soldiers with coins. Soldiers then made purchases with the coins they ultimately returned to rulers through tribute and taxes.

But there could never be enough commodity-money to finance large-scale warfare. In that sense, we can say that war has been responsible for the transition from commodity-money based on gold and silver to debt-money. Thus the transition to debt-money began in 1694 because of Great Britain's continuing war with France.

Graeber's scheme is summarized, and vastly simplified, in Table 1.2.

What cultural shifts were enabled by abandoning commodity-money? Discoveries in science and technology triggered enormous changes during the 20th

Table 1.2 **David Graeber's cyclical history based on the use of commodity- or debt-money.**

Age	*Time Period*	*Type of Money*	*Cultural and Social Characteristics*
Agrarian Empires	3800–3500 BC	Debt-Money	Money was an accounting measure kept largely in temples or palace complexes. Trust was a major component of transactions.
Axial Age	800 BC–AD 600	Commodity-Money	Coinage monopolized by the state. Increase in violence, slavery and patriarchy as debt repayment became more difficult due to scarcity of commodities serving as money. Rise of impersonal markets and materialism. Culmination of the great religious traditions, possibly in response to the excess of violence.
Middle Ages	600–1450	Debt-Money	Collapse of empires and conquest and acquisition no longer celebrated. Slavery declined. Religious authorities, as opposed to the state, regulate trade. Increase in trade arrangements. Reduction of military means to extract tribute from peasants. Expansion of credit. Bullion becomes tied up in church and temple ornamentation. Improvement in the role of women.
Age of Capitalist Empires	1450–1971	Commodity-Money	Enormous flow of gold and silver from the Americas, most ending up in China. Increase in violence needed to impose bullion money. Vast expansion of slavery and debt peonage. Usury bans lifted. Moral relationships conceived as 'debts.' Money linked to war and conquest.
Empire of Debt	1971–Present	Debt-Money	Increase of public and private debt.

century. Are we seeing a comparable transformative power with the transition to debt/credit money, or are the two inextricably connected?

Increases of global debt are exponential. Since 1991 alone, total global debt has increased by almost 350 percent, going from $45 trillion to almost $200 trillion (see Di Muzio and Robbins 2016). This money consists largely of computer entries, only a small amount being real paper currency or coins. And, as we'll see, it is debt that can never be fully repaid. Economists do not agree on the implications of unpayable debt on a global scale. Optimists may expect the 21st century to end in a peaceful biblical jubilee of debt forgiveness, while pessimists fear an apocalypse of economic collapse.

Graeber's broad and ambitious analysis (see Ingham 2013; Maurer 2015) is not universally accepted, but it is certainly thought-provoking. Whether or not you agree with the specifics, Graeber argues convincingly that the type of money in use has enormous influence over the ways we relate to each other and the world. It is a subject that covers a lot of territory, and we'll return to it again.

Personal Typologies: The Work of Viviana A. Zelizer

It is useful to note also how people themselves categorize money by the uses to which they put it. For example, low-income households generally earmark income tax refunds for debt repayment, consumer durables and aid to kin. Researchers have found that welfare payments to mothers are more likely to be used for children's needs than payments to male household heads. Viviana A. Zelizer (e.g. 2011) has done much of the work on the social meaning of money. Her work counters the idea that money is a single, standard thing and illustrates how even what we consider general-purpose money can be categorized by users by the purpose it is supposed to serve. In other words, as she puts it, "people employ money as a means of creating, transforming, and differentiating their social relations" (Zelizer 2011: 89). Zelizer's main point is to question the widely held view of how money works as a fungible medium, where every unit is identical to every other unit, every dollar bill identical to every other dollar bill. Anthropologist Mary Douglas (1967: 139) also notes that people earmark money for certain purposes or by placing restrictions on ourselves or family members in the disposal of money. When money entered a household from a husband's and/or wife's earnings, new sets of rules determined the use to which the money was put or who could use it. As Zelizer (2011: 117) puts it:

> The case of domestic money is only one example, an empirical indicator of a complex social economy that remains hidden in the dominant economic paradigm of a single, qualityless, and rationalizing market money.

Zelizer is making the point that while most modern societies use a general-purpose money, they will divide it up into special-purpose categories.

How Much Money Is There and Why Does It Matter?

How much money is there? It is a reasonable question, but, as you may imagine, not easy to answer. After all, there are coins, paper currency, checking and savings accounts, not to mention a myriad of financial instruments such as money market funds, retirement accounts and so on. Perhaps the best approach is to use government categories for bank-issued money. Governments recognize four or five categories, the most common being labeled M1, M2 and M3. The distinction between them has to do with how easy they are to spend, or, as economists would put it, their liquidity.

M1 consists of coins and bills held by the public and transaction deposits (e.g. checking accounts) at banks, credit unions and loan associations. M2 is defined as M1 plus savings deposits, small-denomination time deposits (those issued in amounts of less than $100,000), and retail money market mutual fund shares and individual retirement accounts (IRAs). Figure 1.6 shows the growth of M1 and M2 in the United States in billions from January 1, 1959, to April 1, 2016.

M3, which the United States stopped calculating in 2007, includes all of M2 (which includes M1) plus large-denomination ($100,000 or more) time deposits, balances in institutional money funds, repurchase liabilities issued by depository institutions, and eurodollars held by US residents at foreign branches of US banks and at all banks in the UK and Canada (see Figure 1.7).

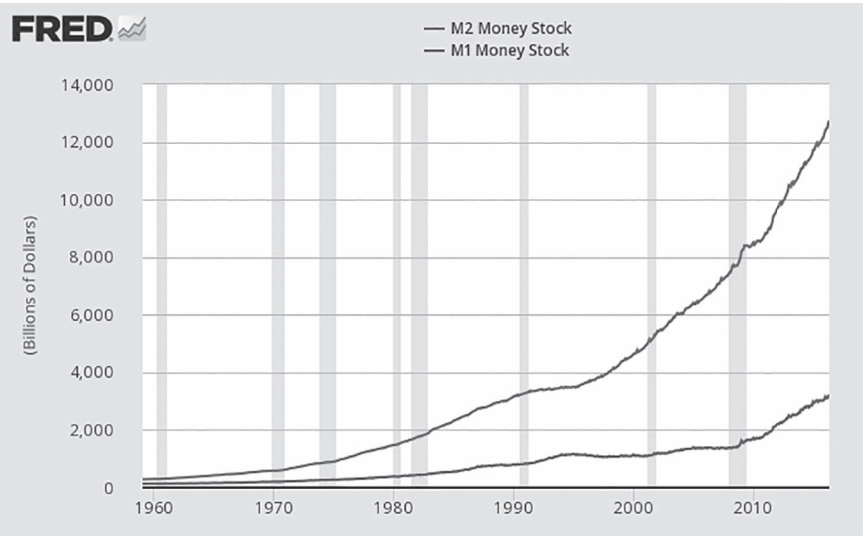


Figure 1.6 **US stock of M1 and M2** (Source: Getty).

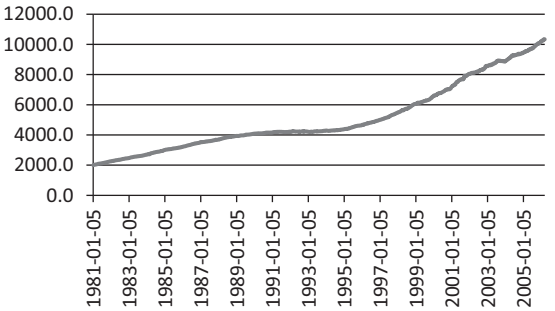


Figure 1.7 **US M3 money stock, billions of dollars, weekly, seasonally adjusted 1981–2005.**

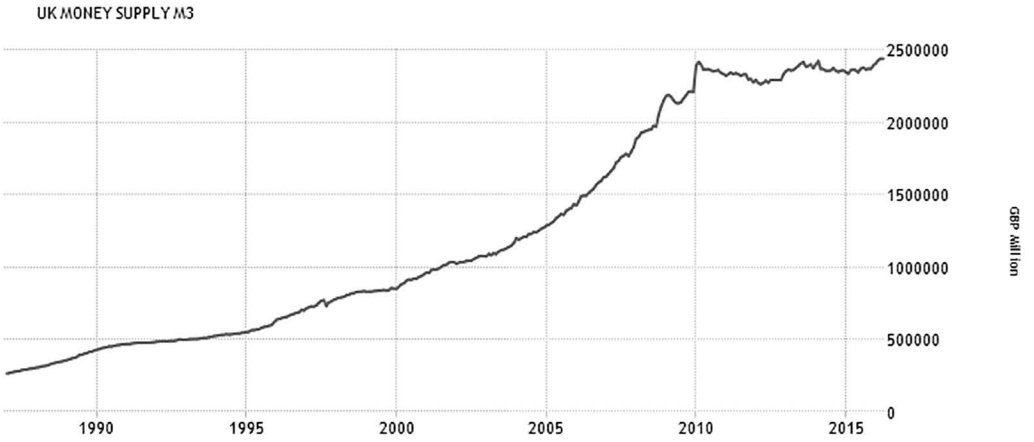


Figure 1.8 **UK money supply: M3** (Source: www.Tradingeconomics.com, Bank of England).

Other countries, such as the UK, continue to keep track of M3 money (see Figure 1.8).

The key consideration in this classification scheme, again, is the degree of availability or liquidity of the money; that is, how easy is it to spend. Coins, currency and money in checking accounts are the most readily available, while savings and time deposits and money market funds are a little less available, and long-term deposits still less so. As we will see, the ease or requirement to spend money, and the rules that encourage or inhibit spending, make huge differences in a person's economic well-being.

How much money is there in the world? Again, it depends on what one considers money. Of M1 monies, there are approximately $25 trillion; if we add M2 monies, the amount is about $60 trillion, and adding M3 about $80.9 trillion.[4] If we add digital currency such as Bitcoin, gold and funds invested in financial derivatives, we start edging into the quadrillions.[5]

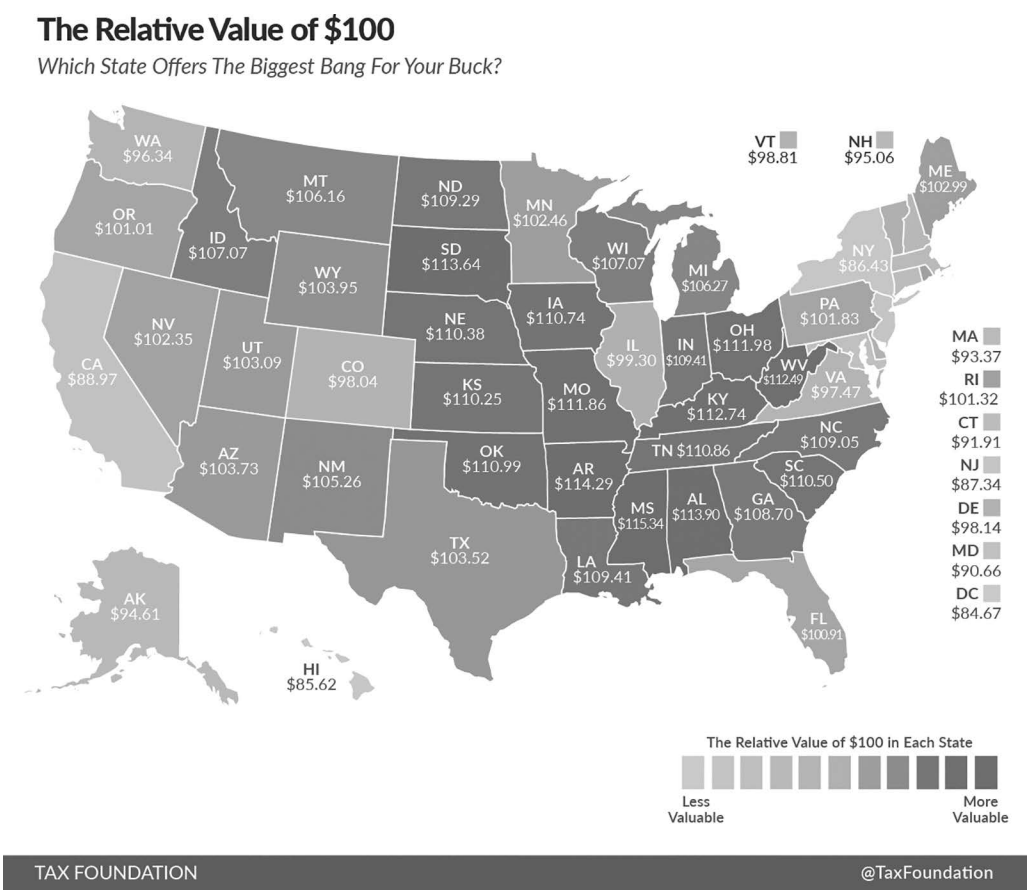


Figure 1.9 **The relative value of $100 by state** (Source: Bureau of Economic Analysis, regional price parities).

Notes: Numbers represent value of goods that US$100 can buy in each state compared to the national average. The bureau of economic analysis has developed a methodology using personal consumption expenditure and American Community Survey data to estimate average price levels in each state for household consumption, including rental housing cost. Data is as of 2014.

The question of how much money is there, of course, means little without knowing how much it will buy, and here we get into other factors, such as the relative wealth available. Generally, the more money there is, the less it will buy. To illustrate, Figure 1.9 shows the relative value of $100, that is, what it will purchase, state by state in the United States.[6]

Finally, how much money should there be? This is a question of major concern to economists and a long-running debate between followers of John Maynard Keynes (see e.g. Keynes 1936), on the one hand, and Milton Friedman on the other (see e.g. Friedman and Schwartz 1963). Keynesians argue that the supply of money is best controlled by manipulating the demand for goods and

services, while followers of Friedman—monetarists—argue that it is the money supply that ultimately controls the level of activity in an economy. While we will touch on it in the final chapter, it is beyond the scope of this book to examine the debate in detail. But it is important to note, because it has driven economic policy discussions in the United States and Europe for most of the past century.

What Are the General Functions of Money and Why Does It Matter?

One of the most common definitions of money cited by economists is that it is something that serves as a *means of exchange*, a *store of value* and a *unit of account*. Some would add a fourth function—a *means of payment or standard of deferred payment*—and we'll examine that also. Each of these functions has implications that go well beyond our economic lives. They determine how many people can get jobs, the security of savings, the ability to plan one's economic future, the stability of societies themselves and how we value our personal relationships, indeed how we value everything about our lives, including life itself. It is from these functions that many of the critiques of the effects of money on our lives have come, as well as discussions on how we can change or reform monetary systems to meet the needs of modern society.

We should add also that by defining money according to these functions, economists have 'stacked the deck,' so to speak, because anything that doesn't perform all these functions, by definition, is not money (Table 1.3). Yet, as we'll see, it is quite possible, and even desirable, to separate these functions and have, for example, a medium that serves as a means of exchange, but not a store of value.

Critiques of money are closely examined by Jonathan Parry and Maurice Bloch in the introduction to their edited collection, *Money and the Morality of Exchange* (1989), and by David Akins and Joel Robbins in the introduction to their volume, *Money and Modernity: State and Local Currencies in Melanesia* (1999). These critiques, as Akin and Robbins (1999: 3) put it, target the

Table 1.3 **The classic definition of the functions of money.**

Medium of exchange	Used for buying goods and services
Unit of account of or measure of value	Used to measure the value of all other things
Means of payment or standard of deferred payment	Used to settle debts
Store of value	Used to maintain and safeguard value that would otherwise diminish

Note: Although the method of payment function is often included as part of the unit of account function, alternative money theorists and many anthropologists consider it essential to understand the infrastructure required of specific monetary systems. Some economists include it as a separate function because the medium by which debt is repaid can make a big difference in the value of the debt and the repayment.
Adapted from Maurer (2015: 47).

> widespread social scientific portrayals of general purpose money as having intrinsic qualities that make it a destructive and homogenizing force wherever it appears, an acid that dissolves everything from social relationships to categories of exchange. Such analyses have been bolstered by similarly negative conceptions of money in many non-Western societies, where it is sometimes seen as socially harmful and even magically dangerous.

These condemnations of general-purpose money are countered in much of the recent anthropological literature, particularly in the works of Keith Hart (2001) and Bill Maurer (2006), whose work we'll examine in more detail later. Both see positive qualities of money, although not necessarily in the form it takes in modern, capitalist economies.

Money as a Means of Exchange

We obtain the goods or services we need from others in various ways. We may share these items, or receive or give them as gifts. Although we use them ourselves, certainly among friends and family, these were the most significant means of exchange in small-scale societies.

When we think of why we have money, generally we think about it as something we use in exchange for something we need or want that is not shared or given freely. The critique of this function goes back at least to Aristotle and, according to Jonathan Parry and Maurice Bloch (2008: 2), goes something like this:

> Like other animals, man is naturally self-sufficient and his wants are finite. Trade can only be natural in so far as it is oriented towards the restoration of such self-sufficiency. Just as in nature, there may be too much here and not enough there, so it is households which will then be forced to exchange on the basis of mutual need. "Interchange of this kind is not contrary to nature and is not a form of money-making; it keeps to its original purpose—to re-establish nature's own equilibrium of self-sufficiency."

However, while trade is natural, it is corrupted by profit-seeking:

> Profit-oriented exchange is, however, unnatural; and it is self-destructive of the bonds between households . . . Money as a tool intended only to facilitate exchange is naturally barren, and all the ways of getting wealth, lending at interest—where money is made to yield a 'crop' or 'litter'—is "the most contrary to nature."

Opposed to economies where money is the vehicle for exchange, critics see sharing or gift exchange as the foundation of a more human economy where the exchange of goods and services performs a vital social function, bonding people together and enhancing personal well-being (see Graeber 2001, 2009: 17).

Setting aside for the moment the question of the morality of money, the use of money as a means of exchange is important because it is the general measure of economic activity. Generally, the more money there is in circulation, the more economic activity occurs. If money is scarce, then there are fewer jobs and fewer goods bought and sold. Many of the economic crises that have occurred over the last 300 years were caused by a sudden contraction of the money supply, often when banks stop issuing credit. That is what happened during the economic collapse of 2007–2009 from which many countries and individuals have yet to recover.

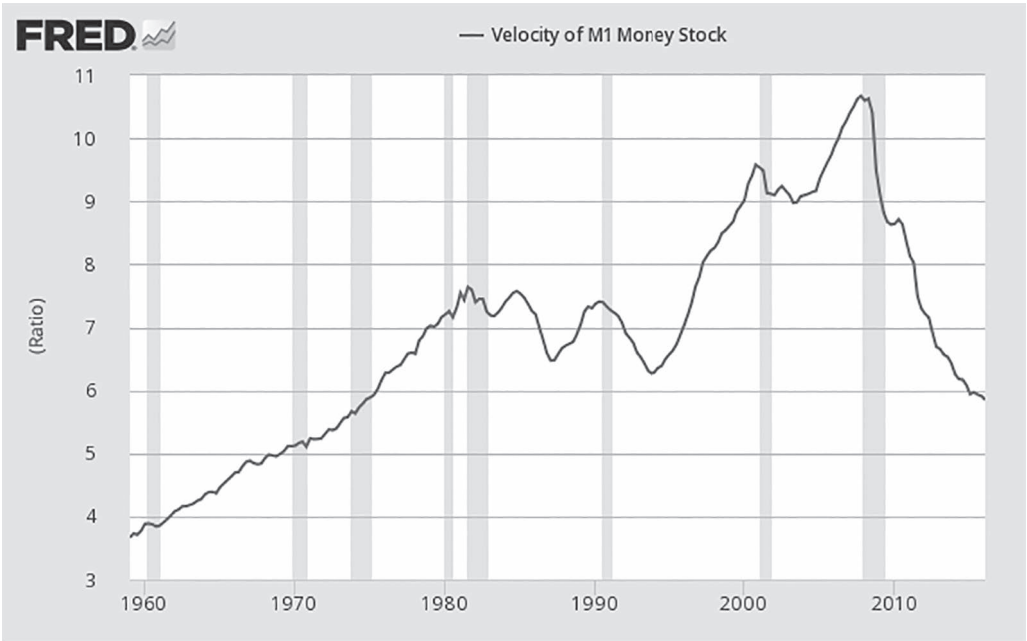
There is another factor to consider when talking about money as a means of exchange that has to do with how often money changes hands; that is, the more that money is used, the more it serves to boost economic activity. Economists call this the *velocity of money* (see Figure 1.10a and 1.10b). This is the frequency with which a given monetary unit (e.g. dollar, euro, Swiss franc) is used to buy something in a given time period. If the velocity of money is increasing, then there are more economic transactions taking place. The measures of the velocity of money provide information on whether consumers or businesses are saving or spending their money.

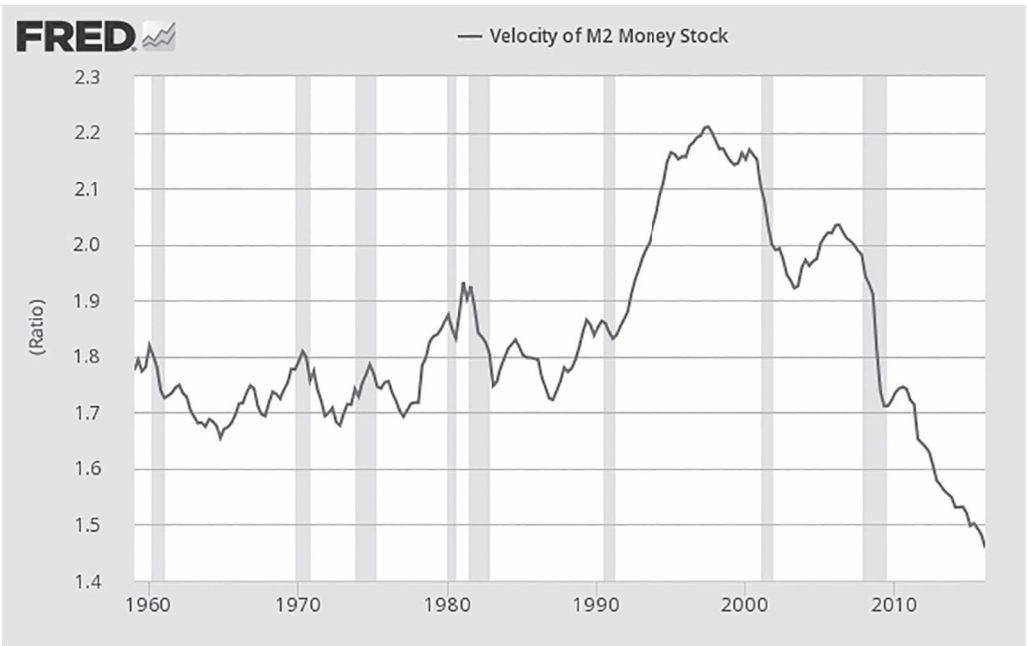
As we'll see, the velocity of money is as important as the total amount of money available.

Money as a Store of Value

The second major function of money is as a store of value. We discussed this earlier in our discussion of commodity and credit-money. The value of money as a store of value is related to two things: its scarcity and the extent to which, by itself, it is capable of growing. That is, to what extent can money, by itself, create more money. Let's first examine the scarcity issue and how it relates to very different economic interests.

People with money, obviously, want it to hold its value. It is, consequently, in their interest that money be based on some valuable commodity that is inherently scarce and believed to maintain its value, such as gold. Credit-money, on the other hand, is capable of infinite expansion, and consequently threatens to fall in value, that is, what one can buy with it. It is no accident that national or regional economies evidence differences in prices that correlate with the amount of money available—the more money there is, the higher prices are. The problem and the conflict occur because money is also a medium of exchange,





Figures 1.10a and 1.10b **Velocity of M1 and M2 in the United States, 1959–2016** (Source: Federal Reserve bank of St. Louis (http://research.stlouisfed.org)).

and the more money, the greater the amount of economic activity, resulting in more business, jobs and economic growth (see Dodd 2015: 52–54). In other words, if a person is more concerned about getting a job, the more money in

the economy, the better. If, on the other hand, price and monetary stability is paramount, the scarcer money is, the better.

The conflict between money as a means of exchange (the more the better) and money as a store of value (keep it scarce) is in evidence in the policies pursued by central banks, such as the US Federal Reserve. Central banks are charged with ensuring stable prices, or more specifically, keeping monetary inflation low. The tool that central banks use for this purpose is the interest rate, that is, the price of money. As we mentioned earlier, when central banks believe there is too much economic activity (the economy is 'heating up'), they will raise interest rates. This, in effect, reduces the amount of money in the economy. If there is not enough economic activity, they will lower interest rates or take other actions (buying government debt or other debt assets) that have the effect of increasing the money in the economy (see Figure 1.11).

Consequently central banks must balance the interests of money holders who benefit from scarce money and job-seekers and businesses that benefit from greater economic activity and a plentiful money supply. Almost all the world's central banks are charged only with keeping inflation down, and hence tend to

Figure 1.11 **To serve as a store of value, money needs to be invested so that it can grow in value. One way to do that is to invest in the stock or commodities market and hope to profit as traders are doing on the floor of the New York Stock Exchange** (Source: Getty).

serve the interests of moneyholders. The only central bank that has the additional function of maintaining employment is the US Federal Reserve, although, in practice, it too tends to be far more concerned with keeping inflation low.

One metric that the US Federal Reserve uses to regulate money is the rate of unemployment. If the unemployment rate falls below 5 percent, it suggests that there is too much money, and the Federal Reserve will raise interest rates or sell assets to reduce it, consequently increasing unemployment. The implication, of course, is that the type of monetary system common in the world requires that a set percentage of people be without paid jobs.

To summarize, monetary systems can differ significantly in how they value money as a means of exchange as opposed to money as a store of value, and central banks can choose policies that either increase the money supply or reduce it, decisions that affect those with more or less money quite differently.

The function of money as a store of value is also important to the extent that the rules governing monetary systems permit making money with money, that is lending it out or investing it and expecting the return of a greater amount. People want to store their money in ways that increase it. Clearly our modern monetary system is designed to promote investment; banks, after all, function to lend out money as interest-bearing debt and an almost infinite variety of investment opportunities—stocks, bonds, financial derivatives and so on—exist for the wealthy to store their money and expect it to increase in volume and value. However, monetary systems can also seek to minimize this function, as in systems, for example, that prohibit the lending of money at interest.

Money, as we mentioned earlier, needn't serve as a store of value, or monetary policies can be introduced that reduce its usefulness as a store. For example, if a monetary system were to serve primarily as a means of exchange, then a penalty, or demurrage, could be applied to money that was not used, rather than allowing saved money to gain value. We'll examine how this works when we discuss alternative monetary systems. The questions are, what are the effects that you want money to have, who benefits and who doesn't, and what impacts does it have on the rest of society and even the environment? These are questions we'll examine more fully later.

Money as a Unit of Value

For money to serve as a means of value, we have to be able to put a dollar amount on something, and, of the three major functions of modern money, this may present the greatest moral quandary. What is proper to make available on the market, that is to buy and sell; what should and what shouldn't have a monetary price? Should food be available only to people who can pay for it? What about medical care? How much is a child worth? A kidney? What is the

monetary value of a pristine forest? When a Malaysian prime minister pointed out that the forests of his country were worth more cut down with the money realized from the lumber put in the bank to earn interest or create jobs, he was putting a dollar value on something that some might consider priceless. Currently there is a wide-ranging debate over whether or not the sale of body organs is ethical or not (*New York Times* 2014). In the United States alone, there are over 100,000 people on the wait list for kidney donations, but it is illegal in all but one country to sell an organ from a living person, in spite of the fact that there is a huge black market in organ sales (Kerstein 2016). If past arguments over what is or is not available with money is any guide, as we'll see, the likelihood is that it will become legal.

Nineteenth- and early twentieth-century writers on money focused criticisms largely on the tendency of money to reduce everything to a price. Karl Marx called money a "radical leveler" that eroded differences between subjects and objects, qualities and quantities, and that annihilates space over time (Gilbert 2005: 363). Sociologists Georg Simmel and Max Weber challenged consumer ideology and materialism, noting how money served as a universal equivalent and how it served to make all values commensurate (Gilbert 2005: 359). Money is the negation of quality, "we do not ask what and how, but how much," said Simmel; money transformed the world into an "arithmetic problem" (Simmel 2004 [1907]). In his book, *The Great Transformation*, Karl Polanyi (1957) saw the commodification of land, labor and money itself as the hallmark of industrial and capitalist society.

As we will see, one of the most significant consequences of a monetary system that uses money as a unit of value is the continual commodification of nature, power and social relations. Unlike other societies in which land is held in common, in almost all cases we must buy it. Unless you are independently wealthy, to survive you must get a job, that is, sell your labor. And if you acquire any wealth, you must invest it to acquire more lest it lose value. With the rise of social media on which social relations often depend, our interactions with each other have been successfully commoditized, often with negative consequences (see Turkle 2015).

Jacob Needleman (1994), in his classic book *Money and the Meaning of Life*, tackles the question of the morality of money and the problem of materialism. At one point he describes teaching a class on money and challenging the class by stating that there were shockingly few problems in life that could not be solved by a finite amount of money, a specific dollar amount. "Almost all the difficulties that we think of as ethical problems," he said, "problems of sensitivity, human relations, problems involving love, honor, duty, could be resolved with a definite dollar figure." While the class was shocked, he says, he was not being

cynical, but only trying to demonstrate the actual power of money in our lives, as well as the limitations of that power. The point he was trying to make, he says,

> was that money can buy almost everything we want—the problem being that we tend to want only the things that money can buy.
>
> (Needleman 1994: 112)

Anthropologists have focused on the attempts of people in traditional societies to build barriers to ensure that boundaries aren't crossed and that some things remain outside the market. "Beneath the surface of any well-ordered Melanesian economy," write David Akins and Joel Robbins (1999: 7), "there always lurks the possibility that objects will begin to consort promiscuously, erasing in the shuffle the many boundaries between kinds of persons and kinds of relationships that people have worked hard to create through their exchange."

Valuing Life and Death

After the terrorist attacks of September 11, 2001, the US Congress, in an effort to head off thousands of lawsuits that would cripple the airline industry, established a fund to compensate victims of the disaster. They appointed a Washington lawyer, Kenneth Feinberg, to administer the awards. Feinberg (2006) was tasked, as he described it in his book *What Is Life Worth*, with putting price tags on the lives of people killed or injured in the attack (see also Gilbert and Ponder 2004). Mr. Feinberg would award more than $7 billion to 5,560 victims and family members, some 97 percent of those eligible for awards. The problem is that there is no market in human life, as there is for gold, bonds or corporate stocks; how do you evaluate life? Feinberg eventually settled on the criteria of lost economic value; consequently the life of a fireman was worth less than that of a stockbroker, a child worth less than an adult. There were, obviously, many critics of the process, but the fact is that a monetary value of a life was established. The US government faced the same problem when it allocated money to compensate for Iraqi civilian casualties.

The question of putting a monetary value on human life is addressed brilliantly by sociologist Viviana A. Zelizer (2011) in a number of articles dealing with how insurance companies in the 19th century dealt with the issue. As she points out, the practice of valuing human life is, in fact, an ancient one, evident in such practices as slavery, marriage by purchase and the *weregild* or blood money. The legal codes of medieval Europe were remarkably creative in assigning value to human life and exact in terms of compensation for the loss of a finger, arm, a nail or a blow on the head so that the brain is visible or a bone projects (Grierson 1977). Zelizer says that when certain features of the

social order become available on the market, that is, with money, it introduces strain and ambivalence into their marketing. Life insurance, she says, serves as a perfect example as it establishes a fixed dollar amount for an individual death (Zelizer 2011: 20–21). How did insurance companies address this ambivalence (see Figure 1.12)?

Insurance companies, which had grown by selling fire and marine insurance, introduced life insurance in the early 19th century, but the public soundly rejected it, as religious authorities and others attacked the idea of placing a value on death. Insuring someone's life, they said, was sacrilegious because it sought to compensate widows and orphans for the loss of a father and husband with money. Critics claimed that this turned man's sacred life into an "article of merchandise" (Zelizer 2011: 25). Mennonites even excommunicated any

Figure 1.12 **To overcome people's aversion to putting a dollar value on life, insurance companies of the nineteenth century sought to ritualize the money associated with it as making provision for the insured's loved ones** (Source: Flora and Alma Hungerbuehler Trade Card Collection, Photograph by Laura Blanchard).

member who insured his life. Another problem was the superstitious idea that by insuring life, one might hasten its end. (For the same reason today, people are reluctant to draw up wills, and most, in fact, are made shortly before death.)

> Putting death on the market offended a system of values that upheld the sanctity of human life and its incommensurability. It defied a powerful normative pattern: the division between the nonmarketable and the marketable, or between the sacred and profane.
>
> (Zelizer 2011: 21)

Then beginning in the 1840s and culminating in the 1870s, life insurance gradually became widely accepted. The question was why? Among the reasons proposed was the urbanization of American life and changes in religious ideology that led liberalized churches to accept it. But there was also a strong effort on the part of the growing insurance industry to change the meaning of death, or more properly the money associated with it; rather than desacralize death, the industry ritualized the money.

Insurance companies from the 1830s to 1870s sought to sell life insurance and the money to purchase it as quasi-religious. Rather than being an investment, it was a "protective shield" over the dying, and a consolation to survivors "next to that of religion itself":

> It can alleviate the pangs of the bereaved, cheer the heart of the widow and dry the orphans' tears. Yes, it will shed the halo of glory around the memory of him who has been gathered to the bosom of his Father and God.
>
> (quoted in Zelizer 2011: 29)

As a life insurance journal from 1852 put it:

> The necessity that exists for every head of family to make proper provision for the sustenance of those dear to him after his death, is freely acknowledged and there is no contingency whereby a man can stand excused from making such a provision.
>
> (quoted in Zelizer 2011: 29)

Life insurance became a duty of a responsible father. Good men will live in the memories of future generations. Life insurance became, as insurance companies implied, a "pathway to immortality." Life insurance was described as "the unseen hand of the provident father reaching forth from the grave and still nourishing his offspring and keeping together the group" (Zelizer 2011: 31). On

the other hand, as Zelizer puts it, "The uninsured could anticipate an uneasy afterlife" (Zelizer 2011: 31).

Zelizer's treatment of life insurance illustrates how even death, in spite of values opposing it, can be drawn into the market as an investment opportunity by having its meaning redefined by economic interests; it illustrates that this may be a constant process as, to maintain the necessary perpetual growth demanded by bank money, more and more of our lives have to be commodified. As Zelizer (2011: 32) claims:

> A 'good death' was no longer defined only on moral grounds: the inclusion of a life policy made financial foresight another prerequisite. One finds, in addition to religious legitimization, attempts at moral and social legitimization of the industry. The public was assured that marketing death served the lofty social purpose of combating poverty, thereby reducing crime. At the individual level, there were moral rewards for the selfless and altruistic insurance buyer.

Today the moral issue of profiting from death is so well accepted that corporations routinely insure the life of employees with little public notice, even to the employees themselves (Gelles 2014).

Money as a Means of Payment

How Would You Like to Pay? is the question Bill Maurer (2015) asks in his book of the same title. The question is important because it highlights the many different ways of transferring value from one person or entity to another made possible by new technologies. The question also highlights the complex infrastructure of rules, regulations and communicative technologies that make a monetary system work. By considering money only as a means of exchange, says Maurer (2015: 28),

> we depersonalize it, abstract it from all social relations save the most rudimentary, formulaic—and ultimately fictional—pure market relation. When we see money as a means of *payment*, however, we spotlight its technologies, how it moves from person to person, from point A to Point B. We are confronted with its infrastructures.

When we consider money as a means of payment, says Maurer, we confront both the possibilities and the limitations of alternative monetary systems, issues that we will explore in detail in the final chapter.

In this sense all money is credit, regardless of its form or substance; that it is accepted as settlement for all debts that are denominated in the same money of account (Ingham 2004; Wray 1998). Viewing money as a means of payment also highlights the efforts of borrowers to pay back their loans and the accrued interest in a system in which there is more debt than the means to pay for it (Papavasiliou 2010: 209).

Main Questions and Points

It should be apparent why the idea of considering money a 'neutral veil' is devastatingly misleading. How money is created, defined, distributed, used and controlled makes a huge difference in our society. The next two chapters will focus on the monetary system existent in the world today, how and why it developed, and its consequences. It will be a largely critical appraisal, although we mustn't neglect its accomplishments. However, we must also recognize that because our monetary system was constructed to meet the needs of elites in the 17th century, and while it may have served some of our needs throughout the 20th century, we suggest that it now primarily benefits elites while causing much unnecessary harm, and can be changed. For now we want to outline briefly the main points to be made in the following two chapters.

Money and Power

Our first point is that while money has been conceived of as a store of value, unit of account, means of exchange and a means of payment, this underplays the power dimensions of money by ignoring how money is created and how it is privately capitalized, as well as the fact that money is primarily a claim on people and natural resources represented and measured in a unit of account such as the dollar, yen, euro and so on (Ingham 2004: 198; Simmel 2004). Because money is a claim on society and natural resources, what this means is that the more money you have, the more claims you can make over people and natural resources. This is particularly true if the amount of money you have is denominated in a dominant or strong currency and can be exchanged internationally.

The Private Creation of Money

A second point we make in this book is that, as we mentioned earlier, the vast majority of modern money (perhaps somewhere above 90 percent, depending on the country) is created as interest-bearing debt when commercial banks make loans to willing borrowers who (in the bank's estimate) appear to have the ability to repay the loan with interest.

The other way that money is created is the sale of government debt. Because, as we'll see, governments relinquished the right to issue money themselves and

assigned that right to privately owned banks, the only way they can raise money is through taxes and tariffs and fines. But this is rarely enough, and so governments have to borrow money. Our whole financial system, as we'll see, essentially began when William III of England was looking to borrow £1.2 million to help pay for his war with France. To borrow, governments issue bonds, essentially IOUs that say that they will repay the loans with interest. When the yearly accounts are drawn up and we find that a government has spent more than it took in in revenue, this is called a *deficit*. If there are consistent deficits, this will accumulate as the *national debt*. Currently there is over US$56 trillion in outstanding public debt around the world, with only four countries (Liechtenstein, Palau, Brunei and the British Virgin Islands) and a special administrative region of China called Macao free of a national debt. Almost half of this total is accounted for by two countries: Japan and the United States. To some extent, the selling of bonds by treasury departments converts money from a means of exchange into a store of value, essentially taking it out of immediate circulation unless the Treasury Department spends it. Regardless, the national debt, the money owed by the government to bondholders, is capitalized. What this means is that money is turned into a financial asset of bondholders that can be traded on the bond market or parked in an account to earn interest. Both the Bank of England and the US Federal Reserve cannot technically 'print' money in order to buy bonds held by commercial banks and other financial institutions. It is important to note that commercial banks have accounts with a central bank. When a central bank purchases government bonds (Treasuries in the United States, Gilts in the UK), it credits the bank account of the bond-selling bank with 'reserves.' In this instance, reserves are a digital money used by commercial banks to settle their accounts with one another overnight. Why is this the case? The simple answer is that in double-entry bookkeeping, accounts must always balance. In most countries, while it may seem like an oligopoly, citizens do have a choice among different banks. Let's imagine a country that only has two banks. During a given day, citizens of a country are out making transactions on the market and money is flowing in and out of accounts. At the end of the day, when the banks close, their books must balance. Suppose the accounts look like the following at the end of the day:

Bank A	
Assets	*Liabilities*
$1,500	$1,000
Bank B	
Assets	*Liabilities*
$500	$1,000

Because the books have to balance and Bank B has more liabilities than it has assets, it has to borrow 'reserves' from Bank A whose books are also not in balance. Bank A will make an interbank loan to Bank B (the $500), typically at what is called an 'overnight rate' of interest. In other words, by lending to Bank B, Bank A will receive some interest from Bank B. And as a new day and night dawns, this processes continues. Note that at any given day, it could be either Bank B lending to Bank A, or vice versa. It all depends on the situation of the balance sheets at the end of the working day. But while the central bank cannot 'print' money to buy government securities, commercial banks can issue new money to buy bonds. They can sell these bonds to the central bank in return for reserves—electronic money used in the interbank market—or cash (notes and coins).

Bonds give investors and banks (mostly the wealthy) a safe (we might even say, guaranteed) rate of return on their money. This sets what can be considered the *normal rate of return* or what investors expect to get for investing their money regardless of what happens. As such, it provides a *benchmark* that allows investors to evaluate alternative investment possibilities. Still, most investors always keep a portion of their money in government securities, and because we know that the major holders of financial wealth are in the minority, we can bet that this redistribution of money as interest to the bondholding class primarily benefits *high net worth individuals* or what we can call *dominant owners* (Credit Suisse 2015; Creutz 2010: chap. 7; Di Muzio 2015; Di Muzio and Robbins 2016; Hager 2013, 2016; Kennedy and Kennedy 1995).

Unpayable Debt and Perpetual Growth

A third point we make in this book is a simple one, but one with very real consequences for our economies, countries and societies. When banks create money by extending loans, they never create the interest, only the principal (Rowbotham 1998). For example, if you take out a loan for US$1,000 at yearly 10 percent interest rate, only the US$1,000 is deposited into your account, not US$1,100. Because money is created in this way, there is always more debt in the economy than there is the ability to pay. As we noted earlier, if we consider broad money, there is about $80.9 trillion in the world, but there is almost $200 trillion in debt.

This means that the economy must perpetually grow in order to create the interest owed on debt; individually that means you must spend more this year than last and more next year than this in perpetuity. We measure the state of national and the global economy through the gross domestic product (GDP), simply a measure of all the goods and services sold in a given year—essentially the money that is spent. This is essentially counted as the national income. If the GDP remains the same or, worse yet, declines over a period of time,

national economies are said to be in recession, or, more severely, a depression. Viewed over the long term, there has been a remarkable growth in the GDP over the past few centuries. In 1950, the GDP in the United States was a little over $2 trillion; in 2015 it was over $16 trillion. Global GDP is over $70 trillion and has grown at an annual rate of about 2.5 percent since 1750 (see Maddison 2001). But 3 percent is the minimum growth rate that economists consider necessary for a 'healthy' economy (see Harvey 2010). But even this is not near enough!

In a 2015 report on global debt, the McKinsey Global Institute (2015) estimated the rate of economic growth required by specific countries to *begin* to pay off *only* their *national* debt (see Figure 1.13). Understand that this refers only to public debt and does not include household, corporate or financial debt, which is almost 60 percent greater than global sovereign debt.

Thus Spain would need to grow at 5.5 percent a year to begin to pay down the national debt, and the UK 4.7 percent, and neither are close to attaining such growth rates. In fact, economic growth rates have been slowing for decades, and some economists claim that they will continue to slow and average as low as 1.5 percent a year (see Piketty 2014: 92). And as debts go unpaid, creditors must apply whatever means they can to collect.

It is the necessity for economic growth, that is, increased spending, that accounts for the constant commodification of goods and activities, things that must be paid for rather than freely given and received. If a legal good or service does not generate revenue (and profit), it can't contribute to the GDP.

The Unequal Distribution of Wealth

The fourth point that we will make is that, because money is issued as interest-bearing debt, and given other rules, conventions and policies that govern its distribution, some individuals get a vastly disproportionate share than others (see Figure 1.14).

In fact, the inequality in income distribution has grown and, according to some, will continue to grow throughout the 21st century (see Figure 1.15).

The top decile share in US national income dropped from 45 percent to 50 percent in the 1910s–1920s to less than 35 percent in the 1950s; it then rose from less than 35 percent in the 1970s to 45–50 percent in the 2000s–2010.

Because interest payments make up a significant portion of the national income or GDP (anywhere from 15 percent to 30 percent over the past twenty-five years), whoever has the greatest claim on that resource is obviously at a great advantage (see Di Muzio and Robbins 2016). Table 1.4 shows that the top 1 percent own over 50 percent of the wealth-generating assets. Put another way, interest is a regressive tax.

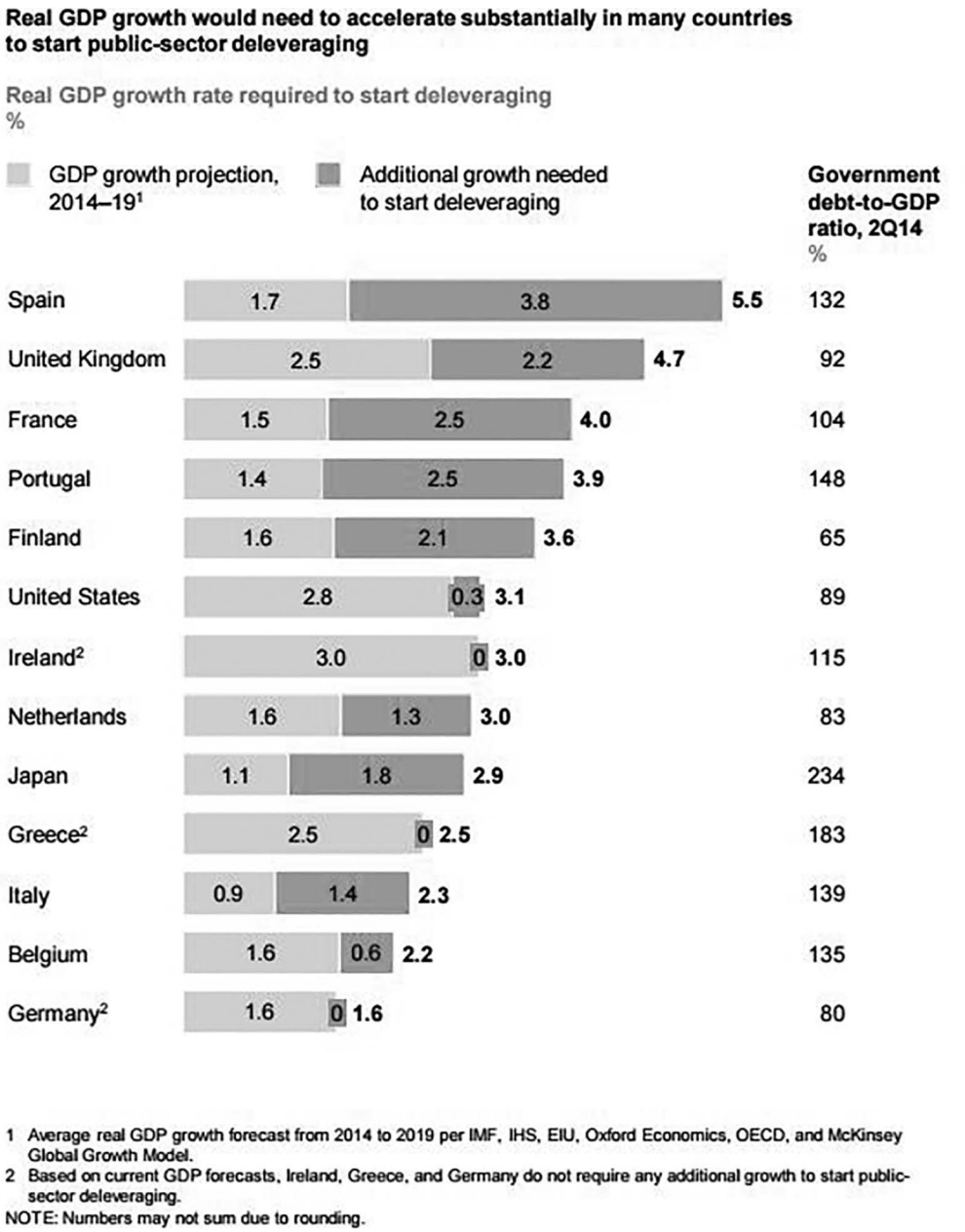


Figure 1.13 **Rate of growth required to *begin* to reduce public debt** (Source: McKinsey Global Institute, "Debt and (not much) deleveraging," February 2015).

In addition, because virtually all the money in the economy is created by commercial banks—and commercial banks are owned by the few—this means that a tiny minority of humanity is getting something for nothing while the majority of us are an interest farm or revenue stream for them. Now, you might say to

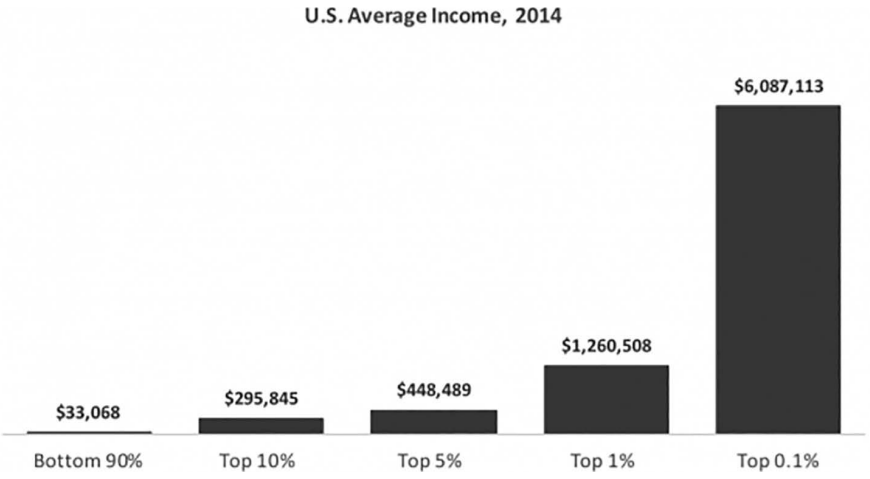


Figure 1.14 **Average income in the United States by group, 2014** (Source: Emmanuel Saez, Center for Equitable Growth, June 2015).

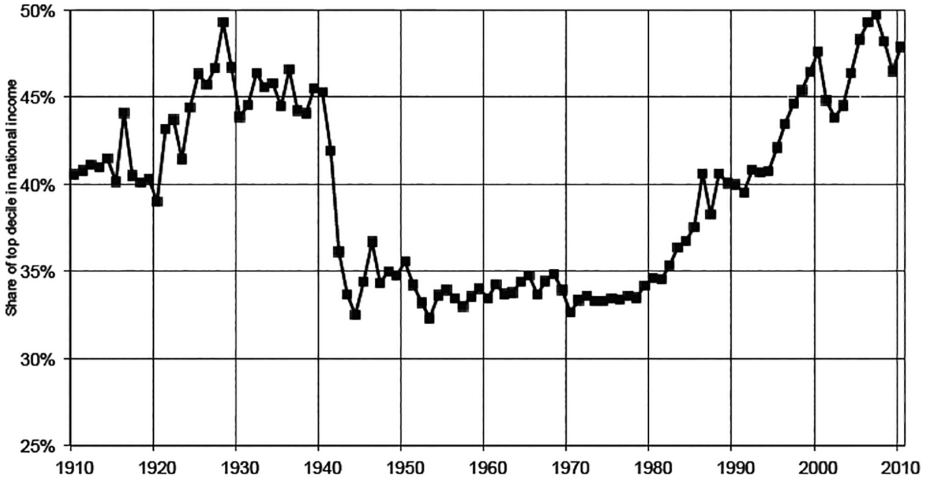


Figure 1.15 **Income inequality in the United States, 1910–2010: Percent of income earned by the top decile** (Source: http://piketty.pse.ens.fr/files/capital21c/en/pdf/F0.I.1.pdf).

Table 1.4 **Total income-generating assets by percentile of wealth: 2010.**

Asset Type	*Top 1%*	*Next 9%*	*Bottom 90%*
Stocks and mutual funds	48.8	42.5	8.6
Financial securities	64.4	29.5	6.1
Trusts	38.0	43.0	19.0
Business equity	61.4	30.5	8.1
Non-home real estate	35.5	43.6	20.9
Total assets for group	50.4	37.5	12.0
Total debt for group	5.9	21.6	72.5

Data from Wolff (2012, 2013).

yourself, I haven't taken out a loan, I don't owe or pay the banks anything! But this is incorrect. Because you likely buy things in your day-to-day life, you are also paying interest to commercial banks and their owners. This is because interest is a cost to business and it gets pushed on to the consumer as a higher price.

Debt Crisis and Austerity

The fifth point we wish to make in this book is that there is an intimate link between debt crises—a period when governments cannot afford to service their debts—and the transition to neoliberalism and austerity politics. Where governments are structurally bound and cannot create new money, they are *forced* to take on debt when government revenues fall short of spending priorities. However, if this debt mounts to such an extent that it becomes unserviceable, then drastic measures are often proposed to rein in spending, raise more revenue and restructure the economy. The public policies that are put in place to effect these changes across society and the economy are typically called 'neoliberal.' The term neoliberal can mean different things to different people, and can be understood as an ideological perspective or stance on governing as well as a set of policy prescriptions (Cahill 2014; Harvey 2005; Saad-Filho and Johnston 2005). So we want to be very clear about what we mean when we use the term 'neoliberalism.' Neoliberalism as an ideology or rationality of rule suggests that individuals should be free to pursue their desires (so long as they do not harm other people) in the marketplace. In this vision, the state's major role is to enable and facilitate the operation of markets while society as a whole is coordinated by the price mechanism and as little government intervention as possible. Neoliberal policy prescriptions include keeping government spending low, emphasizing eliminating barriers to trade, privatizing state enterprises and securing private property.

It is interesting to note that these market-oriented policies were understood to be the core wisdom of most economists at the World Bank, the International Monetary Fund and the US Treasury, as these agencies were essentially dictating economic policy to indebted countries throughout the 1980s. Today, 129 states are accountable to the World Bank's Debt Reporting System (Di Muzio and Robbins 2016: 78). Because all of these institutions are located in Washington DC, John Williamson (1989) dubbed these neoliberal policy prescriptions the 'Washington Consensus.' The economies that were typically restructured were all in the Global South and in virtually all of them neoliberal policy prescriptions hurt the weak and vulnerable as debt servicing resumed to northern banks and their owners (George 1988; Henry 2003). Because these policies tend to be in favor of the wealthy and powerful and generally harm society, it would not be a surprise to find there were many revolts by people across the Global South, as well as voters in Europe and the United States demanding that their governments put an end to these painful policies (Abouharb and Cingranelli 2007: 4).

The Role of Energy

A sixth point that we will make in this book is that the expansion of the money supply is intimately related to energy and the way we humans use natural resources. What this means is that more money can be created as long as there is affordable energy and available natural resources. For example, if we were to imagine a tiny island with few resources and a relatively small population, there would be far less energy use and far less money around than in a country that is highly urbanized and populated and consumes enormous amounts of fossil fuel energy. In Figure 1.17, we illustrate this dynamic by contrasting the energy and money supplies of the United States (a voracious consumer of energy) and Haiti (a poor half-island country).

We contend that the relationship between money, energy and the production of high value commodities sets up a division between *dominant money* and *subordinate money*. Dominant money are those currencies with the highest value and are typically stored as reserves in the central banks of the world, whereby subordinate money are those currencies with the lowest market value and are not major *reserve currencies*.[7] For example, dominant currencies include the US dollar, the euro, British pound sterling, the Swiss franc and the Japanese yen. Subordinate currencies may be useful for domestic purchases, but they are not as highly coveted by businesses and investors and therefore have weak exchange rates.

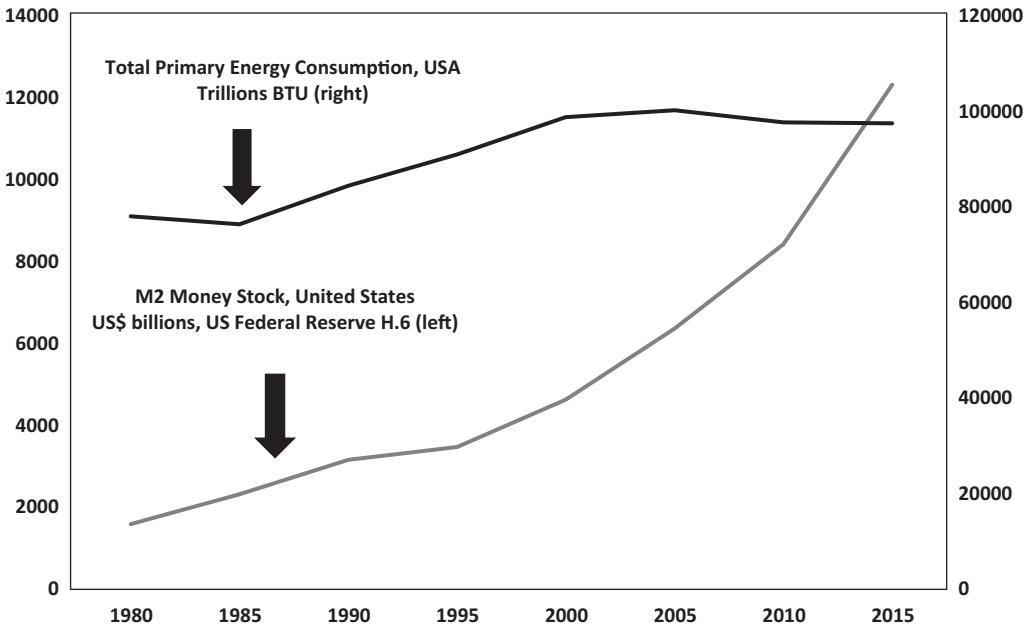


Figure 1.16 **M2 money stock and US energy consumption.**

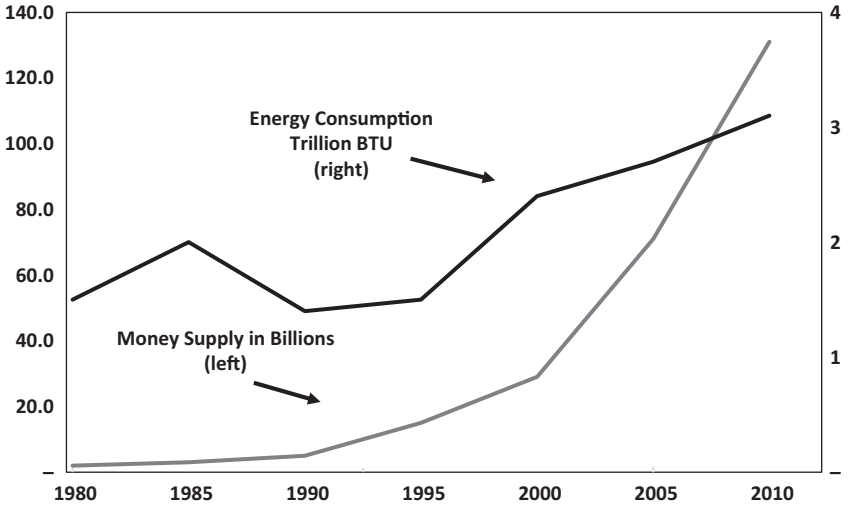


Figure 1.17 **Comparison of energy and money, the United States and Haiti.**

Examples include the Vietnamese dong, the Indonesian rupiah, the Colombian peso and the Tanzanian shilling, just to name a few.

Capital Controls

The seventh point in this book is that the cornerstone of the international monetary system is convertibility and more liberalized *capital controls*. Currency convertibility and liberalized capital controls facilitates or expands the field of global extraction and production for multinational corporations, particularly for those corporations with access to dominant money. If different national monies cannot be converted or exchanged for one another, then this limits the scope of global capitalism. When different currencies are easily convertible into one another, international business and banking is possible. Liberalized capital controls are equally important for the internationalization of capitalism. Capital controls are measures taken by a government or central bank to limit the flow of money that can enter or exit a domestic economy. These measures can include tariffs on goods and financial services, taxes placed on money entering or exiting the country or outright legislation banning the import or export of capital. Since the 1970s but particularly in the 1990s, many countries around the world liberalized their capital controls to facilitate the inflow and outflow of money into and out of their domestic economies. For example, the United Nations Conference on Trade and Development (UNCTAD 2000: 4) reported that there were hundreds of regulatory changes throughout the 1990s that were more favorable to foreign direct and portfolio investment.

Capitalism as a Mode of Power

The final argument we make in the book is that capitalism is a mode of power rather than a mode of production. In this historical mode of power it is a tiny minority of the planet's inhabitants—we call dominant owners—who receive the majority of the benefits that stem from monetizing energy and natural resources (Di Muzio 2015; Di Muzio and Robbins 2016; Nitzan and Bichler 2009). The primary reason is that 0.7 percent of the global adult population, as we saw earlier, own the vast majority of income-generating assets. We believe that this does not have to be the case once we realize that the system we have was historically created and therefore can be changed to benefit all members of society, not just a privileged minority. The monetary system we have today was not bestowed upon us by nature or some god, and if it can be shown that the present monetary system is undemocratic, unfair and unstable, then we ought to work together to change it. What's more, as we will demonstrate in the chapters that follow, if current trends continue we will witness growing inequalities in income, wealth and life chances and potentially catastrophic damage to the biosphere. This leads us to a ninth point, where we contend that alternatives must be sought to the present monetary order, the subject we will address in the final chapter.

Notes

1. Boundless. "The Definition of Money." *Boundless Economics*. May 26, 2016. www.boundless.com/economics/textbooks/boundless-economics-textbook/the-monetary-system-27/introducing-money-114/the-definition-of-money-444-12541/.
2. The terms fiat-, debt-, and credit-money are sometimes used interchangeably to denote money not backed with a valuable substance such as gold. We will generally use the term credit-money unless referred to differently by a given writer.
3. www.wisebread.com/how-to-buy-and-sell-airline-miles.
4. www.quora.com/How-much-money-is-in-the-world-right-now.
5. See www.marketwatch.com/story/this-is-how-much-money-exists-in-the-entire-world-in-one-chart-2015-12-18.
6. To articulate the idea that currencies differ in how much they can buy, economists developed the concept of purchasing power parity (PPP) to better compare the economic condition of different countries. PPP is the actual purchasing power of any currency calculated as the quantity of that currency needed to buy a specified unit of a good or a basket of common goods and services. According to this concept, two currencies are in equilibrium or at par when a market basket of goods (taking into account the exchange rate) is priced the same in both countries. Every three years, the World Bank constructs and releases a report that compares various countries in terms of PPP and U.S. dollars. The Economist, as a light-hearted attempt to explain PPP, since 1986, has tracked the cost of McDonald's Big Mac across countries, substituting it as a benchmark for the "basket" of commodities. The index shows whether the Big Mac is overvalued (e.g. Switzerland) or undervalued (e.g. Ukraine). (See http://www.economist.com/content/big-mac-index.) Of course, as we mentioned, purchasing power for the same currency may even vary by state or region.
7. Cohen (2015: 16ff) speaks of a "currency pyramid" and includes seven different categories of money listed by their international purchasing power.

2

THEORY, HISTORY AND MONEY

In this chapter we will consider some of the most common theoretical approaches to money and offer a brief history of how we arrived at modern credit money, primarily issued by commercial banks when they make loans to customers. Broadly speaking, the theoretical approaches to money can be divided by the questions they address and the answers they seek to give to these questions. First, there are theoretical debates on the origins of money and the emergence of a monetary economy out of a pre-monetary economy and social order. The key question here is how did money come into existence historically? Second, there are debates on how new money is created in an economy, and we explore the three schools of thought on the issue.

We will uncover how the dominant theory of money creation and banking is fundamentally flawed and argue that teaching this model of money creation is doing more harm than good because it completely misguides students. We do not have enough evidence to say that this misguidance is purposeful, but that it continues to be taught is highly suspicious. With this in mind, it could just be sloppy intellectual work that passes down from generation to generation without anyone critically questioning the model. But to be critical is a stance that never takes anything as self-evidently true: things have a history and history involves the story of power, privilege and hierarchy as well as resistance. We explore some of these historical dimensions in the final section of this chapter, which aims to trace the origins of money from ancient Mesopotamia and Egypt all the way to the emergence of the gold standard and the creation of modern credit money no longer backed by any precious metals. In the next chapter we will explore modern money and the consequences of our present system for the present and future of our economies and societies.

Theories on the Origins of Money

When did money emerge historically? It turns out that sorting out the origin or birth of money has proven difficult for two main reasons. First, we will likely never know the precise origin of money because we can only inquire into the

past, and records are limited (Karimzadi 2013). Second, as we mentioned earlier, many items from cattle to coins have been used as money, and this has led some scholars to focus on the medium of exchange—the physical object representing money—rather than money as an abstract claim upon society and natural resources represented and measured in a unit of account. Of those who focused on the medium of exchange in the Anglophone world, precious metal (gold and silver) came to be viewed as the only true or real money, with gold more highly coveted by Europeans. This is the metallist approach to money most commonly attributed to the British Currency School (active in the 1840s and 1850s) (Ingham 2004: 43). Believing gold to be the only real money, the British Currency School argued for a strict gold standard that would limit the supply of money in an economy. The legacy of this tradition continues to linger on, as some interest groups have called for a return to the gold standard (Eichengreen 2011). Thus, for metallists the origin of money and the coining of gold would be intertwined and the history of money dated no earlier than about 700 BC, when the first coins were minted with electrum (an alloy of gold and silver) in Lydia (Davies 2002: 63). But because we know that a number of items have actually played the role of money historically and that today there is no gold standard, there is little reason to fetishize gold as the only 'true' form of money. Furthermore, even when monetary systems ostensibly followed a gold standard, money was issued in excess of the gold on hand, and even when coins consisted of precious metals, the amount of gold or silver in the coin was often diluted. For this reason, we can turn to four alternative theories on the origin of money.[1]

The Barter Approach

The first and most common theory of money's origin is the theoretical claim that money emerged from barter economies. The tradition begins with the Greek philosopher Aristotle, who argued that men found it more convenient to use things like pieces of metal when trading goods (Bell and Henry 2001: 17; Ingham 2004: 7; Martin 2014: 59; Meikle in Smithin 2000: 157–173). In much of mainstream economics, money is said to help overcome the double coincidence of wants in barter economies. The idea here is that two individuals may produce different commodities like milk and woolen socks. Perhaps the producer of milk desires woolen socks and is willing to part with some milk in exchange for them. But alas, what happens if the producer of woolen socks does not want milk? The transaction becomes impossible until money is invented, allowing the producer of milk to purchase the woolen socks. Now satisfied with money rather than milk, the producer of woolen socks can use her money to purchase something she actually wants (Karimzadi 2013: 42ff).

This narrative is very common in the Western canon and runs through John Locke and Adam Smith's explanation for money before this account was finally elevated to 'official orthodox truth' by the Austrian Carl Menger and the British born William Stanley Jevons (see Figure 2.1), two of the founding fathers of neoclassical economics (Dowd in Smithin 2000: 139–156; Einzig 1966; Humphrey 1985; Lau and Smithin 2002: 7; Martin 2014: 9–10). The problem with the barter narrative is twofold. First, there is no historical evidence whatsoever for a complex barter economy from which money sprung (Dalton 1982; Davies 2002; Goodhart 1998; Wray 1998, 2004). Second, a complex barter system with hundreds if not thousands of commodities available would be mathematically

Figure 2.1 **Austrian economist Carl Menger developed the idea, central to classical economics, that money's origins can be found in the practice of barter. But there is little historical or anthropological evidence for this idea, in spite of how widely people assume it to be true** (Source: Getty).

conceivable but practically impossible to coordinate among its participants. As Davies notes:

> As the numbers of commodities increase the numbers of combinations become astronomical. With a hundred commodities nearly 5,000 separate exchange rates (actually 4,950) would be necessary in a theoretical barter system, while nearly half a million (actually 499,500) would be required to support bilateral trading for 1,000 commodities.
>
> (2002: 15–16)

It is obvious that keeping a table of exchange rates for 1,000 commodities, let alone 100, would prove very difficult. So the idea that money emerged as a medium of exchange out of barter has little support in the historical facts we have available despite the fact that it is a mainstay in orthodox economic theory. The Austrian School, for example, continues to view the origin of money as the spontaneous creation that resulted from barter-market exchanges (Huber 2014: 49–50).

The Deductive Approach

A second and novel approach to the origins of money was introduced to the literature by Karimzadi (2013). Karimzadi starts with the claim that there is a paucity of evidence on the origins of money in our historical record. In addition to this, he says that because researchers cannot speak all known living and dead human languages (there are believed to be over 6,000), there are considerable limitations on finding the birthday of money. In order to overcome these two major shortcomings, Karimzadi wants to provide us with a deductive proof of money.

The deductive method is a form of reasoning that begins with a claim or hypothesis and then proceeds to evaluate the possibilities of the claim being valid or true. Karimzadi argues that money does not emerge as a unit of account or as a generalized medium of exchange accepted by entire communities. He also makes the claim that money predates the state or organized government. So, for Karimzadi, the *origins* of money cannot be found in a state decree, although he does not deny that this can happen later on. He also does not deny that there was a pre-monetary form of society and a monetary form of society that emerges later. In doing so, he wants to convince us of the idea that the origin of money must be viewed as an evolutionary process rather than a discovery or invention. He argues that certain conditions have to take place before money becomes a reality:

> The division of labour, specialization of employment, production of surplus products, private ownership of such products, the exchange of surplus

> products, and the configuration and birth of trade. All these elements are the necessary ingredients that have paved the way for the rise of money.
> (Karimzadi 2013: 69)

So what is the exact origin of money for Karimzadi? He argues that when two people trade surplus goods, money emerges. He uses the example of fish and wheat to demonstrate his point. He argues that when a person who exchanges surplus fish for wheat, the fish is really acting as money, while the wheat acts as money for the person obtaining the fish. To the observant reader, this argument may appear to coincide with the barter approach to money. But this is not the case. Recall that in the barter approach, money arises because of the problem of the double coincidence of wants: that is, someone who has something you want may not want to trade with you because they do not desire your service or good. For the barter-approach school, this is when money is invented by market participants.

Karimzadi's argument is very different. He is merely suggesting that at a certain point in human development, when there are owned surpluses able to be traded and a trade is accepted between two participants, the good acts as money for each participant to the trade. It is difficult to puncture Karimzadi's deductive reasoning and there is likely some logical truth to his argument. But if modern money is primarily a definite measure of a claim upon society (for example if you have $20 you are entitled to $20 worth of goods or services on the market), we do not get a theory of how money in general becomes acceptable by everyone within the community. Thus, while Karimzadi may have found the logical *origin* of money, there is still much more to be explained about how certain types of money came to dominate market exchange in certain types of societies. Is there, then, a more historically sensitive and convincing theory than the barter exchange theory of money and the deductive approach to money?

The State-Religious Approach

Alla Semenova (2011) argues that there is indeed a more convincing theory of money's origins and she finds this in state-religious practices. To make her argument she seeks to revive the neglected work of German economic historian Bernhard Laum. According to Semenova, Laum argued that the ox was of key importance to Grecian societies and that the ox-unit for measuring value resulted from the temple-state practices of sacrifice and recompense (see also Desmonde 1962). This seems to make sense to Semenova because many of our financial terms derive from language used to describe cattle, and early Greek and Lydian coins were minted with bulls or the head of a bull. She points out how the word 'pecuniary'—which today means relating to or consisting of

money—is derived from the Latin *pecus*, meaning cattle. The term 'capital' originates from *capitale*, which meant to count cattle by the head and the Greek word for coinage—*nomisma*—is also derived from *nemein*, which originally meant to distribute "roasted bull's flesh during the rituals of communal sacrificial meals" (Semenova 2011: 378).

Semenova's argument is complex because she wants to derive money's origin from the "actual institutions and social practices" of early Grecian society (2011: 396). But her argument essentially boils down to the idea that the temple-state was at the center of the polis and its priests mediated the relationship between subjects and deities. Deities were owed sacrifices and the temples who received these goods and services as sacrifices eventually came to replace the cooked flesh of bulls—which was originally given as a gift for contributing to the temple—with coins made of electrum (a natural gold and silver alloy). Coins essentially represented a receipt that subjects had contributed to the temple. Semenova also reasons that these coins did not have any intrinsic value because electrum varies in composition by nature and each coin would therefore be slightly different, unlike today's standardized coinage. Thus, if Semenova's hypothesis is correct, the origins of money can be found in religious sacrifice and recompense mediated by priestly authorities (see also Quiggin 1949).

There is likely considerable truth to Semenova's account, but her study is limited to ancient Greece/Lydia and as yet has not been applied universally. Further studies of other cultures and societies would have to be undertaken to assess whether the state-religious approach to the origins of a generalized form of money has universal applicability. This brings us to another unorthodox theory of money's origin.

The Chartalist or (Neo)chartalist Approach

The chartalist approach to the origin of money was inspired by the work of Georg Friedrich Knapp (1924) and Alfred Mitchell-Innes (in Wray 2004: 16–76). Knapp labeled the tradition 'chartalist' after the Latin word for 'token' or 'ticket'—*charta* (Wray 1998: 24). Although there are slight differences within this school of thought, the basic thesis of the chartalists—now called (neo)chartalists—is that money is the creation of authorities or the state. What this suggests is that generally accepted money only emerges in a hierarchical social order whereby a ruler or rulers are able to legally dictate what money is and how it will be counted and accounted for (Bell and Henry 2001; Ezzamel 2009; Ezzamel and Hoskin 2002; Knapp 1924; Lerner 1947; Peacock 2003–2004; Wray 2002; Innes in Wray 2004).

Thus, in the (neo)chartalist approach, money does not derive from spontaneous trading on markets but actually predates markets and likely helped

to create them. To explain this, (neo)chartalists argue that the ruler's money becomes coveted by his subordinate subjects because this money is used to pay taxes, fees and fines the ruler imposes (Bell 2001; Wray 1998, 2002, 2004). We can think of taxes, fees and fines as debts owed to the ruler. Thus, in order to pay taxes and avoid the ruler's threat of punishment, people will be forced to render goods and services to the market in exchange for money. To (neo) chartalists the fact that the English verb 'to pay' derives from the Latin *pacare*, meaning 'to pacify,' is instructive: in paying taxes, fees and fines we 'pacify' the violent punishment that would otherwise be brought down upon us for failing to pay what the ruler is owed (Davies 2002: 25).

The evidence for the (neo)chartalist approach to money is further bolstered by evidence from the age of imperialism. For example, colonial rulers in Africa imposed a hut, cattle or poll (head) tax on the local inhabitants that had to be paid in the currency of the colonizers (Bush and Maltby 2004; Forstater 2005; Rodney 1972; Stavrianos 1981: 300ff; Wray 1998: 57ff). Under the threat of punishment Africans began to convert part of their land into cash crops to sell on the world market or were compelled to work for wages. If they could not discharge the debt they were subject to various forms of punishment. For example, "as Forstater (2005: 60–61) and others (Killingray 1986; Marks in Oliver and Sanderson 1985: 456) have documented punishments included: the burning of huts, shooting, the seizure of cattle and goods, fines, prison labor and public shaming" (Di Muzio and Robbins 2016: 52).[2] So there is considerable evidence that "money originates with a form of indebtedness that is forced on the lower [or weaker] class" in the colonies (Bell and Henry 2001: 219).

Some scholars have traced the idea of debt-taxes to *weregeld*, translated from old English as 'man payment' or 'man price.'[3] Weregeld, as we noted in Chapter 1, is a system of prices that specifically state what is owed to a family when one of their members was injured or killed. Payment of money was meant to stop blood feuds from getting out of control. However, Bell and Henry suggest that "money as a unit of account in which all debts are denominated" cannot be traced to *weregeld*. The reason is that these payments were instituted and agreed to by the collective body of the people, not the imposition of a minority ruling class or individual ruler (2001: 220). The invention of money, they argue, requires that there be a class hierarchy with a clear ruling class. Thus, if *weregeld* is not the origin of money, we are left to consider additional evidence to support the (neo)chartalist school. There are at least two plausible theories why a minority ruling class imposes its debt on a weaker or subservient majority class. These theories are not mutually exclusive, but we separate them out analytically for the sake of clarity.

The first reason why a ruling class is able to impose a debt or tax on a larger and more passive population is that as the population grows and the division of labor expands, individuals start to specialize in the production of goods and the provision of services. Some of these activities are treated as more important over time and individuals gain and pass down their specialist knowledge to apprentices (future rulers) to the exclusion of others. For example, Henry (in Wray 2004: 79–98) argues that the pharaohs and priests of ancient Egypt originated from a caste of early hydraulic engineers who worked the Nile to ensure proper flooding and good harvests for the community. Over time, these experts came to be revered because of their importance to the wider community and invented a religion to reinforce and reproduce their power over others. This allowed the caste of hydraulic engineers who eventually became pharaohs—the monarchs of Ancient Egypt—and priests to impose a debt or tax on the rest of society. To register this debt, the pharaohs invented a unit of account in weight called the *deben*.

As a unit of account, the *deben* helped the pharaohs and ruling priestly class to keep accounts on what was owed to them and the gods while mediating the relationship between the gods, ancient Egyptians and the afterlife. Thus, the first hypothesis why a minority can impose a tax or debt on a majority is because of labor specialization, the invention of a religion to justify minority rule and the widespread belief in the religious order of the natural world among the population. The threat of violence and/or punishment almost certainly played an important role in this process.

The second plausible reason why a minority ruling class introduces money is simply to provide itself with the means to make payments for goods and services it requires. Scholars have found that early standardized coinage (a stage beyond merely having a unit of account to record debts and credits like in ancient Egypt), or metal discs of uncertain weight and size found earlier, first arose in Lydia, part of modern-day Turkey. Under the rule of the King of Lydia, Croesus, the first gold and silver coins were stamped with a bull or a lion's head and put into wide circulation by the mid-6th century BC (Davies 2002: 62ff; Weatherford 1997: 30ff). At first, the coins were made of electrum, a gold and silver alloy found in the Pactolus River. As metallurgical skills improved, the first gold and silver coins standardized by weight were being stamped and put into circulation. The coins spread westward to Ionia and later to Greece and the Mediterranean world.

When Croesus was conquered by Cyrus, the King of Persia, the Persians adopted coinage, which helped spread the precious metals system east to Asia. As we will explore when we come to discuss the history of money, this act had profound consequences for the development of money, colonialism, slavery,

geopolitical warfare and the fiscal systems of the 'West' (Davies 2002: 65). From the mid-5th century, 'real' money would come to mean gold and silver coins rather than an abstract unit of account used to measure relative values and record debts and credits. Debits and credits would still be recorded in a unit of account, but imbalances were to be settled in coin periodically. Thus, Croesus used his power as the King of Lydia to make his gold and silver coins exchangeable for goods and services within Lydia and beyond. Most of his spending went to finance the preparation for war, soldiers and gifts to the gods as well as buildings. Sardis, the capital of Lydia, is also reputed to have had the first brothels. Unmarried women would work in the brothels of Sardis to earn enough for a dowry (Weatherford 1997: 32–33). In sum, in the example of King Croesus we have a second plausible theory for why a ruler imposes a debt on a majority population through the use of money: to fund state spending, particularly, although not exclusively, for war (see also Cook 1958; Crawford 1970; Kraay 1964).

While the neo(chartalist) school does not present a unified explanation for the origins of money, and this is likely impossible given that the origins of money stretch deep back into the human past, it does strongly suggest that money comes into widespread existence in a hierarchical society and is a pragmatic sanction by a political authority or minority ruling class. In this way, money can be thought of as the creature of law: the state declares what the unit of account will be and what will be used as money. This approach helps us overcome the limitations of Karimzadi's view of money because it helps us explain how a certain type of money becomes 'official' and is generalized throughout society.

There is further evidence for this claim in the *Guanzi*, an ancient Chinese philosophical text, which declares that money is sanctioned by the law of a ruler (Martin 2014: 56). Of all the approaches to the origin of money question we find Karimzadi's argument convincing. However, we also find that his argument is ultimately limited if we want to explain the historical development of modern money. For this reason we also find the state-religious and (neo)chartalist approaches to money the most convincing frameworks to explore the historical monetization of political communities and the natural world.

Theories on How New Money Is Created

As we saw in Chapter 1, we know that the money supply of most economies has expanded over time. But how does new money enter an economy? As we have suggested there is considerable public and professional confusion over the matter. To sort out the confusion we rely primarily on the seminal work of Richard Werner (2014a, 2014b), but will also discuss additional voices in the debates and include our own, particularly in the next chapter. Professor Werner should be viewed by all those interested in money and the scientific method as

having done the most to investigate and empirically examine how new money is created.

According to Professor Werner there are three main theories of money creation and one of them must be correct. He argues that each theory was dominant in a certain era and that the theory that is most predominant today—Bank Intermediation Theory—is empirically wrong. In this section, we will take a closer look at the three theories of money creation as outlined by Professor Werner (2014a).

Credit Creation Theory (Late 19th Century to 1930s)

Though there were some intellectual precursors, the debates on credit creation were popularized in the late 19th century until it was largely silenced and marginalized in the 20th century. The basic argument of those who held to credit creation theory was that individual banks create money when they make loans to individuals and businesses (for a list of early supporters of this view see Werner 2014a: 3–4). In other words, when a government, corporation or individual is deemed creditworthy enough to pay off a loan and service the interest, a banker simply credits an account with the money as a deposit.

This new deposit is a liability for the bank on one side of its balance sheet (it will pay out the deposit when you take the full value of the loan or a part of it) and an asset on the other side of its balance sheet (the loan contract and promise to repay the loan with interest). As banks continue to make loans to their customers, their balance sheets expand and new money enters the economy. If this theory is accurate it means that most new money is created as debt to commercial banks at interest and a credit to the borrower. It also means that the profits of this enterprise are funneled upwards to the owners of banks. We will discuss this further in the next chapter.

The Fractional Reserve Theory (1930s to 1960s)

The credit creation theory was marginalized by the rise of mainstream neoclassical economics. Thanks largely to the work of John Maynard Keynes, the textbooks that were emerging during the expansion of colleges and universities around the world featured both microeconomics (the study of individuals and firms and their allocation of limited resources) and macroeconomics (the study of the economy as a whole). While neoclassical economics largely dismisses the importance of money in their economic modeling and explanations of social reality, the fact that people, businesses and governments do in fact use money in their daily lives and that the supply of it does increase over time pressured early textbook writers to include some explanation of how the money supply expands.

The most common explanation was the fractional reserve theory, which argued that while banks could *not* individually increase the money supply, the banking system as whole could increase the overall supply of money. The theory begins with a customer going in to her bank and depositing a sum of money, say US$100. The bank is assumed to be regulated by the government and is ordered by law to hold a reserve requirement. Suppose that requirement is 10 percent. The bank would have to reserve US$10—the 10 percent—and cannot lend this portion out to customers. But, because the bank is only mandated by law to keep 10 percent of the deposit in reserve, the fractional reserve theory states that it can lend out the US$90 to a customer who is willing to borrow that amount.

Once the loan is granted, the new customer goes to a department store and buys a pair of jeans for US$90 with her debit card. The store receives the US$90 and the customer her new jeans. But the department store does not bank with the same bank as our fictitious borrower. This US$90 gets deposited into a different bank that must meet the same reserve requirement of 10 percent on the US$90 or US$9. Now, the department store's bank can loan out US$81 to a customer willing to borrow money.

This process is said to continue until there is no more money to lend out as reserves are held back by the banking system. Before we discuss whether this theory is accurate or not, let us be clear on the theory's basic assumptions. First, it claims that for a bank to make loans there must be depositors willing to save money. Thus, if this theory is correct, the amount of money the bank can lend will always be restricted by the amount of deposits made by customers and the reserve requirement mandated by public law.

Second, the theory claims that the banks are actually lending out the deposited money of their customers. If this really is the case, then we would expect two things to happen. The first thing we would expect is that there must be a banker or team of bankers that decides which accounts money would be taken from when making a loan to a borrower. How would the bankers know which account to take the money from? The second thing is, if this theory is true, then we would expect our bank balances to fluctuate wildly given that the bankers must be taking money from the accounts of depositors. If this really did happen, we would expect widespread panic across the population as the deposits of customers get reduced so the bank can lend out money. Obviously, this does not happen. For example, if you deposit US$1,000 in a savings account, unless you spend the money or transfer it to some other entity, it will not fluctuate on a day-to-day basis as your bank makes loans. Thus, the basic assumptions of this theory are impossible to defend based on experience and simple logic. To be sure, the logical facts have still not stopped this falsehood from being taught to thousands of undergraduates every year.

Financial Intermediation Theory (1970s to Present)

According to Werner the most popular theory in finance and economics is financial intermediation theory. In this theory, banks simply take in money from their customers as deposits and loan out money to willing borrowers. Financial intermediation theory does not see any special role of banks as the creators of new money; they simply 'intermediate' the relationship between savers and borrowers. While this theory eschews the fractional reserve account of money creation, because the process of lending begins with depositors, the same two false assumptions we discussed earlier have to hold.

First, people must deposit money before a bank can lend; second, bankers must decide whose account to take money from to lend, leading to fluctuating balances across the accounts of its customers. But in addition to these false assumptions, there is another glaring error. While the fractional reserve theory is false, at least it does *try* to explain the expansion of the money supply. Financial intermediation theory is far worse as it does not even attempt to, and indeed cannot, explain how the money supply expands. The fact that many intellectuals hold to this view and teach it to undergraduates is striking, but humans have believed many falsehoods over the course of history. If these two theories are logically flawed, what evidence is there for the credit creation theory of money (see Figure 2.2)?

The Evidence for Modern Money Creation

Richard Werner (2014a, 2014b) must be credited for the first empirical study to evaluate the three theories discussed earlier. Professor Werner asked a mid-sized bank in Germany if it would extend him a loan of €200,000 and if he could record the balance sheet procedures that take place during the process.

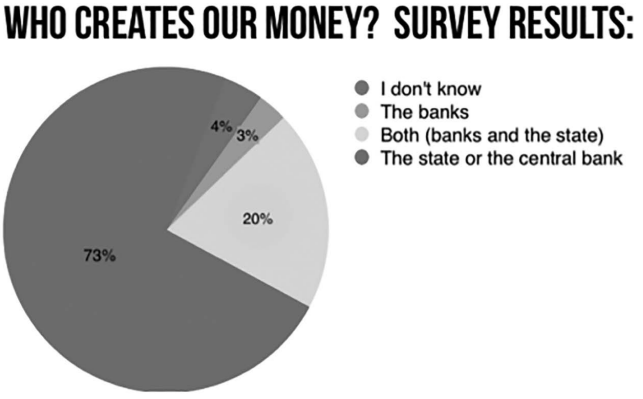


Figure 2.2 **Surprisingly, few people, including economists (as well as other social scientists), understand how money is created and, more importantly, who creates it** (Source: Getty).

He also brought along the BBC to film the computer screens as the loan transaction was made. In studying the balance sheet operation, Werner concluded that we must reject both the fractional reserve theory as well as the financial intermediation theory as there is no evidence for either. The only theory that accords with the available evidence is the credit creation theory of money. Werner concludes:

> Thus it can now be said with confidence for the first time—possibly in the 5000 years' history of banking—that it has been empirically demonstrated that each individual bank creates credit and money out of nothing, when it extends what is called a 'bank loan'. The bank does not loan any existing money, but instead creates new money. The money supply is created as 'fairy dust' produced by the banks out of thin air. The implications are far-reaching.
>
> (2014a: 16)

Indeed, the implications are far-reaching for an understanding of our economies and societies as well as future possibilities. But there is also additional evidence to support Werner's observation. The Bank of England tried to put the record straight in one of its quarterly reports:

> In the modern economy, most money takes the form of bank deposits. But how those bank deposits are created is often misunderstood: the principal way is through commercial banks making loans. Whenever a bank makes a loan, it simultaneously creates a matching deposit in the borrower's bank account, thereby creating new money.
>
> (McLeay, Radia, and Thomas 2014: 1)

While this is the truth of the matter, there continues to be considerable confusion over modern money creation. In fact, as Werner suggests, over the 20th century there has been a progressive 'un-learning' of the way in which new money is produced in our economies. It is worth quoting Professor Werner's remarks at length:

> Since the 1930s, economists have moved further and further away from the truth, instead of coming closer to it. This happened first via the half-truth of the fractional reserve theory and then reached the completely false and misleading financial intermediation theory that today is so dominant. Thus this paper has found evidence that there has been *no progress in scientific knowledge in economics, finance and banking in the 20th century*

> concerning one of the most important and fundamental facts for these disciplines. Instead, there has been a regressive development. *The known facts were unlearned and have become unknown.*
>
> (2014a: 16, our emphasis)

But how did this erroneous thinking on the question of new money creation come to be? Werner suggests that the eminent economist John Maynard Keynes may have been the chief culprit given his fame and notoriety. He argues that Keynes labeled anyone who argued for the credit creation theory of money a 'crank,' as did subsequent Keynesian scholars after him (Werner 2014a: 17). What motivation scholars may have had or still have for disparaging credit creation theory can be debated. However, part of the reason for the marginalization of credit creation theory in the economics and finance professions may be the result of willful ignorance, deliberate avoidance, or perhaps the fact that students of economics and finance lack a deep historical understanding of the emergence of money. While it is difficult for us to overcome the willful ignorance or deliberate avoidance of mainstream scholars, what we can do is offer a brief history of money that may help clarify why the credit creation theory is accurate.

A Brief History of Money

To provide a brief history of money, we will be guided by a historical schema presented by one eminent scholar of money, Geoffrey Ingham (2004). In his masterful work, *The Nature of Money*, Ingham introduces us to four distinct periods or stages of money creation:

- Money accounting according to a standard of value without transferable tokens (earliest known case: Mesopotamia, 3rd millennium BC);
- Precious metal coinage systems (Asia Minor, c. 700 BC to early 20th century);
- Dual system of precious metal coinage and credit-money (15th to early 20th centuries);
- The pure capitalist credit-money system (mid-20th century onwards) (Ingham 2004: 78).

We should note that while separating these periods out analytically is useful, in practice there are considerable overlaps between these eras. This is largely because money is effectively an abstract concept and can be represented by a number of different mediums. But this does not change the fact that money is an abstract claim on human and natural resources measured in a unit of account.

Money of Account without Tokens (3rd Millennium BC)

We are most used to thinking about money as notes and coins. However, notes and coins were a much later invention and have come to play less of a role than digital or deposit money in the most economically advanced societies. From our historical record we can trace the origins of money back to about 2500 BC in Mesopotamia and ancient Egypt (Copeland 1974; Ezzamel 2002, 2009; Hudson 2000 in Wray 2004: 99–127; Keister 1963; Powell 1996). Mesopotamia is the name given to an area of land surrounding the Tigris–Euphrates river system and covers most of what is modern-day Iraq.

Egypt's civilization began on the Nile River. The region as a whole is believed to be one of the cradles of civilization where humans first domesticated plants and animals about 10,000 years ago. The Egyptian and Mesopotamian civilizations were hierarchical and can be considered agrarian command economies (Ingham 2004: 91). In Mesopotamia, the *shekel* was used as a unit of account, whereas in Egypt it was first the *shat* and then the *deben* that measured relative values. All three represented weight measurements in grain or a metal like silver. As we have already discussed in the case of Egypt earlier, in hierarchical societies one group or class garners enough power over time to impose its will and standards of measure across the entire population. Those who refuse this imposition are punished, demonstrating to other possible recalcitrants and detractors what could happen to them if they disobey the rule of the powerful.

As in ancient Egypt, the city-states of Mesopotamia had temple priests to mediate between human beings, earthly goods and the gods. For example, the religious temples "owned and accounted for land, buildings, and herds . . . and they were the recipients of sacrifices, taxes and services" (Keister 1963: 371). We have evidence that most of these transactions were recorded on clay tablets and involved information on "receipts, disbursements, inventories, loans, purchases, sales, leases, partnership formations and dissolutions, [as well as] guarantees" (Keister 1963: 2) (see Figure 2.3). The ancient Egyptians or Mesopotamians did not have a modern accounting system, nor did they use standardized coin to make transactions among one another or with the temples. Powell (1996), however, notes that while some silver and gold was used as money, barley, lead, and copper were more common mediums experienced by most Mesopotamians.

But while ancient Mesopotamia and Egypt were for a time non-coinage societies, they were record-keeping societies. In fact, it is believed that writing first emerges out of these hierarchical agrarian command economies and the rulers' and priests' need to count and account for various credits and debts, sacrifices, donations, goods and services (Bell, Henry, and Wray 2004: 58; Catchpowle 2004: 1040; Davies 2002: 50; Ingham 2004: 94; Wray 1998: 50; Wray in Smithin 2000: 43). In short, from the available evidence money does not emerge as some

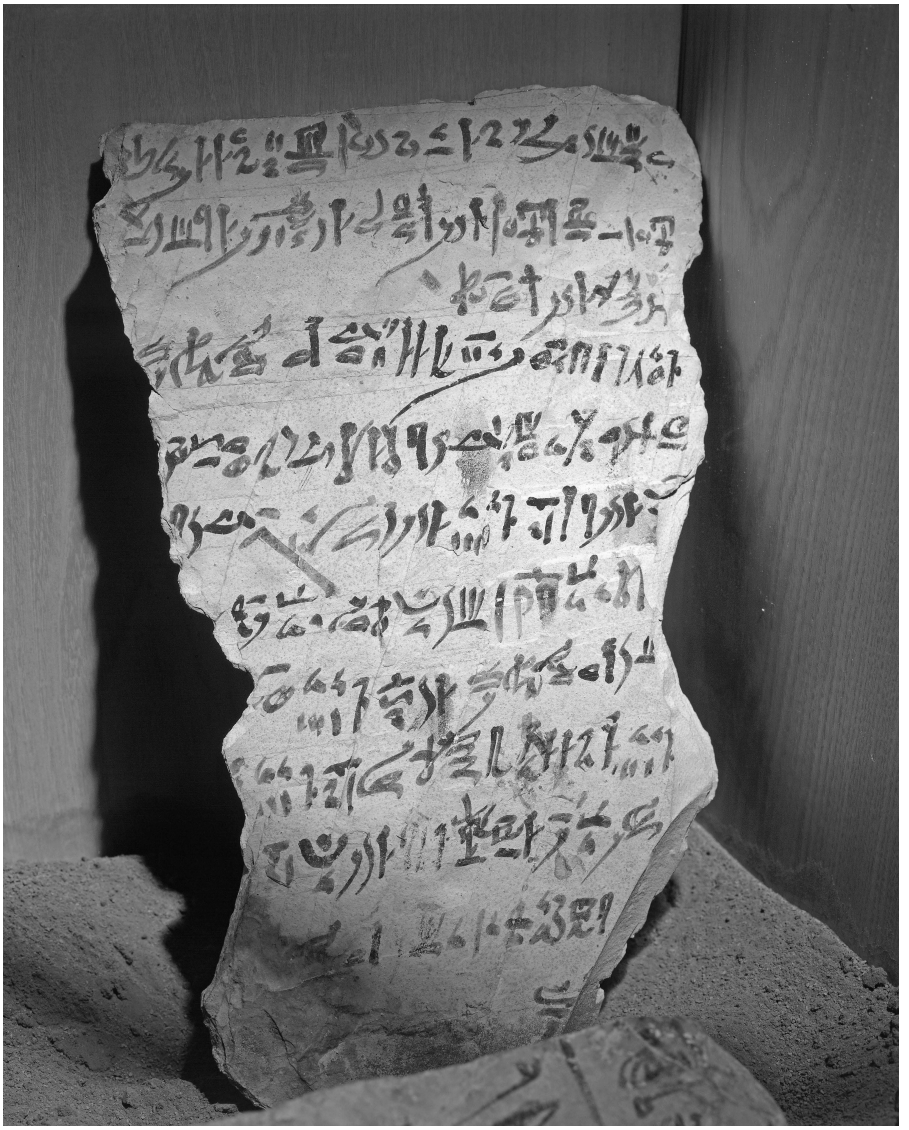


Figure 2.3 **The origins of money are likely found in a community's need to keep accounts of debits and credits or even the amount of grain in storehouses. In ancient Egypt such accounts were inscribed on pottery shards** (Source: Getty).

'thing' or 'medium' or even a 'store of value' but as a unit of account (Ezzamel and Hoskin 2002: 335). As Ingham notes:

> All evidence points to the historical origins of money as a means of calculating obligations and debts in pre-market tribal and clan society. Early settled agricultural societies developed more complex division of labor

> than the hunters and gatherers, generating a surplus that was distributed unequally. Measures for the assessment of differential social and political obligations were developed . . . The first money calculating societies for which records exist are the command economies of the ancient Near East.
>
> (2004: 105–106)

A general money used society-wide, it would seem, first emerged as a unit of account. This makes logical sense as Ingham intones: "The very *idea* of money, which is to say, of abstract accounting for value, is *logically anterior and historically prior to market exchange*" (Ingham 2004: 25, emphasis original). In other words, it would be very difficult to buy or sell anything before you have a unit of account to represent and measure value. What physical object is used as money can be determined only afterwards.

Precious Metal Coinage Systems (c. 700 BC to Early 20th Century)

As we have previously discussed, precious metal coins began to emerge in Lydia and Ionia in the mid-6th century BC. Although some coins were in existence beforehand, King Croesus of Lydia is credited with having created the first standardized coinage system made of electrum (a natural alloy of gold and silver) panned from the Pactolus river (Davies 2002: 62; Zarlenga 2002: 32) (see Figure 2.4). The practice of using coins as a representation of a money of account would have profound consequences for virtually every society on the planet, not least the slaves who died early and wretched deaths working the mines of the world for the powerful (Del Mar 1886). Indeed, we could refer to a military-slavery-coinage nexus emerging by "the second half of the first millennium BC" (Graeber 2011; Ingham 2004: 99). We must also remember that the search for precious metal among the rulers and priests of this era and the justification for conquest and slavery were inseparable from religious power and religious thought. As Alexander Del Mar reminds us:

> There was no lack of pious intent in the declarations and official reports of the monsters who overthrew the Mexican and Peruvian empires, and cast their inhabitants to the bloodhounds or forced them into darksome mines; nor was there any in the professions of Charlemagne, who, in the name of Heaven, drove the Saxons into the silver mines and thus doomed them to extermination.
>
> (1886: 49–50)

Thus we must keep in mind that the early history of coinage is also a tale of religiously justified carnage and slavery in the quest for power and the conversion

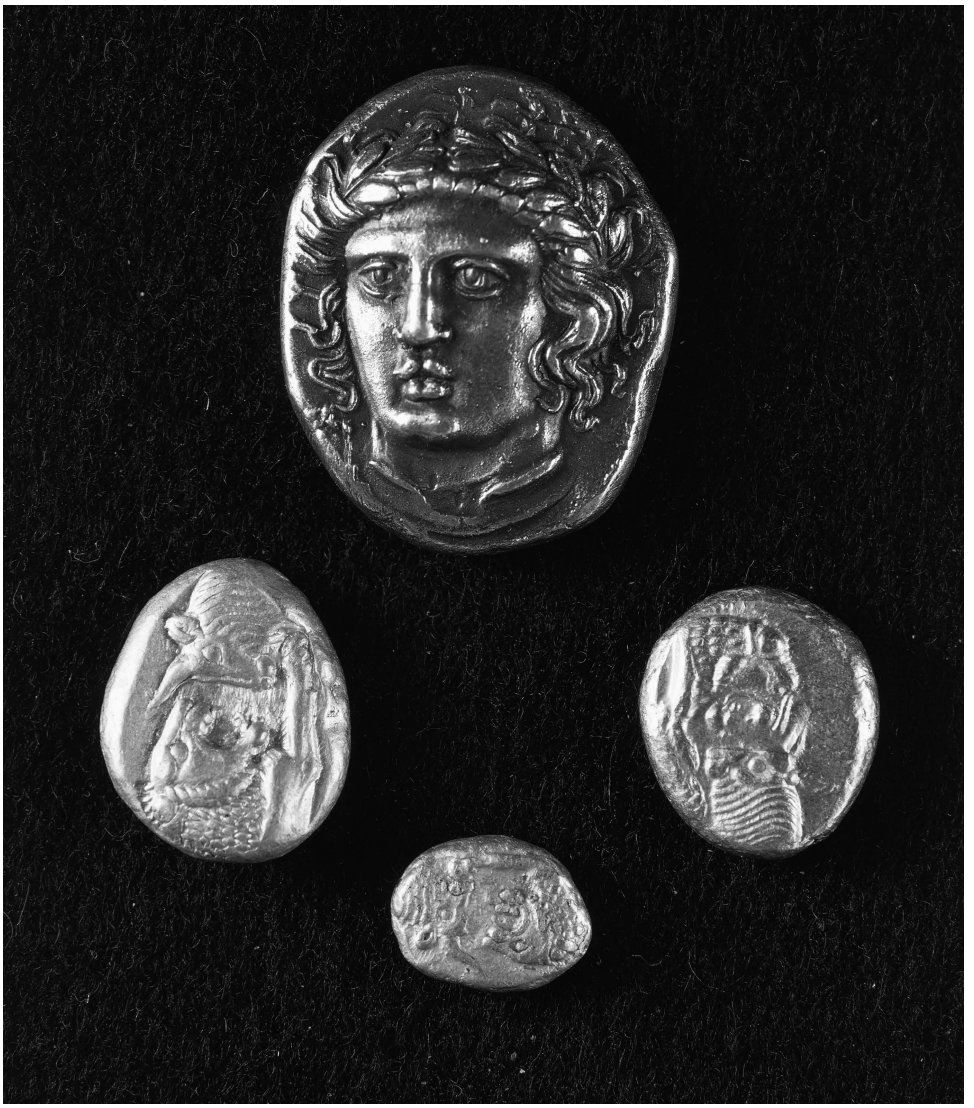


Figure 2.4 **As coins of precious metal began to be issued by rulers, such as these issued by Croesus, King of Lydia in the 7th century BC, their use also coincided with the practice of military expansion and slavery, producing what anthropologist David Graeber building on Ingham (2004: 99) referred to as the "military-slavery-coinage" complex** (Source: Getty).

of more souls to whatever be the dominant religion of the era—be it polytheism or monotheism.

As the invention of coinage spread both East and West and intersocietal communication and trade grew, many rulers adopted the idea of coined money and ensured that minting the coins was a sovereign prerogative, the exclusive right of the monarch, emperor or ruler. One of many examples is King Charlemagne's

(742–814) Roman-inspired monetary reforms and the official sanction of new notations for precious metals we know as the pound, shilling and pence. Adopted by King Offa of Mercia (757–796) based on the Latin *librae*, *solidi* and *denarii*, this notation system was used in the British Isles until it adopted the more common decimal system in 1971. Rulers sought to accumulate ever more gold and silver in order to fortify their rule, pay for soldiers, engage in intersocietal trade and provide a variety of 'gods' with offerings at various temples constructed throughout this era.

The chief difficulty in this pursuit was the simple fact that gold and silver are limited by nature. What this means is that if you do not have access to silver and gold deposits on your territory to mine and mint into coins, your options of obtaining the metals—and therefore your intersocietal power—are limited. There are only five possible alternatives that can be used by rulers to overcome the scarcity of gold and silver. First, a ruler can plunder gold and silver from others who have it. For example, Alexander the Great seized gold and silver "in 330 BC from the eastern temples at Susa, Ecbatana and Persepolis, estimated at 740,000 talents, including 2,200 metric tons of silver valued at 180,000 talents" (Zarlenga 2002: 27). Second, a ruler or his subjects can trade goods and services to obtain gold and silver coins from other nations. Third, the monarch can try to take over territories from others where gold and silver deposits are found. Fourth, a ruler can debase the coinage by calling in all the coin, melting down the metal and reissuing coins with less metal content than the coins previously had. Last, the sovereign can privatize parts of his or her estate or sell noble titles to their subjects in return for gold and silver. But while this practice, like the practice of taxation, may increase the coin going to rulers, it does not increase the overall supply of coinage in and of itself. To a greater or lesser extent, European rulers engaged in all these activities to help overcome the consistent shortage of gold and silver and the limitations this had on their power over their subjects and foreign rivals.

Adding to the scarcity of gold and silver coins problem in Europe was the difference in the exchange rate between gold and silver in the East. Europeans could get two ounces of gold in exchange for twelve ounces of silver in India, whereas they could only get one ounce of gold for twelve ounces of silver in Europe. This contributed to a massive drain of silver and amplified the 'silver famine' in Europe by the 14th and 15th centuries (Spufford 1988: 339–340; Zarlenga 2002: 110). But while the loss of silver to the East was an important development, it was also the shortage of gold that worried European rulers. Western Europe did not have any significant gold mines, yet gold was the dominant currency for settling the trade in foreign luxury goods and gaining access to mercenaries (Davies 2002: 82, 122, 132, 142; Vilar 1986: 22). But other than

the lack of mines, are there other factors that contributed to the shortage of gold in Europe?

Vilar identifies three more: (1) gold was used to pay for luxury goods purchased mainly in the East, thus draining Europe of gold; (2) gold was often looted by Vikings such as the Normans; and (3) church officials hoarded gold as a store of value to be used in emergencies (1986: 32). The combination of these factors would have tremendous consequences for other civilizations outside of Europe.

While we cannot reduce European exploration, conquest and colonialism to one single cause, clearly merchants and rulers from Northwestern Europe were looking for a sea route to the rich Asian trade. The rise and spread of Islamic rule in the Middle East and North Africa, combined with a series of Crusades beginning in 1095 to take back Jerusalem from Muslim rule, made it more dangerous and costly to trade, particularly with the rise of the Ottoman Empire in 1299.

It was believed that a sea route to Asia would circumvent having to deal with the Ottoman Empire. But while the desire to trade with the East to obtain spices and other luxury items was a crucial impetus for the construction of ships and seagoing exploration, there was another very important reason: merchants and rulers wanted to find precious metal, particularly gold. It was one very eager Italian from the Republic of Genoa who managed to convince the King and Queen of Spain to finance a voyage west to Asia. What is too often forgotten is that Christopher Columbus's voyage was a capitalized venture. The Crown of Castile, the banker Beradi and additional investors from Andalusia financed Columbus's plan and expected a return on their investment (Vilar 1986: 63). This put considerable pressure on Columbus to not only find a sea route to the East but to find gold so that he could provide his investors with a return on their capital. Vilar captures this lust for metal beautifully:

> Between 12 October 1492, when he reached the first island, and 17 January 1493, when he began the return voyage, Columbus's diary mentions gold at least 65 times. Its very naivety is so revealing that there is no doubt that it is dominated and obsessed by hunger for gold . . . It would be wrong to say that what Columbus was looking for was the way to the China of the Grand Khan, and not gold or spices. He was looking for both, just as the Portuguese were when they rounded Africa. The first question he asked on discovering the Caribbean islands was whether there was gold . . . As soon as he saw that the Indians did not value it very highly, and would exchange it for trinkets, he even took the trouble to convince them gold was the only thing he was interested in.
>
> (1986: 63–64)

Columbus did indeed find gold in the Caribbean, albeit only in small quantities. But this was enough to convince merchants, soldiers and rulers in Spain to set off on grander expeditions, dedicating more ships and more conquistadors to find gold and additional riches. Over the next two centuries companies across Western Europe were formed to plunder Spanish ships returning with gold and silver from what we now call the Americas. Companies were also formed to take advantage of the new sea routes to exploit distant lands. The consequences of this quest to find gold, silver, land and other riches for the native inhabitants of North, Central and South America were to prove genocidal (Del Mar 1886: 75).

In their colonization of South and Central America, the Spanish eventually discovered the major sources of gold and silver in the 'New World.' Of all the mines being developed, the Potosí silver mine in modern-day Bolivia (then known as Peru) may have been the most important for Spain, Western Europe and the trade with Asia. The mine was discovered in a relatively inhospitable environment about 4,000 meters above sea level in 1545. The first development of the mines date from the discovery until 1564 when silver was mined by old Indian methods under Spanish control. But the output of silver pesos declined over time until a new, more brutal method was instituted by the Spanish. Francisco de Toledo not only introduced a mercury amalgam process that allowed for the mining of poorer ore, but he was also responsible for introducing the *mita* system.

This was a system that forced entire villages, under the threat of collective punishment, to select Indians to work the mine at Potosí. Many Indians resisted by riot, escaping their villages or paying off village leaders to become exempt from mine duty (Vilar 1986: 129). Those left to work the silver mines were often the most poor and vulnerable. When the *mita* system was introduced in 1574, more Indians forcibly left for the mines and silver production and ecological degradation increased tremendously (Moore 2010). Spain grew rich from the gold of South America and the Caribbean, and now thanks to a system of forced labor and the blood and sweat of Indians, it was now rich beyond belief in silver. When it was not plundered by pirates, the precious metal of the Americas was painstakingly taken back to Europe, where it was divided up by the owners of mining concessions. The influx of gold and silver from the Americas had significant consequences for Western Europe, but it was not the decisive factor in the financial revolution that would eventually expand the money supply and allow for a greater capitalization of human resources and nature. To understand this, we have to solve a bit of a riddle: if Spain and Portugal were importing so much gold and silver from the Americas, why did their economies soon decline? A further question could be asked: why was it England that industrialized first and not Spain and Portugal? After all, Spain and Portugal gathered most of the gold and silver the world had to offer.

Virtually all historians agree that the two countries that exploited American gold and silver to the utmost soon went into economic decline while Amsterdam and England (Great Britain from 1707) were fast becoming the new masters of industry and the sea. What happened to these early leaders of international power? The rulers and high officials of Spain and Portugal are said to have squandered the new precious metal coins pouring in from America on new wars, the payment of earlier debts racked up by previous wars, ornate churches and buildings and luxuries from the Eastern trade (Arrighi 1994: 42ff; Wood 2002: 148ff).

As quickly as the gold and silver flowed in, it flowed back out again with little investment in productive activity in agriculture or manufacturing. The case was different in Amsterdam, where industry and commerce flourished under Dutch imperialism in the East. But Europe's first widely circulating credit money was not a product of the Netherlands, nor were the Dutch the first to witness sustained industrial economic growth. One of the primary reasons for this was that the Bank of Amsterdam was not a bank of issue creating new money as credit. Established in 1609, the Bank of Amsterdam was not a private institution operating in the particular interests of some minority class of elites; it was owned by the city of Amsterdam itself. With a few exceptions where it did extend credit, the bank's primary purpose was to guarantee the quality of a paper currency that circulated between traders and merchants (Vilar 1986: 206; Wennerlind 2011: 69; Zarlenga 2002: 238ff). Merchants and traders could rest assured when they used the Bank of Amsterdam's paper money because it was fully backed up by the exact amount of coin in its vault under City Hall. Thus, if there were paper notes worth one million florijns in circulation, this would be backed up the same amount of coin. As it turns out, it was the monetary development in England combined with an energy revolution that would have incredible, and often unexpected, consequences for world history and the future of money.

Dual System of Precious Metal Coinage and Credit-Money (15th to Early 20th Centuries)

There is little doubt among historians that paper notes representing a promise to pay in coinage circulated along with coin (Davies 2002: 252; Muldrew 1998). But the habit of using paper notes did not spark any quick revolution in thinking that money was actually an abstract concept capable of being represented by all manner of items rather than metal coinage. People continued to believe that 'real' money was coined money, primarily of gold and silver. Paper notes or transactions recorded in the ledgers of merchants were merely thought to be representations of precious metal. This presented a key problem, particularly for an economy that could expand its productive forces. As long as gold

and silver remained limited, so too would industry because there would not be enough money in the economy to circulate all goods and services. Because producing goods and services in a market economy is primarily done for money, as soon as producers made losses due to a lack of money, they would curtail production. This is particularly true in organic economies without a surplus of fossil fuels to do work. But something was astir in 17th-century England that would set it apart from the rest of the world. What sparked it were two debates: the debates on the dearth of wood and the debates on the dearth of money. The two, we believe, are intertwined.

We often don't think about it today in our fossil-fueled world of high-energy consumption (at least for some of the planet's inhabitants, the majority are energy-poor), but wood was a primary source of energy for most of human history. Wood was also used for heat, tools, weapons, ships and houses among other things. But by the early 17th century, if not before in some regions of England, there was a dearth of wood signaled by a tremendous increase in the price of timber. Britain, as it were, experienced an energy crisis (Cipolla 1977; Fouquet and Pearson 1998; Goldstone 2002; Malanima 2006; Nef 1977; Podobnik 2006; Smil 1994: 159; Thomas 1986; Wrigley 2010).

At first timber was purchased from the Baltic region, but this made England reliant on foreign timber, just as today the United States and many other advanced economies are reliant on foreign oil for the reproduction of their economies. Moreover, purchasing timber from abroad meant sending more coinage overseas, leaving less money to circulate goods and services within England. To solve the crisis and decrease its reliance on Baltic timber, England turned to an alternative source of energy: coal. Coal had been in use in England, Scotland and Wales at least since the Roman invasion (AD 43). But because wood was always preferred and at first plentiful and cheap, only small amounts of coal were consumed.

But in the context of an energy crisis, England turned to coal energy like no other nation (Wrigley 2010). This set England on a path towards industrialization. The primary reason is that the essential element or ingredient for the Industrial Revolution was the steam engine, and the steam engine was invented by an ironmonger to pump water out of coal and tin mines. With the water cleared, miners could extract ever more coal energy from ever greater depths. Coal was not only used in cooking and heating, but more importantly, for the production of coke used to make iron and steel. Thus the dearth of wood problem was resolved by an energy transition unique, at least in the quantities consumed, to Great Britain. In essence, this meant that the British economy could be far more productive than any other political community tied to photosynthetic energy. But there was a big problem: how to expand the money supply

when 'real' money was thought of as limited gold and silver coin. The answer was to create credit money not fully backed by a metallic horde of gold and silver.

By the 17th century, the dearth of money problem was acute. Most understood that the English economy could be made more productive, but not having enough money to circulate goods or pay for services was a considerable problem. Many intellectuals thought that the problem could be solved by transforming base metals like lead into gold and silver. This was called 'alchemy,' and belief in it inspired the search for the Philosopher's Stone—the mysterious substance alchemists believed could transform more abundant and cheaper metals into gold and silver. The English, of course, were not the first to search for the Philosopher's Stone, the quest had begun as far back as 300 BC.

Like those who had come before them, the English had no luck in magically creating more gold and silver out of base metals. But eventually a group of scientific thinkers called the Hartlibians (named after Samuel Hartlib, their leader) asked themselves a very important question: What is money? Is it really gold and silver, or is it an abstract idea capable of being represented by other, more abundant items like paper? The Hartlibians were on to something. They were breaking away from the long tradition of metallist thought. Wennerlind captures this revolution in thinking as follows:

> The Hartlibians maintained that the exchangeability of money was determined by people's trust in money's capacity to serve as a pledge and security in market exchanges. As such, they departed from the neo-Aristotelian tradition of conceiving of coin as mediating commerce because it embodied the same intrinsic value as the commodities for which it was exchanged. Instead, they argued that people were willing to accept money in exchange for their goods because they believed that money would enable them to purchase other goods of the same value at a later date. Money's value was therefore determined more by the future than by the past or the present.
>
> (2011: 83–84)

The Hartlibians had broken with tradition: money was not precious metal; precious metal was only a representation of the idea of money. But while the Hartlibians debated the nature of money, in practice, a number of merchants and goldsmiths had already figured out a way to extend the money supply. What some merchants and goldsmiths realized was that they could extend credit to their customers based on their reputations in the community. In other words, they could lend money to creditworthy borrowers by issuing pieces of paper over and above what they actually possessed in coinage.

For example, a goldsmith might have £1,000 in gold deposits but may lend out an additional £200 in credit on the belief that his depositors would not all come to redeem their gold at the same time (Davies 2002: 252). It appears that three events helped to expand the amount of money in the economy. First, merchants had long practiced the art of double-entry bookkeeping. Trades between merchants were often made in ledger books with the clearing of accounts only taking place at designated times—mostly at fairs. For example, a merchant from England could be trading wool with a merchant from Amsterdam selling clogs. They continue to trade throughout a given year, recording the monetary value of their trades in their respective ledgers. This would look like a series of debits and credits in each of their accounts at any given time.

Sometimes the trader of wool would be ahead (owed money) and sometimes the seller of clogs would be behind (owing money) and vice versa. At the end of the year or some designated time, they compare their books and find that the seller of clogs is owed £100. At this point, if the two part ways and no longer wish to trade as they had been doing so, the trader of wool would pay £100 in coin to the seller of clogs. So while Europeans and a few others believed that the only 'real' money at this time was precious coinage, there was a practice of simply recording transactions with the books only having to balance at some point in the future. Someone would be in debt for a time, another owed money, but this hardly mattered until the accounts had to be settled in coin at some point in the future.

The second practice that helped expand the money supply was the practice of using paper notes as a representative of coin. As more and more merchants trusted the use of these notes, there was little reason to make transactions in gold and silver, which were a burden and risk to carry—particularly over long voyages and for trades in large amounts. The mere belief that notes could be exchanged for coinage (real money, not a representation of it) at some point in the future facilitated the expansion of the money supply, because goldsmiths and merchants could issue notes based on their reputations. The higher the reputation of goldsmiths and merchants issuing the notes, the more likely people were to use them and accept them to purchase goods and services. For example, if I draw a spider on a piece of paper and draw the number $5 and issue it to you in return for $5 worth of goods, you will likely not accept the note.[4] Why? It is likely because you believe that the note is essentially worthless—you cannot use it to command goods and services from other people and you cannot redeem it for gold or silver. But if a goldsmith with a strong reputation for good bookkeeping issues you a note, you will be more likely to use it because you believe that others will accept it in exchange for goods and services because they believe they can ultimately redeem it for precious coinage.

So as more paper notes entered into circulation before the modern age, more and more merchants became familiarized with their use. As long as merchants were confident that the notes could *eventually* be redeemed for precious coinage, there was little need to actually carry coin for the purposes of trade with familiar entities. The third event, quite understudied in its complexity, is equally important for the expansion of the money supply. In order to expand the money supply without causing ruinous hyperinflation (rapidly rising prices), a surplus energy source that is accessible, abundant and affordable must be available. This is because energy is the capacity to do work, and if we have more energy, we have a greater capacity to produce goods and services.

We can see this easily enough by looking at some simple math. Imagine one economy that currently only produces without fossil fuels, and the goods and services it produces are worth US$100. If this economy starts to use fossil fuels, it could be more productive, and say produce US$100,000 worth of goods. You can see why there would have to be more money in circulation. As we know, it was in England where coal energy started to be exploited in quantities never seen before in human history. Because energy is the capacity to do work, the more energy consumed in an economy means that more work can be done. We have come to call this period of human history the Industrial Revolution, and it was undoubtedly a British affair in the beginning (Allen 2011).

The exploitation of coal energy was a decisive break in human history and allowed for the expansion of the money supply in England without ruinous inflation. To sum up then, three events helped encourage the idea that the money supply could be expanded: merchants trading in ledger accounts; the presence of paper notes representing coinage; and a surplus energy supply that broke the back of the organic energy economy and facilitated the greater production of goods and services. But the question of exactly how to increase the supply of money was fiercely debated (Horsefield 1960). We cannot consider all the proposals that were put forward in England at the time. Instead, it is better to concentrate on what proposal was accepted.

Though a number of ideas were put forward for a public bank, it was the suggestion of William Paterson that eventually carried the day. The English government was in bad need of money to fight a war against Louis XIV and could not raise enough revenue in taxes for this purpose. Paterson suggested the formation of a Bank of England to be owned by private social forces (see Figure 2.5). Wealthy investors from London and abroad would be given the opportunity to subscribe to a share in the bank, entitling them to dividends from the Bank of England's profit. Altogether, Davies reports that there were 1,509 investors in the bank, with the majority of shares in the hands of 170 people, or 11 percent of the bank's owners (2002: 261).

Figure 2.5 **Our modern monetary system was established with the founding of the Bank of England in 1694, as depicted here in a painting by George Harcourt** (Source: Getty).

On the basis of this paid in capital, the Bank of England extended a loan to the English Parliament for £1,200,000 in exchange for 8 percent interest and £4,000 in management fees. But how would the investors in the bank be repaid? The answer is that the investors were capitalizing Parliament's ability to tax the population and punish those who refused to pay. A portion of these revenues taken in would go to service the Bank of England's investors. We can call this the *capitalization of state power*. But because we know that the majority of state spending at this time was on warfare, the investors in the Bank of England were

also investing in England's ability to fight successful wars, wars that would open up further foreign trade and new lands for plunder and colonization.

Now, what is very interesting from our point of view is that it seems clear that Parliament was not given the entire £1,200,000 in precious coins but mainly in Bank of England notes that could be exchanged with merchants for government requisitions (Davies 2002: 255ff; Richards 1958; Rubini 1970: 696). As long as everyone believed that the notes could eventually be exchanged for coinage at the leisure of the bearer, then the bank notes could circulate freely. But how much coined money did the Bank of England actually hold in its vault to back up the newly issued notes? From the evidence available, no one knows for certain.

Rubini suggests that the Bank of England had a fluctuating reserve of silver for all notes outstanding of about 2.8 percent to 14.2 percent. Wennerlind notes that the founder of the Bank, William Paterson, thought that 15 percent to 20 percent would suffice to assure sufficient confidence in the Bank of England (2011: 128). From 1861, the bank no longer held any reserves in silver, but in gold (Davies 2002: 315). Whatever the exact figure of the bank's reserves, we can be certain that the notes in circulation were of far higher value than the actual silver (and later gold) held in the vault at the Bank of England.

As Wennerlind argues, this was a watershed moment: "the Bank's notes circulated at par from the start, signaling the arrival of England's and Europe's first widely circulating credit currency" (2011: 109). Thus the institutionalization of the Bank of England did not only serve to expand the money supply on a scale that had been impossible for individual goldsmiths and merchants, but it also ushered in a permanent national debt that would grow and grow as more money was borrowed for war over time (Brewer 1989). From this point on, in order for Parliament to spend more money than it took in in taxes, fines and fees, it was *structurally forced to borrow* from private social forces (owners of the Bank of England and eventually additional banks).

So the exclusive right of the sovereign to issue money was usurped by a small group of investors who would create more money by extending credit in the form of paper notes. The creation of credit money—a public good necessary in a growing market economy—was privatized and owned by the few. Over time, more banks throughout Great Britain were institutionalized and issued their own notes in a similar fashion to the Bank of England. This continued until the Bank Charter Act of 1844, when the Bank of England was given the monopoly over note issue (Davies 2002: 314ff). We will explore the consequences of this for our economies in the next chapter, but the legacy of this institutional arrangement is still with us today.

The only difference is that modern money is mostly digital and it is no longer linked to any metallic horde of gold or silver. It is *credit money* or an inconvertible

form of money that can be circulated because of government authority and legal tender laws. What this means is that if you refuse to accept the official money of a given political community for goods and services you have on offer, you can be punished by the state in some form. For example, if I want to sell lemonade, I can ask to be paid in gold coins, but I cannot legally refuse if people turn up to my stand and want to pay me with paper notes that the government claims have value. But to understand how we arrived at an international credit money system, we have to discuss a brief history of something you may have heard a bit about: the gold standard.

To be sure, gold played a prominent role in international commerce ever since King Croesus minted the first standardized gold coins, and this system of commodity-money spread west across the Mediterranean world and east to Asia. But gold existed alongside silver for centuries and as we have discussed, played a noticeable role in the domestic transactions of Europe, China and North, Central and South America. Why did leading commercial countries go from a bimetallic standard (silver and gold) to one where gold was prioritized and silver largely demonetized? The answer appears to be because of a struggle between the Crown and Parliament and the Bank of England. According to Knafo (2014: 54), the majority of the seats in Parliament were held by landlords who received rents on their properties. He argues that because rents were relatively fixed, landlords had an interest in the stability or soundness of money. It was believed that too much money in circulation would create inflation and therefore eat away at the rents the landlords received.

At the time, both the Bank of England and multiple provincial banks were issuing their own paper notes as money. The expansion of the money supply facilitated trade and industrialization in both urban centers and outside of London (Vilar 1986: 284). However, concerns over inflation and bank power remained among the landed class. Knafo argues that the landlords resented banks being able to issue paper currency based on their reputations and the belief that the notes could be converted into coin. There was thus a keen interest in regulating note-issuing banks outside of London along with the Bank of England in the City. This goal would be met with a combination of Parliamentary laws and by Parliament declaring that paper money would be tied to gold at a specific rate. After a brief period of conflict spurred by the French Revolution, when the Bank of England did not redeem notes in gold, the British pound was officially pegged to gold in May of 1821 (Vilar 1986: 314). But why gold, when for most of its history Great Britain had employed silver due to a scarcity of gold?

As it turns out, the Master of the Royal Mint, Sir Isaac Newton, overvalued gold in relation to silver from 1717 (Knafo 2014: 51). Whether this was a mistake

or a strategic action is uncertain, but its effects were clear. Silver flooded out of England and gold flowed in. Vilar put it thus:

> Gold flowed into England (mainly from Brazil and Portugal), and silver flowed out to cover purchases in Asia and the Far East. Between 1733 and 1766, 65% of England's exports to Asia were in the form of silver bullion and, even more, of silver coin.
>
> (1986: 285)

Thus, due to an overvaluation of gold relative to silver, merchants preferred to pay in silver abroad and import gold back into England. As Davies suggests, a preference for gold among the powerful also helped inspire a de facto gold standard before it was made official at a pegged rate in 1821:

> During the twenty-seven years of Newton's mastership, the emphasis at the mint changed dramatically from silver to gold. Indeed, during the whole of the eighteenth century only some £1,254,000 of silver was coined, whereas for just the forty-five years between 1695 and 1740 some £17,000,000 of gold was minted. At the same time much of the new silver minted during the recoinage had disappeared from circulation. When the principle so firmly established by the great reform, namely that the pound sterling was a given weight of metal, became linked with the revealed coinage preferences of the public, and particularly those of the bankers, merchants and rich individuals who could now afford more luxuries, then the gold standard had practically arrived, silently a century or more before its legal enactment.
>
> (2002: 248)

But while the struggle for a stable currency, the influx of gold and a belief in its intrinsic value, combined with a Parliamentary desire to regulate the credit money issued by banks, help us explain the emergence of the gold standard, how might we explain its internationalization? Eichengreen and Sussman (2000) argue that the spread of the gold standard was the result of British strength in manufacturing and finance in addition to British investors preferring to invest in countries on the gold standard. The desire to emulate British power and attract investment was the primary motive for additional states to adopt the gold standard from the 1870s. Once the two other economic and manufacturing powerhouses, the United States and Germany adopted the standard in the early 1870s, the fate of the gold standard was sealed. Only China, Persia and a few countries in Central America remained on silver, but "the largest part of the

world was on gold" (Eichengreen and Sussman 2000: 20). Some scholars look back upon the era of the gold standard as one of stability and sound money (Harmes 2001: 399ff).

However, the gold standard was adopted in an era before the rise of mass democracy. Eichengreen (1996) argues that the rigidity of the gold standard could be maintained only so long as elites and macroeconomic policy were insulated from the demands of the working classes. But once mass suffrage and trade unions were legalized, it was politically impossible to maintain the gold standard because it was more politically challenging to enforce wage cuts and unemployment on the working classes (Polanyi 1957: 206). The gold standard, as it were, was incompatible with "expanding national economies" based on surplus fossil fuel energy (Polanyi 1957: 27). But while the rise of organized labor and democracy made the gold standard more difficult to maintain, it was World War I that struck the first blow to the international payments system based on gold.

After the war, many countries tried to revive the gold standard, but this led to the deflationary conditions of the 1930s known to history as the Great Depression. Many workers suffered and unemployment soared until World War II gave the belligerent countries a need to expand their national economies to fight the war (Ahamed 2009). They would do so without relying on gold as an anchor for expanding the money supply. But the centuries-old faith in gold and the religious belief among elites in 'stability' did not let the idea of an international gold standard die a natural death. Instead, after World War II, a new gold exchange standard was institutionalized that would once again act like a straitjacket on the economies of the world.

By 1944, it was pretty clear to the Allies fighting World War II that they would be victorious. Both the Japanese and the Germans had virtually run out of the one thing necessary to fight modern war: oil. Italy, for its part, was undergoing a civil war after the death of Mussolini and was not a major threat to the Allies. So in July of 1944 a conference was convened in the United States in Bretton Woods, New Hampshire. Today the event is known as the Bretton Woods Conference, but the actual title of the conference was the United Nations Monetary and Financial Conference. The goal of the conference, attended by forty-four nations, was to think about institutional arrangements for facilitating global trade once the war effort had been won by the Allies.

The two major figures that towered over the conference were John Maynard Keynes, representing Great Britain, and Harry Dexter White, representing the United States. Despite Keynes's reputation, real power was in the hands of the United States and its representatives at the conference. The reason for this shift in international power from the British Empire to the United States is that the two world wars had made the United States the world's leading creditor nation.

Britain and other allies not only experienced the violence of war on their territories, threatening their populations and industry, but to fight the war against the Axis powers meant borrowing from American finance to purchase weaponry and oil. Rich in oil and possessed with a large manufacturing industry, the United States was the clear world superpower by 1944. At the conference, two major international financial institutions were proposed that are of interest to us here. The first was the International Bank for Reconstruction and Development, commonly known as the World Bank. Its primary task after World War II was to extend loans for the reconstruction of Europe. Unlike commercial banks that can create money, the World Bank cannot create the money it wants to lend. Instead, the World Bank is forced to raise money on the capital markets by selling its own bonds. In this sense, lending from the World Bank is structurally limited by the amount of finance it can raise from investors.

The second institution created at Bretton Woods was the International Monetary Fund (IMF). The IMF's primary purpose was to help facilitate international trade by extending loans to countries experiencing balance of payment problems. Members who joined the IMF contributed a sum of money in their own local currency to the fund. The largest trading nations like the United States contributed the largest quotas of money. If a member country requests assistance, the IMF could then loan a portion of the currency needed to countries experiencing a real or potential balance of payments deficit.

Originally it was thought that balance of payments deficits would be temporary, which is to say that some years countries would have a deficit, but other years they would have a surplus. The surplus money earned could then be used to finance or pay off the IMF loans taken in deficit years. But as it turned out for many countries, the balance of payments deficits became permanent, causing the need for ever more loans and the restructuring of their economies to support exports. The anchor of this system was a renewed gold standard with the United States dollar pegged to gold at US$35 an ounce. All other currencies were pegged to the US dollar at a relatively stable fixed exchange rate.

Fixed exchange rates were thought to help with international trade because it reduced business risk by providing certainty on the relative value of currencies. It also meant that countries earning surplus US dollars from international trade could exchange their dollars for gold. But by the mid-1960s, the United States was fast becoming the world's leading debtor country, importing far more from abroad than it was exporting. This meant that dollars were accumulating as reserves in the central banks of countries with a surplus of American trade. As a consequence, a few nations reasoned that the United States did not have enough gold to back up all the dollars it had outstanding on the world market. The jig was finally up.

By 1971, then President Richard Nixon was advised to close the gold window at the Federal Reserve. The US dollar was officially unpegged to gold (Davies 2002: 523ff). Given the belief at the time that the only 'real' money was gold (silver had long been forgotten), one would have expected international chaos. However, despite some imbalances and the eventual flotation of previously fixed currencies, chaos did not ensue. Remarkably, rather than flee from the dollar, the removal of the gold standard seemed to attract more people to it. The question is why?

It turns out that there are a number of reasons, all having to do with the role of the US dollar post-World War II. First, the Nixon administration understood that the US dollar was already the world's leading reserve currency. Countries had to have dollars not only to buy oil—a commodity necessary for 'modernization' and industrialization—but dollars were also the money of account for additional strategic and commercial commodities. The US market for stocks and bonds was also highly developed and attracted international investors to the dollar. At base, all of this meant that there was considerable global demand for dollars regardless of whether it was backed by some metallic gold horde in Fort Knox (Di Muzio 2015: 122ff).

To what extent we could say that the US dollar is now backed by the world's most important commodity—oil—can be debated, but that there is a link between the ongoing strength of the US dollar and the price of oil in US dollars can hardly be denied (Clark 2005). What will happen to the currencies of the world when petroleum becomes more and more scarce and more and more expensive is also an interesting question that future generations will have to consider. For instance, BP estimates that there are only 52.5 years of oil remaining at current production rates.[5]

Conclusion

In this chapter we explored some of the theoretical explanations for the emergence of money. We have argued that there is no historical evidence for money emerging out of barter. The origins of modern money, as (neo)chartalists such as Wray, Bell and Henry suggest, emerged out of a hierarchical society where a minority ruling class imposed a unit of account on a majority population forced by religion, custom and sometimes violence, to submit goods and render services to the rulers. As we discussed in the historical section of this chapter, our best evidence for this is in ancient Mesopotamia and Egypt, long before the invention of standardized coins and the use of gold and silver as dominant international money. We have also argued that money should never be thought of as a particular thing like gold or silver, or a cow or seashell, but as an abstract claim on society and resources measured by some unit of account and often

represented by 'things' such as notes and coins. We have also discussed how the global economy was straitjacketed by the international gold standard, which did not allow for the expansion of national economies now consuming the surplus energy of fossil fuels. Eventually, the gold standard was abandoned for good in 1971. Modern money is credit money, and we have started to see how states—while determining the unit of account and while largely responsible for notes and coins in most countries—lost control of the money supply to commercial banks. But there is much more to this story, and in the next chapter we turn to how modern money is created and the consequences of this system of private advantage for our economies and societies.

Notes

1. Dodd (2014: 45) lists four additional theories we do not discuss here for the simple reason that we find them unconvincing or partial explanations.
2. Killingray (1986) argues that taxation and the emergence and growth of colonial policing were connected.
3. The term can also be spelled in the Germanic from which it derives as *wergild*.
4. This might sound a bit strange, but the truth is often stranger than fiction. The humorist David Thorne drew a spider and sent it to a business to pay one of his bills. Mr. Thorne valued his drawing of the spider at exactly the same value of money that he owed to the business. For a good laugh, see www.27bslash6.com/overdue.html.
5. www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy/oil-review-by-energy-type/oil-reserves.html.

3

MODERN MONEY

Credit Money and the Consequences

By now we should have a good understanding of how a minority of private social forces gained control over the creation of new money as debt. There is much work to be done on the history of how this system spread globally with the rise of loan-issuing commercial and central banks, particularly after World War II, the decolonization movement and the birth of new national currencies (Gilbert and Helleiner 1999). In this book, we have focused on monetary events in Great Britain because this is where the development of modern credit money began on the basis of a fraud. The important point to stress by taking a historical look at money is that it is not as if, in the distant past, someone thought up a perfect system of money creation equally beneficial to the public. We cannot emphasize the point enough that our present monetary order is a historical creation born in a period of income and wealth hierarchy, a fossil fuel revolution, colonialism and a limited democracy for the propertied.

Put simply, the monetary system we have today is not the product of intelligent design for the public good but a legacy of past power struggles between financiers and bankers and the sovereign of England engaged in a geopolitical struggle for wealth and resources. As we uncovered in the previous chapter, the Bank of England extended the money supply over and above its supply of silver (and later gold) by issuing bank notes. By 1971, the fetish of precious metal as the only 'real' money was finally broken, leaving us with an international credit monetary system. The metal age of money was over.

Today, when commercial banks make loans, new money is created, primarily as digital deposits. The loan is a liability to the bank (it owes you this money) and a credit to the customer who can use the money to purchase goods and services. But while this money is a credit to the customer as purchasing power, it is also a debt because it must be repaid with interest. This is the reason why we can claim that the majority of new money in the economy is created as debt to commercial banks and, ultimately, their owners.

The owners of commercial banks capitalize the promise of the customer to repay the money with interest and whatever fees or fines are applied to the

loan. The interest rate can be variable (meaning it can change over time) or fixed (meaning it does not change over time). We will examine some of the major consequences of issuing new money this way for our societies in just a moment, but for now we have to discuss some of the leading approaches to modern money.

The approaches we will discuss are (1) Modern Money Theory (MMT); (2) Money Circuit Theory (MCT); and (3) New Currency Theory (NCT). While these approaches differ, it should be noted that all of them share the understanding that new money is created by banks when they issue loans. In their lexicon this is called *endogenous money*. What they mean by this is that the quantity of money in any economy is not determined by some authority like a central bank but by the demands for loans among individuals, businesses and government. Commercial banks are supposed to assess the creditworthiness of their borrowers and issue loans if they believe they will be repaid with interest. What this means is that in no way do banks have to wait for depositors to make loans, which means that there is no relationship between past saving and new investment.

Put simply, people do not have to save money in a bank before a bank can make loans, as we discussed in Chapter 2. So unlike mainstream economics, which prefer to ignore money or conceive of money as gold, the heterodox approaches about to be examined at least have a correct understanding that most of the new money being created happens when commercial banks issues loans.

That's a good start, but as we will see, with an exception for New Currency Theory, Modern Money Theory and Money Circuit Theory, while insightful, are far from critical of the present institutional arrangement that sees new money created as debt-bearing interest. We now turn to the leading approaches to understanding modern money.

Modern Money Theory

Modern Monetary Theory, also commonly referred to as neochartalism, builds on the previous work of Friedrich Knapp and Alfred Mitchell-Innes (see Figure 3.1). Overall, it is an analytical account of modern money rather than a critical historical account. Modern money theorists argue that there is a hierarchy of money and the state is viewed as the most important actor. Neochartalists do not deny that banks create new money when they issue loans, but they think that the state is the key actor for understanding modern money.

They start with the question of why people would accept a government's money. Their answer is that government has the power to tax, fine and fee the

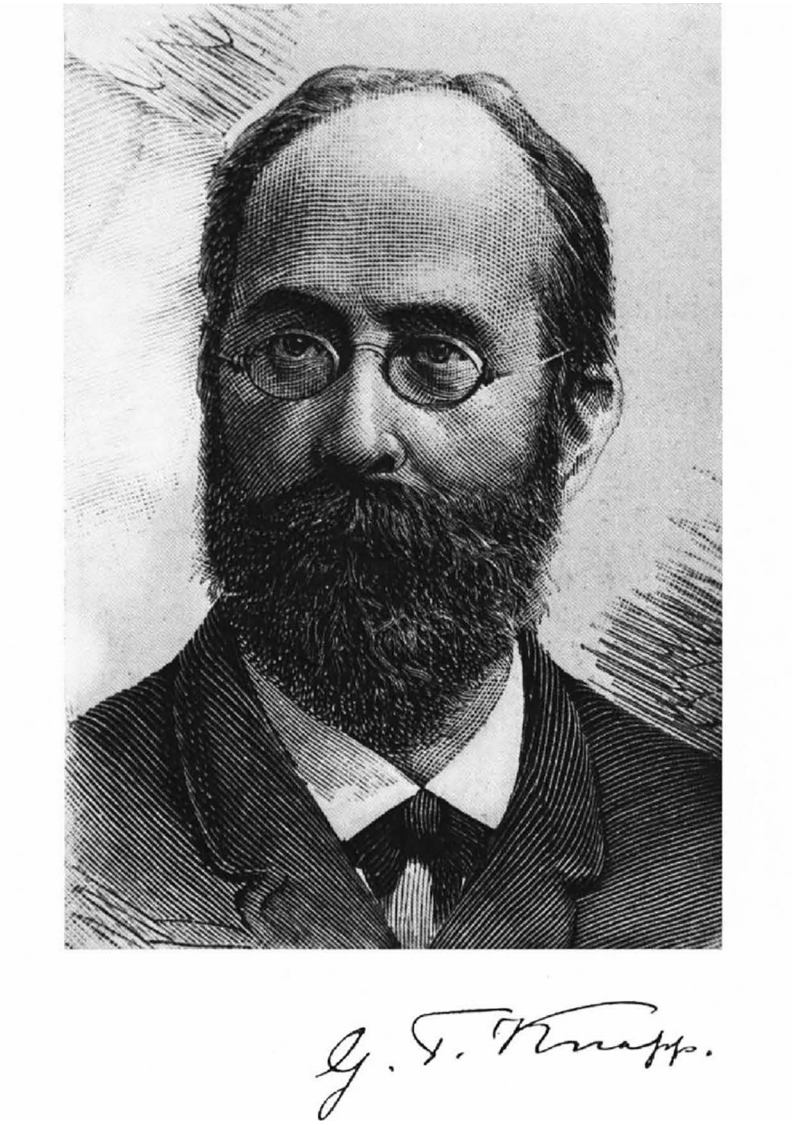


Figure 3.1 **Georg Friedrich Knapp and Alfred Mitchell-Innes proposed the 'state' theory or 'modern money' theory that focused on the role of the state in money creation.**

population as well as grant licences. It also has the power to set the unit of account (e.g. dollar, pound, euro) and what goods and services will be taxed and in what proportions. So when a government first issues its currency by spending on goods and services in the economy and paying salaries to employees, money circulates among the public. This money is seen to have value not because it can purchase goods and services but because in order for the population to pay

taxes, fines and fees and acquire licenses from the state, they have to have money issued by the state.

Because the payment of taxes is a certainty, this will create a demand for the currency, thereby giving it value. What this means to modern money theorists is that governments cannot technically go broke; they can always issue more money and this money will be valuable because of the demand for it to pay taxes among businesses and individuals. In other words, there are no hard financial limits placed on the government's ability to issue its own currency and if there are, they will be self-imposed (for example, the so-called debt ceiling in the United States).

Modern money theorists also argue that the debt of the government is actually the financial wealth of the private sector. This seems to make sense given their logic because interest-bearing government bonds are held by the private sector and investors and companies also invest their money in financial instruments like stocks or equities (this summary largely draws on Wray 2015).

To be sure that we are clear on what modern monetary theory wants to tell us, let's consider a simple example. Modern money theory says that the state issues its currency and decides on the money of account. Then it spends its own money into the economy. Suppose the government issues US$1,000 and uses this to buy goods and services from the public. Now, US$1,000 will be in circulation facilitating transactions not only between the government and the private sector, but within the private sector as well. To ensure the demand for the currency, modern money theorists argue that the state will tax the population, therefore making it worthwhile to accumulate the state's money in return for goods and services.

Suppose the state taxes the public US$500. Once the taxes are paid, there will now only be US$500 in the economy. Some of this money may make it into the stock exchange as financial wealth. But suppose the government desired to drain more money from the economy by issuing its own debt. Suppose it sells US$200 in government treasury bonds. This would mean that the bondholders would have financial wealth (the bond and the interest paid out periodically), but US$200 would also be removed from the economy, leaving only US$300 in the economy. With this in mind, we are now in a position to lay out the claims made by modern money theorists.

First, this approach argues that, from a technical point of view, the state is not limited in its spending; it can always pay for the goods and services it wants or needs to acquire. Second, the unit of account as well as the level and types of taxation are the prerogative of the state. But third, the state does not have to wait for tax revenue to come in before it spends (Bell 2000).

We might reasonably stop here and ask why governments tax at all if they are monetarily sovereign and can theoretically make payments in their own

currencies? The reason given by modern money theorists is that taxes are needed to drive a demand for a currency and that the level and types of goods and services taxed is ultimately a policy choice made by governments. For example, higher taxes are typically put on goods and activities the government wants to dissuade people from engaging in (like smoking) while lower taxes are typically associated with goods and activities the government wants to encourage, or at least not penalize.

A fourth and important point made by modern money theorists is that "in order for one sector to accumulate net financial wealth, at least one sector must increase its indebtedness by the same amount" (Wray 2015: 15). What this suggests is that if our governments take in more money in taxes, fines and fees than it spends, there will be less financial wealth for the public. Here, you might give pause and ask, what about banks? Can't they create financial wealth when they make loans that are used to speculate on the stock market? The answer for modern money theorists is that this does not create new financial wealth on balance because the new assets (the purchased shares in companies) are offset by the liability (the debt owed to the bank at interest). For this reason, modern money theorists argue that government should not fear deficits and indeed should run them so that the private sector can accumulate financial wealth and high unemployment can be curtailed (the goal of full employment).

Put simply, the national debt and the public debts accumulated by lower levels of governance (e.g. state, municipal, provincial, city) represent the financial wealth of households. However, the ownership of this financial wealth is important and we know that it is highly uneven across both global and national populations. To recall, in the United States 79 percent of all financial wealth is held by the top 20 percent of the population with the top 1 percent taking 35.4 percent of the total. The bottom 80 percent of the population is left with only 11 percent of total financial assets outstanding (Wolff 2012). Credit Suisse (2013, 2014) reported that most of the global population owns very little financial wealth, with the top 1 percent of the world's population owning 50 percent of all financial wealth (see Figure 3.2).

Clearly, there must be something in the way we produce money that contributes massively to this radical inequality. Yet strangely, modern money theorists are virtually silent on the extreme drawbacks of our current monetary order. They seem to fixate on getting a proper analytical description of how money works in an economy rather than critically examining it and proposing a better alternative. By focusing on the state, modern money theorists miss how over 90 percent of new money creation is done by commercial banks, particularly when they create money out of thin air to lend money to governments. In this sense, the government cannot be called the sovereign over money if it is

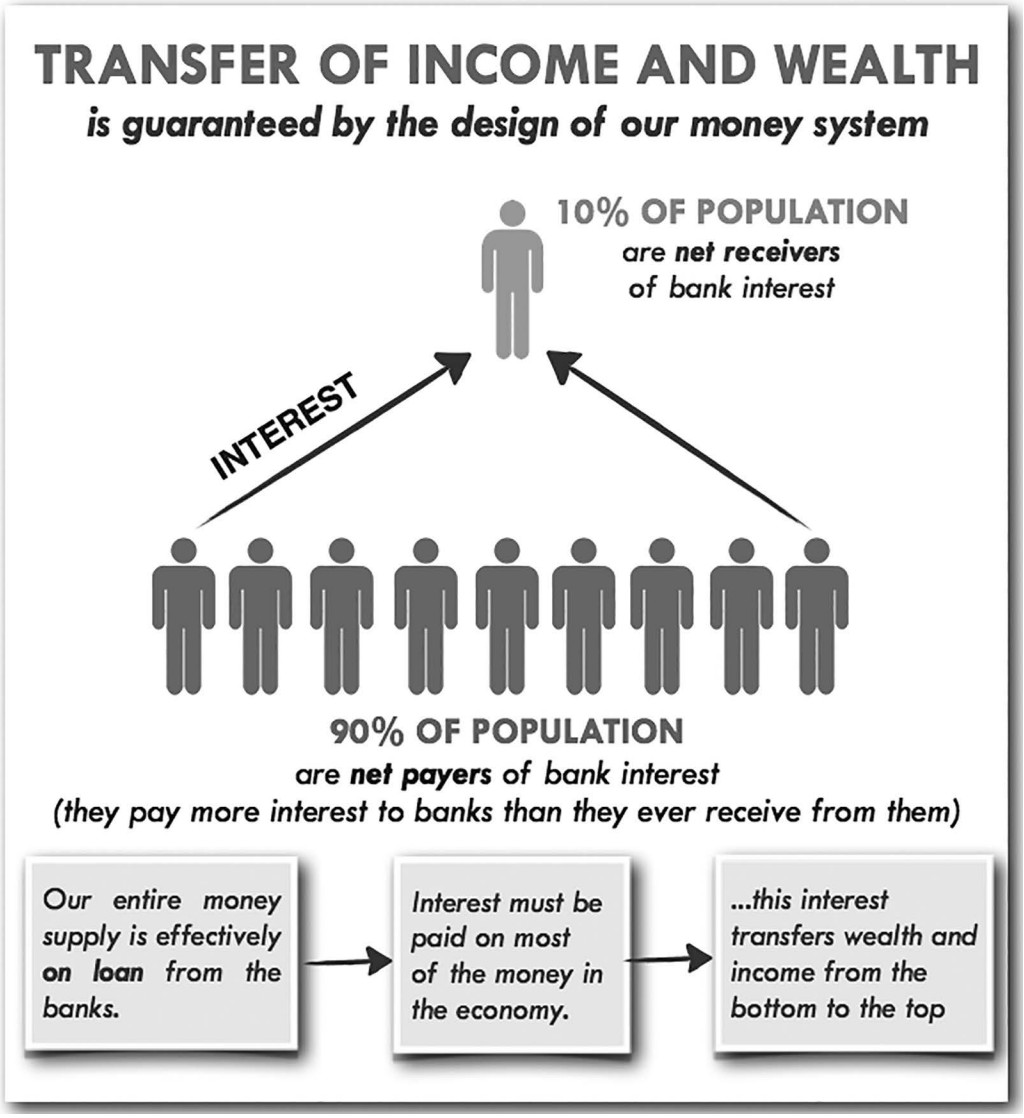


Figure 3.2 **Our system of creating money as interest-bearing loans assures that money flows from net debtors to net creditors** (Source: PositiveMoney).

structurally forced to go into debt and thereby privatizes a portion of the public's revenue to pay back creditors.

Modern money theory would have us believe that the state is a creditor when it is in fact a debtor to commercial banks and nonbanks that purchase its debt (Huber 2014). We saw how this first happened with the creation of the Bank of England when it extended the first permanent loan to the King Parliament. State spending is of course important, but focusing on the fact that banks create

the majority of the money supply as debt is equally if not more important. For example, the US federal budget was US$3.8 trillion in 2015 while M2, now the broadest measure of money in the United States, stood at just about US$12.3 trillion at the end of 2015. Of this, only US$1.4 trillion consisted of Federal Reserve notes and US$50 billion in coins.[1] This means that notes and coins only make up about 11 percent of the money supply in the United States, with the remainder existing as digital entries in computers. The federal budget, then, represents about 30 percent of all the money outstanding in the United States. This means that commercial banks issue the majority of the currency when they issue loans to customers.

To sum up, modern money theory is insufficiently critical of the current monetary order and does precious little to examine the consequences of commercial banks creating the majority of the money supply as debt. We will consider the consequences in more detail towards the end of this chapter, but now we turn to a close cousin of modern money theory: the money circuit theory.

Money Circuit Theory

Money circuit theory began after World War II by French and Italian economists (Graziani 2009). Like modern money theory, these heterodox theorists also argue that commercial banks are the creators of new credit money that must be paid back at interest. This means banks do not have to wait for depositors before they issue loans to creditworthy individuals, business and government, and that virtually all real wealth is generated through debt financing. Circuitists believe that there are two phases to the money circuit—the efflux, beginning with bank lending, and the reflux, the repayment of debt. As Parguez and Seccareccia explain:

> In the 'efflux' phase (to use Tooke's original expression) of monetary circulation, debts are issued to allow private firms (as well as the state) to start the production process via the credits granted to them by the issuing banks. These debts are then extinguished or cancelled when firms (and the state) reimburse the creditor banks by acquiring enough of the bank debt in circulation. In the case of firms, this occurs through the sale of commodities in the product market and/or securities in the financial market, and, in the case of the state, taxes and/or government securities. This is what could be described as the 'reflux' phase of the monetary circuit. Credit money, as a rule, is thus created only to be destroyed in the circulatory process and not to be held.
>
> (in Smithin 2000: 101–102)

Thus, there is really only a slight difference between money circuit theory and modern money theory. Whereas the latter prioritizes the state, the money circuit theory prioritizes the efflux process of commercial and central bank lending. While we are more sympathetic to the circuitist approach because it prioritizes the importance of money being issued as credit/debt to spark the production process, the theory remains, just like modern money theory, an attempt to describe modern money and its operations in the economy rather than a critical examination of modern money and the possibility of proposing alternatives.

There is also very little discussion given to the power relations of money between debtors and creditors or a justification of why banks should be able to extend credit out of thin air and profit from the interest payments. Given the limitations of modern money and circuit theory, maybe New Currency Theory has something more to offer us.

New Currency Theory

New currency theory is primarily associated with the work of Joseph Huber and James Robertson (2000) for the New Economics Foundation. But insofar as they call out and challenge the current monetary order and propose alternatives, additional voices such as Positive Money, Monetative and the American Monetary Institute could be considered as contributing to the new currency school. These scholars and institutions start from the premise that our monetary system is broken, works for the benefit of the few, and is in need of reform in order to create more equitable and less environmentally destructive societies.

Most of those who identify with new currency theory would agree with James Robertson that "we need a revolution in understanding *and* action" when it comes to modern money (2012: 21, emphasis in original). While a number of reform proposals have been tendered for the public's consideration, we must never forget that the key monetary question is whether the public force should have control and direction over the money supply or whether we should continue to allow the owners and agents of commercial banks to control and allocate new money. The voices who affirm that the public should have control and direction over the money supply in a democracy are growing, but we concentrate here on the reforms proposed by Huber and Robertson.

Huber and Robertson offer what they call a "plain money proposal," and in essence, it boils down to two major reform initiatives. First, they argue that the only authority that should issue new money is an independent central bank. When deemed necessary by central bank directors, the central bank is to credit the government for a specified sum as public revenue. The government will then spend the new money on democratically decided initiatives, programs and

projects without having to pay back the money to the central bank and without interest charges. The central bank will have specific and publicly declared objectives targeting inflation and deflation and will monitor the overall money situation. They will be accountable for their performance but independent from day-to-day politics or political influence.

Second, commercial banks and all other entities will be legally banned from creating new money as credit to customers. According to Huber and Robertson, their reform proposal will allow commercial banks to exist as financial intermediaries but they will not be able to issue new money by expanding their balance sheets when they make loans. In this situation, governments will still levy taxes and borrow from the private sector from time to time, but Huber and Robertson believe that injections of new debt-free money from the central bank will allow the government to increase public spending, reduce the amount it has to borrow from the public and decrease taxation.

For example, if the budget for the US government is around US$3 trillion, but spending is deemed insufficient—perhaps there is rising unemployment—then the central bank can inject new money interest-free into the government's coffers. The government can then spend this money employing the unemployed in public works or alternatively provide direct relief, new skills training or job assistance of some kind.

The proposal put forward by the new currency school is an interesting starting point for a discussion on monetary reform and bears some resemblance to a plan proposed by University of Chicago economists in the early 1930s to prevent another Great Depression; we'll examine that proposal in the next chapter. But there are a few things we may want to think about. First, it appears to radically centralize the creation of new money in the hands of a central bank and it is unclear how businesses or entrepreneurs would get the money they need for payroll or to expand production. It is also unclear how individuals get credit in this scheme. So while creating money interest-free that does not have to be paid back to the central bank is an interesting idea, it is not fully thought through.

Second, Huber and Robertson think that banks will still make loans at interest, but will actually use the 'savings' of some of their customers to make these loans. Again, this is a bit strange and would likely cause widespread panic as the bank accounts of various customers are selected to take money from to advance loans. This is clearly unworkable and plainly unnecessary if money can indeed be created by a few taps on a computer keyboard. Perhaps Huber and Robertson could get around this by saying that people can volunteer to allow the banks use their money for loans in return for some interest, but as we will discuss in detail towards the end of this chapter, we do not think such an action is needed in the first place.

Third, while the government may want to apply taxes in order to discourage some behavior and encourage others, taxes likely would be reduced under Huber and Robertson's proposal. But, we could ask, why should the central bank not finance the entire government budget (if revenue does not meet the level of desired spending) in addition to monitoring the economy to see if new cash injections are needed? This action would lead to an even greater reduction in taxes. Clear budgets could be put before the people by political parties in the run-up to an election and the people can decide which plan is better for society and the economy. Once in power, the victorious party can command the central bank to credit its account for the money requested and fulfill their public mandate. There is no technical reason why this cannot be done.

In sum, new currency theory goes beyond the first two approaches to money by proposing monetary reform. However, the plan introduced by Huber and Robertson appears to have some considerable drawbacks. But we do agree that the power to create new money should be owned by the public, not private households.

The Consequences of the Current Monetary Order

With a bit of monetary history now in our background as well as some knowledge of the most common approaches to understanding money, we now move to unpack the consequences of allowing private social forces to own the money supply used by individuals, businesses and governments. First, interest is always and everywhere inflationary as it is a cost to business that gets pushed on to consumers. This holds true even if the interest rate is low. For example, nonfinancial businesses in the United States are currently in debt to commercial banks and other nonbank entities to the tune of just under US$13 trillion (Di Muzio and Robbins 2016: 29). Now, even if we assume that the average rate of interest among all the firms is 0.25 percent (a low and unlikely figure), nonfinancial businesses would still have to pay US$32.5 billion in interest in one year. This cost would get pushed onto the prices of goods and services.

It should be noted that mainstream economists have been hard-pressed to explain inflation. Typically, they explain it by saying it is a condition where too much money is chasing too few goods. This can certainly appear true in the case of hyperinflation where a government decides to flood the economy with money. But cases of hyperinflation are incredibly rare while general inflation in advanced capitalist economies is not. The problem with economists trying to understand inflation is precisely the fact that they are economists, not businessmen. In actual fact, price is not a simple matter of the laws of supply and demand, but of power. If you are familiar with the television programs Shark Tank (United States and Australia) or Dragons' Den (Canada and the UK) then

you will know very well how businesspeople price their goods: they figure out the unit cost and add a markup or margin.

For example, for Apple's iPhone 6S Plus the total manufacturing cost was US$236. The company sells the phone for US$749, a markup of US$513 or 217 percent.[2] Due to advertising, marketing and other company expenses, it is of course likely that Apple does not see the full amount of this markup as pure profit, but we can start to see that prices are not formed by Apple delivering its iPhones to retailers to see what the demand is like and then once this is known, slap on the average price customers seem willing to pay. No, Apple, like other major corporations, dictates the price of its goods to retailers.[3] The more power corporations have in the market, the greater will be their ability to mark up the price of their goods and services while also forcing suppliers who have less power to decrease their costs. In the price, there will be the total costs of designing, manufacturing and delivering iPhones and other Apple products, the markup and, because Apple owes money to creditors, an interest component. In sum, the current way we produce money is naturally inflationary (Rowbotham 1998: 39).

Second, because the interest cost to business is not very negotiable, companies have to find other ways to reduce costs. Executives can negotiate with their suppliers and may achieve some cost advantages, but over time their competitors typically catch up and also benefit from the reduced cost of inputs (Nitzan and Bichler 2009: 363–366).

Over the last thirty years, part of the cost reduction strategy in advanced capitalist nations has been the closing down of the manufacturing industry in some of the advanced capitalist core and the relocation of manufacturing to countries with cheaper pools of labor. These corporate decisions have led to the decline of the middle class in some countries because manufacturing jobs were typically viewed as being unionized and high wage—particularly for workers without a college diploma or university degree. In this way, corporate decisions have also contributed to rising inequality such as in the United States and Canada.

Less income has led many workers to increasing rely on credit cards to supplement their incomes (Atkinson 2012; Brennan in Di Muzio 2014: 59–81; Dunn 2012; Soederberg 2013, 2014). In the United States, revolving credit card debt has ballooned from about US$1.3 billion in 1968 to US$939 billion as of April 2016, or an increase over the period of 72,131 percent.[4] Because this is revolving debt, interest will be accumulated by the commercial banks that issue credit cards like Visa and MasterCard. We can get a sense of the magnitude of money banks make by multiplying the total outstanding debt—US$939 billion—by the current average interest rate of 14 percent.[5] This means that credit card holders in the United States are funneling over US$131 billion to banks in interest this year alone. But the hollowing out of manufacturing in

the United States and other countries was not just encouraged by the desire to cut costs. As Krier (2009) illustrates, the decision to gut manufacturing and relocate to countries with cheaper labor power was encouraged by two main factors. First, towards the end of the 20th century, corporate executives and particularly the CEOs of companies were in part compensated in stocks or shares in the company. This transformation in executive pay was deemed necessary to keep corporate executives from doing anything that would reduce the value of the company's shares. And it seems to have done the trick. CEOs became obsessed with increasing their share price, and the major way to do that is to generate ever greater earnings every quarter as evidenced by the corporate profit and loss statement.

Second, a new model of valuing companies called the 'capitalized earnings model' was gaining traction among investors in the 20th century until it became all dominant by the end of the century. As Krier notes:

> The development of the 'capitalized earnings' model of equity valuation was a momentous event that radically affected American capitalism. Unlike the other two valuation models, the value of an equity security in terms of 'future earning power' is nearly limitless. Currently, the highest valued large firms can be valued at more than 400 times their annual earnings. As long as the market believes that earnings will grow in the future, the value can rise without any easily defined limit. The value of equities under the other two valuation models is more limited and exhibits a definite ceiling. The development, implementation and diffusion of this model had a profound impact on financial accounting: the rise of the income statement as the focus of corporate reporting. The income statement of American corporations (otherwise known as the profit and loss statement, the P&L, or the earnings report) became the most widely used and useful accounting document in the late 20th century.
>
> (2009: 664)

What this passage suggests is that the extreme focus on corporate earnings among investors has structurally forced CEOs to do everything in their power to boost earnings to meet expected profit targets. The share price of the companies failing to meet their quarterly targets is typically punished by investors selling some or all of their shares. What this means is that the corporate relocation and restructuring over the last thirty years can be traced to four major events: (1) the need to service interest on loans from banks; (2) the need to cut labor costs because the interest rate is typically set, not negotiated; (3) a new valuation model that valued companies based on their ability to make future profits;

and (4) tying CEO pay to the performance of the share price. The human toll as well as the toll taken on many cities and communities has been horrendous, particularly in the United States where millions of manufacturing jobs have disappeared. This is another strong reason why we need to reform the way new money enters our economies, but there are many more reasons to discuss.

Third, as pointed out by C.H. Douglas in his A+B Theorem, there is not enough purchasing power in the hands of consumers to actually buy what is physically produced by the manufacturing system. The problem is clearly in the math, but Douglas's observation has long been ignored to our detriment. Let us imagine a factory that will make apple juice. Our costs may look something like this:

Energy	$10
Apples	$10
Rent	$100
Bank Charges	$50
Glass Jugs	$50
Machinery	$500
Taxes	$100
Skills and Labor	***$200***
Cost of Production	$1,020

Note that the total cost of producing jugs of apple juice is US$1,020 and that only US$200 in purchasing power has been paid to the factory workers. Suppose that we produced 100 jugs of apple juice during this production run. How much would we sell each jug of juice for? Let's start by dividing the total cost of production (US$1,020) by the number of jugs we produced (100). The answer is that each jug is worth US$10.20. But if we sold our juice at that price, we would only get our cost of production back, there would be no profit. Because capitalism is a profit-based system, we would need to add a markup to our product. Because the juice market is competitive, suppose we think we can only get a 12 percent markup. This means that if we sold all our juice, our profit would be US$122.40. We now add the markup (US$122.40) to the total cost of production (US$1,020) and divide by the 100 jugs of juice we produced. If we wanted to make a 12 percent profit, we would have to sell each jug for US$11.42. Either way, we have only created US$200 in purchasing power but have outstanding goods worth a total of US$1,142.40. You can clearly see the gap. The purchasing power paid to workers does not equal the value of the goods produced.

If the economy consisted of just this one company, there is no way that all the goods will be sold and the owner would go broke. At most, the workers could purchase only US$200 worth of the juice but US$942.40 would remain unbought. Now, you might say that in an actual economy other workers earning

money can come along and purchase the jugs of juice. This is true, but this also leads to trouble. So that we can see why Douglas was clearly on point, let us imagine those buying our remaining juice earn money producing jugs of orange juice. To the owner, the costs of making orange juice might look like this:

Energy	$100
Oranges	$200
Rent	$100
Bank Charges	$100
Glass Jugs	$100
Machinery	$500
Taxes	$100
Skills and Labor	***$1,000***
Cost of Production	$2,300

During this run, we have produced 200 jugs of juice. So how much should we price our juice at? First, we can calculate the price per jug by dividing the total cost of production ($2,300) by the 200 jugs of juice. The answer is US$11.50. Now we have to add the markup of 12 percent or US$276 to the total production cost. The total sum is US$2,576. Now we divide this new total with the markup by the 200 jugs to get US$12.88 per jug. So now there is an additional stock of juice worth US$2,576 in the shops and we have created US$1,000 in purchasing power for our workers in wages.

You can start to see the problem very clearly now. Even if the workers spent all their purchasing power buying the remaining US$942.40 in apple juice, there would only be US$57.60 of purchasing power left in the economy. The apple juice vendor will meet its profit target but the orange juice vendor will not. You can keep repeating this example by adding more and more companies, but you will always have a gap between purchasing power and the total cost of goods in the economy. Mathematically, there is no way out of this conundrum; it is the result of price formation in modern industry. C. H. Douglas was correct: there is a dearth of purchasing power in the economy. But if this is true, why are there not repeated and sustained breakdowns in the economy?

The answer is that there are fairly frequent economic and financial crises. What makes them less frequent is a device that has smoothed over the gap between purchasing power and the cost of goods produced—you guessed it, credit. Commercial banks have stepped in to profit off this mathematical relationship by issuing costly credit to individuals and businesses. This is one of the reasons you see 'bank charges' in the example. Because of the gap between purchasing power and the cost of goods produced, credit is needed to bridge the gap. C. H. Douglas thought that this gap should not be filled by commercial

banks issuing credit money as debt with interest. Rather, he believed that citizens were owed purchasing power and that government ought to provide it as a basic income (Douglas 1922: 27; see also Hutchinson and Burkitt 1997: 31). So in our example, in order for purchasing power to equal the total costs of goods produced, an additional US$2,120 would have been introduced into the economy interest-free. Otherwise one of the two companies would go bankrupt.

Now you are probably thinking by this point that this problem is pretty glaring. You may also be asking yourself, if this is the case, why have we not heard more about C. H. Douglas? There are no easy answers, and we encourage you to consider why Douglas's work has been ignored for so long. But as glaring as this problem is, it is compounded by a fourth problem.

We have just discussed the gap between purchasing power and the total costs of goods outstanding on the market. Issuing money as debt-bearing interest has been the major way of smoothing over this gap. But, when banks issue loans to their customers, they only create the principal, not the interest. What this means, as we discussed earlier, is that there is always more debt in the system than there is the ability to repay. Once again, with simple math, we can demonstrate this reality. Let's consider three businesses that take out loans from a typical commercial bank:

Business A Loan = US$1,000
Business B Loan = US$1,000
Business C Loan = US$1,000

In this simple example, we know that a bank has simply typed in US$1,000 on the liability side of their double-entry balance sheet and US$1,000 on the asset side of the balance sheet (the promise to repay with interest). It is clear to see that US$3,000 in new credit money has been created. Now, what about the interest? To keep it simple, let's imagine the bank charges 10 percent on each loan.

Business A Loan = US$1,000 with 10% interest = US$1,100 owed December 2016
Business B Loan = US$1,000 with 10% interest = US$1,100 owed December 2016
Business C Loan = US$1,000 with 10% interest = US$1,100 owed December 2016

Now we can clearly see that there is more money owed than there is the ability to repay. Overall, the bank wants US$300 in interest, or US$100 from each individual business. But the interest is not created, only the US$3,000 when the loans were issued. Thus not all of the businesses will be able to pay back the money they owe to the bank. One or two businesses will be structurally forced to fail and go bankrupt because the interest payment can only be made out of the US$3,000 when the total money owed is US$3,300. So not only is there a gap in purchasing power and the total costs of goods on the market, but there is an

additional gap between debt and the ability to repay. The only way out of this situation for our three initial businesses is for additional businesses and individuals to take out loans, introducing more money into the economy on a different time frame than the money owed by our initial businesses. Let's take a look at how this works by introducing

Business D Loan = US$1,000 with 10% interest = US$1,100 owed July 2017

In this scenario, a fourth business receives the exact same loan as our three initial businesses with the difference that the money is owed six months later than Business A, B and C. Note that the introduction of new money never gets rid of the problem that there is always more debt in the system than there is the ability to repay. But with the new US$1,000 injected into the economy from Business D, it makes it easier for our initial businesses to pay back their loans with interest.

Suppose they are able to do so and collectively provide the bank with US$3,300 in December of 2016. Now there is only US$700 in the overall economy because the money has been returned to the bank plus the US$300 in interest that A, B and C must have taken in from Business D. If there are no new loans taken throughout this period, Business D will default on the US$1,100 it owes come July. In sum, we are playing monetary musical chairs and, eventually, there is no longer a seat for someone without more debt.

Both the gap between purchasing power and the total cost of outstanding goods as well as the fact that new loans have to be taken out to cover old debts are a gift from heaven to the commercial banks. We can use an analogy with water. Water is essential for life, just as much as money is in a modern economy. Imagine if there was a hardwired gap between the money to obtain water and the cost of all water outstanding. People would be in need of water but there would not be enough purchasing power to buy (gain access to) the water. Citizens would be desperate to find some way of obtaining the water, perhaps even resorting to theft. This is the situation banks find themselves in with money. Everyone needs it to operate in a modern capitalist economy, but it has been historically and even perhaps strategically sabotaged.

From a mathematical and structural point of view, there is never enough purchasing power in the economy and there is always more debt in the system than there is the ability to repay. Failure is built into the system and the owners of banks profit from this ongoing sabotage of the money supply—another reason to rethink and reform our monetary system.

Fifth, if we continue to allow commercial banks to create the majority of the money supply, we are effectively allowing them to make the majority of distribution and allocation decisions in society. Because money is an abstract claim on

society and natural resources, this means that commercial banks decide who has access to claims on society and resources and in what proportions. Government priorities and spending are very important for the economy, but as we have previously discussed, government budgets are small when compared to the overall money supply. Consider for example Table 3.1.

Because the vast majority of new money is issued by banks when they make loans, this means that commercial banks set a considerable portion of society's priorities. We might do well to ask what these priorities are. All the evidence points to the fact that banks typically make loans based on the level of the creditworthiness of the borrower. In most advanced capitalist economies, if you have ever borrowed money from a commercial bank or even a nonbank, you will have a credit record or score. This helps commercial banks decide whether or not to issue credit and in what proportion. But creditworthiness is not enough.

Banks typically make loans based on a person's income—hence, the ability to repay—and owned assets. We will see how this reproduces inequality in just a moment, but for now we want to focus on one very interesting fact: that a considerable portion of new money entering the economy enters when banks make loans for mortgages (Rowbotham 1998). For example, the tyranny of mortgage debt in the United States is US$13.7 trillion, just slightly over nonfinancial corporate debt outstanding.[6] Compare this to the roughly US$1 trillion each in outstanding car and student loans in the United States and we can start to get an understanding of how mortgage debt is one of the principal ways in which new money enters the economy.[7] Banks typically like mortgage lending because virtually everyone dreams of homeownership, and if someone fails to service their mortgage payments, the bank can always seize the house and potentially sell it to a future buyer. During the Global Financial Crisis of 2007–2008 this reliable process broke down. Why?

There are a number of reasons to consider, but at base a disappearing middle class in the United States meant there were fewer and fewer people of a creditworthy nature to loan to. Those who could get mortgages at prime rates already had them. So companies like Countrywide Financial decided to lend to 'subprime' borrowers in highly racialized and gendered ways, disadvantaging

Table 3.1 **2015 Federal budget and money supply in Canada and the United States.**

Country	*2015 Federal/State Budget*	*Money Supply*
Canada	US$178 billion	US$1.3 trillion (M3)
United States	US$3.8 trillion	US$12.7 trillion (M2)
UK	US$1.1 trillion	US$2.2 trillion (M2)
Germany	US$1.7 trillion	US$3 trillion (M3)

minorities and women (Schwartz 2009). Prime means the best or highest standard whereas subprime means that these borrowers were less than ideal. Within the industry these borrowers were called NINJAs, which stood for 'no income, no job and no assets.' Put simply, people were given loans and over the long run, could not afford to service them, particularly when interest rates skyrocketed upwards. The housing bubble collapsed, leaving over a trillion dollars' worth of nonperforming mortgage loans on the balance sheets of major banks. This fraud was widely known within the industry, but virtually everyone remained silent so long as fees and commissions were being made.

The point is that there is no reason to trust that bankers will be responsible lenders. What is more, because everyone needs some form of dwelling, why are we allowing banks to create new money for mortgages? This allows the owners of commercial banks to capitalize a portion of a person's income. How does this work? To find out, let's travel to one of the world's most expensive cities for real estate: Sydney, Australia.

The median price of a home in Sydney is AUD$995,000 while the average wage is AUD$77,000. Suppose our average Joe was given a mortgage to purchase a home for the median home price. Currently, the interest rate on offer in Sydney is 4.59 percent and suppose it will take twenty-five years to pay off the mortgage. Average Joe will be making monthly payments of AUD$5,581 and at the end of the process will have paid AUD$679,445 in interest for a total including the principal of AUD$1,674,445. First, let's recognize that it would be virtually impossible for someone making the average wage in Sydney to buy a home valued at AUD$995,000. So let us suppose someone earning AUD$150,000 receives a mortgage for the median home price. After tax this person would earn AUD$8,626 monthly. Minus the mortgage payment of AUD$5,581, our hypothetical homebuyer would be left AUD$3,045 to spend. The question is, what proportion of this person's income is taken by the commercial bank and its owners?

By some simple multiplication we can find out that our theoretical homebuyer makes AUD$2,587,800 over the 25-year mortgage. If the bank takes AUD$1,674,445 (principal plus interest) then our theoretical homebuyer only takes home AUD$913,335 in her twenty-five years of work. The owners of the banks have capitalized AUD$1,674,445 of the homebuyer's salary—all by simply entering a few numbers into a computer. You can begin to see why there is a popular saying among homebuyers: that they are working for the banks. But there is something else going on here that helps us explain house price inflation.

Many believe that house price inflation is the result of too much demand and too little supply. This may hold true in some cities, but it doesn't explain why house prices tend to rise in cities and towns where there doesn't appear to be a shortage of supply. Once again, we can find this inflation in the math. Consider

that the original house was priced at AUD$995,000 but that our homebuyer paid AUD$1,674,445 over the 25-year period. Because a principal of investment is to make money, not lose it, it would seem logical that the homebuyer would sell for AUD$1,674,445 or higher to recoup the money that has been paid into the house. If the homebuyer sold for less, which is possible, then they would have lost money purchasing the house. Now suppose someone comes along to buy the home and is willing to pay AUD$1,700,000 over a 25-year period at 4.59 percent interest. Now the monthly payment to the bank is AUD$9,536 and the total interest payable over the period is AUD$1,160,861. So the new homebuyer will pay AUD$2,860,861 by the end of the process.[8] If this person does not want to lose money, they will sell at that price or higher. The process can only continue so long as there are willing buyers, but we can clearly see the inflationary effects on housing prices because mortgages yield considerable interest to banks over time.

The trouble is that the vast majority of Australians do not make AUD$150,000 a year or higher, meaning only the very wealthy can afford the median house price, let alone houses priced above the median. This brings us to a sixth consequence of allowing commercial banks to produce new money as debt-bearing interest: structural inequality.

Many of us might think that inequality results from the fact that some people are more productive than others, have a more desired skill set or are more talented. Surely, this must be the reason why we live in hierarchical communities where the figurative 1 percent owns half of the world's wealth. Although there is some truth in saying that people have significant differences that lead to wealth accruing to the productive, skilled and talented, this is not the major driver of rampant inequality and the concentration of wealth at the top of society. As Ingham has previously argued, the way commercial banks produce money helps to reproduce inequality and concentrate wealth:

> In other words, a significant level of the inequality produced by the capitalist system can only be understood by means of an explication of the operation of the monetary and financial system itself. Money is not simply a measure and/or expression of inequality, rather, this is also generated by the institutional system that produces money itself.
>
> (Ingham 2000: 68)

Recall that commercial banks like to make loans where there is already collateral. What this means is that people born without any assets other than their ability to work for a salary are disadvantaged for loans. It is the opposite for the wealthy because they already have assets accumulated from previous generations

of privilege that they can borrow against. This is one of the reasons why over the last three decades we have seen the rise of hedge fund billionaires and a swelling billionaire class more generally. Hedge funds pool the investment capital of very wealthy clients, and with the collective power of the aggregate capital try to make more money or returns on their capital.

People who run hedge funds create an investment strategy, and managers are rewarded through fees and a percentage of the overall return on investment achieved by the fund. Hedge fund managers typically amplify their rewards and market positions by leveraging the capital they manage. According to Mallaby (2010: 12), this can mean that a hedge fund manager can theoretically take loans worth about ten times their original capital. So, for example, managing US$1 billion can suddenly transform into US$10 billion if a commercial bank is willing to take the risk.[9] One can easily see the big difference between making returns on US$1 billion and making returns on US$10 billion. For example, the hedge fund managers made US$211,538 an hour for a 40-hour work week in 2014.[10]

It is not just the possibility of getting a loan from a bank that helps reproduce inequality but also the terms of the loan. Those with fewer assets or poorer credit scores might have to pay higher fees and higher interest rates on their loans than the well-to-do. For example, the working class is far more likely to be credit card revolvers rather than people who are able to pay off their credit cards in full every month. Revolvers are like a perpetual money-making machine for the commercial banks. In Australia, as in some other countries, banks must publish an interest rate warning on the statements of their customers. When one author received his latest bill it was for AUD$4,851.31. If he only made the minimum payment (AUD$98), then it would take him forty years and nine months to pay off the bill and he would be charged interest of AUD$18,457.69. In other words, the cost of borrowing AUD$4,851.31 is AUD$18,457.69 if only the minimum payments are made. You can see how this situation can set off individual debt traps when people can only afford to pay the minimum payments.

And if you think the banks are innocent on this, think again. The percentage demanded as a minimum monthly payment has been reduced over time to about 3 percent. This is a psychological strategy deliberately employed by banks and credit card companies because it entices customers to purchase more than they otherwise would. The rationale is that even if a customer racks up a debt of US$5,000, the minimum payments would be manageable. But as we saw with the example of the credit card statement, the customer who just pays the minimum payment will pay a tremendous amount of interest relative to what they purchased. This is the magic of compound interest on credit cards and one of the major ways ever more money is funneled upwards.

Because we know that there is a constant dearth of purchasing power in the economy, this forces individuals and businesses to seek bank loans at interest.

This is a very convenient position for the banks and the social reproduction of inequality. But in addition to exacerbating inequality across society, the way we produce money today is very dangerous for the future of our communities and the wider biosphere.

The eighth problem with the way we produce money is that it leads us to chase perpetual economic growth. On the face of it, this seems like a harmless endeavor. Certainly all of our elected leaders want to see economic growth rather than decline. But gross domestic product (GDP) has only been a fetish since the 20th century when it was created to help coordinate war planning efforts during World War II (Fioramonti 2013). GDP is simply an adding up of the all the goods and services produced and consumed in a society and tells us very little about the quality of life of the citizenry. For example, a rising GDP could mean the production of more nuclear weapons, more car accidents and/or greater illness among the population. Is there a reason we are mindlessly chasing perpetual growth on a planet with finite resources? Michael Rowbotham (1998: 37–47) provides us with three major reasons.

First, there is an intense competition for the limited amount of money available in our societies despite the fact that capitalism is largely about the pursuit of money. In market economies, those who do not own any income-generating assets must either find paid work or starve if there is no social assistance provided. Second, we know that there is a lack of purchasing power in the economy as evidenced by ballooning consumer and business debt in most advanced capitalist societies. To help pay off this debt by acquiring money, individuals and corporations have been incentivized to commodify and monetize ever greater aspects of nature. A prominent example is the deforestation taking place in Brazil by soy farmers and cattle ranchers. Thousands of acres of tropical rainforest have been cleared for soy and beef production. This has contributed to greater carbon emissions and should deforestation continue, the earth will lose one of its major carbon sinks.[11] Efforts are being made to curtail the levels of deforestation, but monetizing the land and the pursuit of profit are powerful incentives to skirt conservation legislation.

The third reason for the mindless pursuit of perpetual growth according to Rowbotham is near universal wage dependency. If people did not have massive debts to repay—such as a mortgages and credit card bills—they would likely desire to increase leisure time with friends and family and work less. A state-provided guaranteed basic income would also help slow economic consumption and growth because it is reasoned that people would have a desire to work less. So an intense competition to get money, the lack of purchasing power in the economy and near universal wage dependence all contribute to the pursuit of perpetual growth on a finite planet. These activities not only increase the likelihood of runaway global climate change, but also the loss of biodiversity, the

pollution of the atmosphere and water, and the depletion of finite resources like oil, coal and natural gas. Whether we will transform our economies and societies by changing the way money enters the economy is an open question, but the eight consequences listed here go a far way in suggesting that allowing commercial banks to issue new money is very far from ideal.

Conclusion

In this chapter we provided an overview of the three major approaches to money in heterodox post-Keynesian economics: (1) Modern Money Theory or (MMT); (2) Money Circuit Theory (MCT) and (3) New Currency Theory (NCT). We argued that the first two approaches offer a powerful and at times convincing description of how modern money mechanics operate, but that they are far from taking a critical approach to money. They appear to be concerned with system description and system management rather than critically interrogating the consequences of the current way commercial banks create money. We also discussed how New Currency Theory is at least a step forward in the right direction because these theorists argue for reform. However, we outlined some potential problems with the New Currency proposal, such as the centralization of new money creation. Last, we considered some of the consequences for how we produce money and argued that we do indeed need to reform the money system if we want healthy and happy societies coexisting with the natural world in a more sustainable way than at present. In the next chapter we will consider some alternative currencies and how they may help us think about the future of money.

Notes

1. See https://research.stlouisfed.org/fred2/series/M2 for the money supply, and for the figures on notes and coins see www.federalreserve.gov/faqs/currency_12773.htm.
2. http://press.ihs.com/press-release/technology/upgraded-components-iphone-6s-plus-costs-apple-extra-16-device.
3. www.macworld.com/article/2024257/how-apple-sets-its-prices.html.
4. https://research.stlouisfed.org/fred2/series/REVOLSL#.
5. www.bankrate.com/finance/credit-cards/current-interest-rates.aspx.
6. https://research.stlouisfed.org/fred2/series/MDOAH.
7. https://research.stlouisfed.org/fred2/series/MVLOAS.
8. All calculations have been made with the National Bank of Australia's mortgage calculator.
9. In practice Mallaby says that hedge funds do borrow, but most at two or three times their initial capital.
10. www.marketwatch.com/story/hedge-fund-managers-pay-slashed-to-211538-an-hour-2015-05-05.
11. Watts, Jonathan. (2012). Brazil's Amazon Rangers Battle Farmers' Burning Business Logic. *Guardian*, November 15.

4

THE FUTURE OF MONEY AND ITS POSSIBILITIES

> Our current monetary system was designed some 300 years ago, during an era that knew nothing of natural limits and had a completely different set of objectives and priorities. It is a tool that should be serving us, rather than being our master. And since it is a man-made construct, it can be re-thought, re-imagined, and redesigned.
>
> —John Perkins[1]

Currency systems change. Starting in the mid-19th century, the United States supported a decentralized monetary system with thousands of different currencies issued by everything from banks to drug stores with conversion from one type of currency to another awkward and costly. Then, after recurrent economic crises, the US Congress passed the Federal Reserve Act of 1913, thereby establishing a privately owned central bank, deceptively named the US Federal Reserve, creating a singular currency ostensibly backed by gold. Then, in 1971, the country withdrew its backing of the currency with gold and established a credit currency. While not formally backed by anything, it is, in effect, backed by the country's ability to repay its debt—the base money supply—largely by taxing its citizens' wages and income.[2]

In addition, people have been arguing for millennia over who or what should have the right to create money. As we've described, there are distinct disadvantages to giving private parties, notably corporate banks, the right to create money as interest-bearing debt. Here are some (although not all) that have been cited by us and by others with proposals for alternative monetary systems:

- First and foremost, because banks create money only as principal and not with the required interest, our monetary system requires perpetual, exponential economic growth, with all the problems that entails, not the least of which are environmental.
- Bank created credit-money generates huge debt levels that are ultimately unpayable.

- Because there is never enough money in the system to repay all debts, any slowdown in growth—either because of a decline in consumption or a reduction of credit—results in economic crisis and massive unemployment and business failure.
- Because the interest on debt, up to one-third of a country's GDP, flows to the holders of debt-based assets—the proverbial 1 percent—massive economic inequality is mathematically coded into the system.
- The present monetary structure represents a massively centralized system constructed of financial institutions (e.g. banks) that are 'too big to fail' and, consequently, require periodic taxpayer bailouts after speculative bubbles. And, given the influence of money in politics, the wealth these institutions accumulate helps to inoculate them from meaningful change.
- The present move to electronic payment systems increases the potential for electronic surveillance and the abuses that it allows.
- The move to electronic payment systems presently adds additional costs that add billions, if not trillions, of dollars to the cost of doing business.
- The present monetary system does a poor job of delivering financial services to the poor, particularly in Third World countries.
- A single-money system is not neutral with respect to community economic development and fails to account for regional differences in economic structure or needs.

The lead question then is whether we can construct an alternative monetary system to address these problems without creating massive economic, social and political disruption. We examined the ideas of New Currency theorists, and we will look at variations of their ideas again later. But if we cannot reform our present system, then we fear runaway inequality for the majority will continue while unjust deserts are funneled upwards to those who have capitalized the creation of money as loans at interest.

The Monetary Infrastructure: How We Pay

When Bill Maurer asks *How Would You Like to Pay?* (2015), he draws attention to the importance of our monetary infrastructure and to money as a means of payment. Essentially, how does money move from payer to payee? We have all used cash, paying in dollars and cents, pounds and shillings, Swiss francs, or whatever currency is accepted. But cash has distinct disadvantages. It is bulky and easy to lose through carelessness or theft. Furthermore, it is very dirty. New York University researchers tested dollar bills collected in New York City and identified 3,000 types of bacteria, including those responsible for antibiotic-resistant infections, skin infections, food-borne illness, food poisoning, and diphtheria

(Hotz 2014). And more and more businesses in wealthy countries are going 'cashless,' and won't even accept it (Dawson 2016). While many people rely on cash for transactions, most technologically advanced societies carry cash only for small purchases and as a safety measure in case electronic transfer isn't an option. Finally, economist Kenneth S. Rogoff (2016) makes an extensive case in his book, *The Curse of Cash*, that not only is cash central to tax evasion and other illegal activities, but that cash makes it difficult for central banks to set negative interest rates. Negative interest rates essentially impose a monetary penalty for holding on to money, something we will discuss at length shortly.

However, if we don't use cash, we have a problem, because almost any other means of payment requires some sort of authentication; that is, if we are transferring money to someone else indirectly, how can the payee be sure that, first, you have the money, and, second, that you haven't already used it to pay someone else? When someone accepts your check, how do they know that the money is in the bank to honor it? When someone accepts your credit card, how do they know it is actually yours and that the institution that issued you the card will honor your payment?

Consider the technology behind a simple credit card transaction at your local coffee shop. You or the cashier (a term rapidly becoming outmoded) swipes the card (or inserts it into a chip-reader) that sends the coded information that includes your account number, expiration date, the billing address zip code and the CVV—credit card validation code—to a *front end processor*, a firm (one of hundreds worldwide) that handles payments, which then sends your payment from your bank to the *acquiring bank*, the one that holds the accounts of the coffee shop. At this point the bank simply needs to know whether or not your credit is good or whether you have the funds to pay for the coffee in the case of a debit charge. This information is then forwarded to your *card association*—MasterCard, Visa or one of the others—which figures out which bank issued your card. The information then goes to a *payment processor* to verify the information and check for sufficient credit, all of which goes back to the front end processor that tells the coffee shop that all is well, so far. Normally this just takes seconds. At the end of the day, the coffee shop sends its batch of receipts to its bank, which places a request to your bank through the regional *Federal Reserve Bank* or the *Clearing House Payment Co.*, which are owned by eighteen of the world's biggest banks. Your bank (the issuing bank) won't release the funds unless it is sure that it was actually you who bought the coffee. If it is not sure—if you usually buy your coffee in another city, or there have suddenly been a lot of purchases on your card—it will issue an alert to contact you via text, email or phone to confirm that it was really you that bought the coffee. If so, it will release the funds. The entire process usually takes around three days to

complete (see Vigna and Casey 2015: 98–99). To pay for all of this, the merchant pays anywhere from two to three percent of the price of the coffee.

In 2013 it cost merchants $250 billion globally to use this system, with eighty percent of that controlled by MasterCard and Visa. In other words, in addition to the interest payments built into everything you pay for, major banks receive another two to three percent if you pay by credit card. Furthermore, credit card volume is increasing at about 10 percent a year, and far more in emerging markets such as China and India. And the major world banks, such as Barclays, HSBC, Wells Fargo and Citibank are the main beneficiaries of this system; they are the intermediaries between you and the merchant.

As Maurer (2015: 31–32) points out, businesses, primarily but not exclusively banks (e.g. LevelUp, Zapp, Wave, YellowPepper, Visa, MasterCard and Western Union), are making money by simply providing the 'rails' on which money is carried like freight.

The Cell Phone Bank

Aside from the cost of electronic money, another disadvantage is that it is generally not available to billions of people who don't have access to banks—the 'unbanked.'

Consequently, in some parts of the world, the monetary economy runs on mobile phones. A cell phone can be used to validate identity, and airtime can be used as currency. These are not the so-called smartphones we take for granted in the Global North. In the Global South, and among the 25 percent of the world's population in poverty, there is no access to the mobile networks that enable web access, game playing, watching movies and so on. There is, however, access to a simple mobile phone, or even just a SIM card with personal information that can be inserted into a phone. People in such an economy may have multiple phones to take advantage of rate differences or various transaction options.

Here's how it works. People purchase a set amount of cell phone time. They can use these stored minutes to pay for goods and services, or cash out later (see Figure 4.1). The cell phone and the stored minutes become an electronic piggy bank (Maurer 2015: 46). Money stored in a mobile phone is more secure than cash, and the phones usually leave a paper trail. The drawbacks of airtime money include the lack of regulatory controls and the potential for illegal activities. And if you lose your phone, you lose the airtime. Also, vendors selling airtime might not be willing and able to buy it back, an operation that is illicit or illegal in most areas.

M-Pesa, for example, began in Kenya as a microfinance loan repayment system and had its origins in the goal of financial inclusion to bring people without access to bank accounts into the formal financial system rather than permitting them to use informal systems (Maurer 2015: 131).

Figure 4.1 **One of the problems with bank-issued money is that bank services are unavailable to billions of people worldwide. In response, the use of cell phone airtime is popular as a way to pay for goods and services** (Source: epa european pressphoto agency b.v./Alamy Stock Photo).

Sometimes poor people view saving state-issued currencies as the wrong solution—or even a contributor—to their problems. The very word 'savings' produces discomfort because it underscores people's fear that they never have

enough money on hand. It also invokes fears that powerful elites will use money in a gambit to acquire poor people's resources: land, livestock or other illiquid wealth. We should never forget that poor people have good reason to be ambivalent about state-issued currency, banks and savings accounts. Furthermore, in many societies, the exchange of money is fraught with implications about social relationships.

> As one researcher insightfully remarked to me, "Money is more than money." It can also index relationships of obligation, rank, clientage, social belonging, or state sanction.
>
> (Maurer 2015: 134)

To illustrate how mobile money changes relationships, Maurer describes how mobile money changed patterns of sharing and economic relationships among Afghan police officers. When they were paid in cash and before they had mobile phones, the officers had to pick up their salaries at a public place, thereby announcing that they had money, as well as the fact that the money was liquid, that is easily passed from person to person. Consequently, family members and friends felt that they could make claims on a portion of the money. But the cell phones not only facilitated the long-distance transfer of money, payday became a less public affair and workers would have an easier time of keeping their pay (Maurer 2015: 137–139).

The Promise of Alternative and Complementary Currencies

Anything, of course, can be money; the differences lie in the conventions, rules and goals that regulate its creation, distribution and exchange, that is the monetary system of which it is an expression. Occasionally, as we've seen, the goals conflict; we want our money to serve as a means of exchange to stimulate economic activity, but we expect it also to be a store of value, in which case it must be limited in some way to avoid rapid inflation. We may want our money to promote some social purpose such as equality, but instead it creates greater inequality. We may want money to serve local needs, but that is impossible when local needs and conditions vary while money takes the same form everywhere.

And, as we've seen, while most economists view money as a neutral medium that serves everyone, our existing monetary system largely serves the interests of a wealthy elite.

But why have only one type of official money? As we've seen, even in our monetary system in which governments insist on the payment of taxes in bank credit money, other forms of money exist, whether it be airtime, frequent flyer miles, or bonus points on credit cards. In fact there are thousands of complementary or

alternative currencies in the world, each attempting to address one or another problem created by the dominant bank–debt-money. We'll examine three of those here; the problem of the scarcity of money, the problem of unmet needs and the problem of social interest or purpose.

The Scarcity Problem

Scarcity of money has long been a major problem; there is never enough to do everything that has to be done. "Seventeenth century thinkers were *consumed* by this problem," writes Carl Wennerlind (2011: 17; see also Di Muzio and Robbins 2016), as were American colonists in the 18th century. Scarcity of money was behind the demands of farmers for free silver in the late 19th century to expand the money supply. Today there are similar demands that central banks 'stimulate' the economy by creating more money, some metaphorically arguing for a 'helicopter drop' of money to encourage spending when low interest rates and quantitative easing have been pretty much exhausted as tools of money creation (Wolf 2016).

A system of commodity-money, that is, one backed by some valuable substance such as gold, ostensibly puts a natural limit on money volume, although even with a gold-backed currency, banks could issue debt in greater amounts than the value of the gold on hand. But there are other reasons for money scarcity, including the basic fact that we have discussed at length that when banks create money as interest-bearing debt, they create only the principal and not the interest (see Di Muzio and Robbins 2016: 36–39); consequently there is always less money than there is debt. But money is scarce, also, because policy-makers fear that more money will lead to inflation, endangering money's function as a store of value. That is the reason that central banks often act to *decrease* the amount of money by increasing interest rates and/or selling assets they hold, when they feel the economy is 'heating up,' thus reducing economic activity (and increasing unemployment). As we've mentioned, inflation is as much a consequence of issuing money as interest-bearing debt, but the attempts to control it nevertheless add to the problem of money's scarcity.

The scarcity of money is also, as we mentioned earlier, a function of its velocity, that is, how often a given dollar is spent and re-spent. Complementary or alternative currencies address the problem of scarcity by either creating an additional money supply to work in parallel with bank credit-money, or creating a monetary system in which money does not serve as a store of value or a tool of investment by penalizing the holder for not spending it.

Historically there have been at least two instances in which there was no incentive to keep money as a store of value, where it either didn't accumulate interest, or where it had a negative interest rate—dynastic Egypt and in the Central Middle Ages (Hallsmith and Lietaer 2011: 56).

In Egypt money consisted of, among other things, clay shards (*ostraka*) that people received as receipts for grain put in storehouses. These receipts could be used as money to transfer the value of the grain from one person to another. But the shards were dated, and the longer the grain was stored, the higher the fee for storage. Thus, while the shards gradually lost value, it increased the velocity of the money. Gwendolyn Hallsmith and Bernard Lietaer (2011: 56–58) note that during that period Egypt prospered and continued to do so until conquered by Rome; their metal coins replaced the *ostraka* and Egypt became an impoverished country.

In monasteries during the Central Middle Ages, bishops, provincial aristocracies and townships issued their own coins stamped with the likeness of the current bishop, lord or king. When the ruler changed, the coins had to be turned in to be reminted with the image of the new ruler. This turnover included a recoinage tax paid by the holder. In other words, the last person holding the coins had to pay the tax, thus providing an incentive to spend the coins before they were collected. Although people objected to the tax, it did increase the velocity of money and spurred economic activity.

'Rusting' Money in Wörgl

In 1932 the Austrian town of Wörgl had a problem. The world was in the midst of a global depression, credit was scarce and hundreds were unemployed. The town had a long list of projects that needed to be done, but only 40,000 schillings (about $5,000) in the bank—not nearly enough to pay people to do them. Michael Unterguggenberge, the town's mayor, decided to apply some of the monetary reform ideas of German economist Silvio Gesell (2013 [1916]). Gesell developed his ideas during one of the frequent monetary crises of the 1890s. His central idea was to create Free-Money notes whose face value would decrease from 100 at the beginning of the year to 95 at the end of the year.

Free-Money is a *demurrage*-bearing currency, a form of money that carries a time-related charge for holding on to it (see Figure 4.2). The term comes from the railroad industry when a fee was applied to railroad cars that remained idle. When applied to money, it is a charge for not spending it in a given period of time, and the money, as Gesell referred to it, in effect, *rusts* (Lietaer and Dunne 2013: 67). Economist Irving Fisher (1933: 74), who first wrote extensively on the velocity of money during the economic depression of the 1930s, noted that:

> Free-money may turn out to be the best regulator of the velocity of circulation of money, which is the most confusing element in the stabilization of the price level. Applied correctly it could in fact haul us out of the crisis in a few weeks . . . I am a humble servant of the merchant Gesell.

Figure 4.2 **Free-Money, as proposed by Silvio Gesell, could be issued by any group and, to encourage spending it, carried a demurrage, a time-related charge for holding on to it** (Source: Wikimedia Commons).

To implement Gesell's ideas, the mayor of Wörgl issued a new currency, a labor certificate that town workers and local merchants agreed to accept as payment for services and commodities. To back the new currency, the town used the 40,000 schillings that it deposited in a local bank.

Labor notes (issued in denominations of 5 and 10 schillings) were stamped each month at the parish hall, and the holder of the note paid a 1 percent relief tax. To avoid paying the tax, holders of a note had to spend it. If holders wished to convert their notes into Austrian currency, they paid a 2 percent tax. Consequently, the velocity of the note, the number of times it was circulated, increased some twelve and fourteen times faster than Austrian national currency. In other words, the effect of removing any incentive for the money to be used as a store of value, and promoting its use as a means of exchange, had the same effect as increasing the amount of money in circulation. As a result, the town was able to repave the streets, rebuild the water system, build new houses, a ski jump and a bridge with a plaque boasting that "This bridge was built with our own Free Money" (Lietaer 2010).

The creation of Free Money in Wörgl was so successful that four other towns issued Free Money and the French prime minister, Édouard Dalladier, visited the town to see the 'miracle of Wörgl.' When some 200 other townships made known their intent to emulate Wörgl, the central bank asserted its government-granted monopoly rights to create money, and the courts declared

the issuance of 'emergency money' to be a criminal offense, sabotaging a workable solution to the scarcity of money problem.

Chiemgauer: Demurrage-Bearing Currency

The *chiemgauer* is one of the most successful demurrage-bearing currencies. It began in 2003, when Christian Gelleri, an economics teacher at a Waldorf School in southern Germany, assigned a group of 16-year-olds a project to create a currency to be used in local shops and businesses (Lietaer and Dunne 2013; Collinson and Palmer 2011).

The chiemgauer is pegged to the euro on a one-to-one basis, with notes in denominations of one to fifty. Local nonprofits, who receive a share of the demurrage fee associated with the currency, began by purchasing chiemgauers at 100 for 95 euros. Initially only about 130 people and a few local stores were willing to accept the currency, but by 2011 more than 600 businesses in the region in Bavaria accepted the currency and between 2,000 and 3,000 people are estimated to use it with a turnover of €6 million.

As a demurrage currency, it must be spent, or it loses value. If a note is not spent during a three-month period, holders must pay 2 percent of the face value to have it stamped with a 'parking' fee. A note can only be renewed up to seven times. There is a fee of 5 percent to convert chiemgauers back into euros, and the government added a 'distance' fee if it is spent outside the region. Local charities and nonprofits benefit because holders of the currency can nominate one of them to receive 3 percent of all their chiemgauer transactions. Thus in each transaction, 95 percent of the chiemgauer stays with the business accepting it, 2 percent goes to administer the currency, and 3 percent is donated to the charity named by the buyer. As of 2011, local nonprofits received the equivalent of €100,000 from the arrangement (Lietaer and Dunne 2013: 87–89).

Advocates of the chiemgauer estimate that, as a demurrage currency, it circulates 2.5 times faster than the euro, thus promoting economic activity, as well as boosting local spending.

Unmet Needs and Underutilized Resources

Globally, approximately 200 million people are unemployed (ILO 2016). Economically that constitutes a colossal waste of resources, not to mention the creation of significant social problems. In addition, there are hundreds of unmet needs in most communities. When there is an unused resource and an unmet need, they can be linked to an alternative currency. And depending on national currency laws, virtually any group or organization can issue the currency including nonprofits, businesses, government agencies, religious groups, labor unions, or universities. As Lietaer and Dunne (2013: 60) note, "the only conceptual limit is imagination."

Arguably, time is our most important resource. It is the glue that holds social relations and communities together. There is the time that citizens spend serving on local committees, the voluntary work done by church groups staffing food pantries or soup kitchens, time devoted to Girl Scouts and Boy Scouts, or the time donated by the over one million men and women in the United States serving on volunteer fire departments. These efforts, which by all indications are declining in number (see Putnam 2000), define the nature of communities. Given the increase in the amount household debt, and the increase in the amount of time required in paid labor to meet these debts, it is not surprising that time devoted to community support is declining (see e.g. Saad 2014).

TimeBanks USA: Time-Backed Currency[3]

Time-backed currencies offer a solution to the problems of unused labor and the need for more time spent in community work. TimeBanks USA, created by attorney Edgar Cahn (2004), allow people to exchange time without the use of dollars or any other national currency. People sign up as members, listing the services they can offer and the services they need in exchange. Every member's time is equal in value, regardless of the service performed. Cahn came up with the concept while recovering from a heart attack and accepting unpaid help. He realized how little our money economy values the favors we do for one another, even though that assistance may be critical. These 'good neighbor' activities build community solidarity.

In 2009 Time Banking was taken a step further by adding a Care Bank in which people 'bank' time by offering their services for elder care, time that they are able to 'withdraw' when they or their family need it.

A good example of Time Banking is the Onion River Exchange[4] in Montpelier, Vermont. With 350 members as of 2013 located in some forty-eight towns across Vermont, members post online services that they can offer, ranging from transportation to yoga lessons, while posting services that they need ranging from installing a printer to childcare.[5]

The *Fureai Kippu* system in Japan issues *fureai Kippu* ("Caring Relationship Tickets") for helping the elderly. In this system, different tasks may be valued differently. The tickets earned by caregivers can be used by the caregiver or assigned to others, such as parents located in another part of the country. Apparently the elderly prefer the volunteers working for tickets over paid workers because they believe that the quality of the care is better (Hallsmith and Lietaer 2011: 140).

Building Community and Meeting Local Needs

Bank credit-money does not adapt to local or regional needs. It is the same everywhere. But local needs and even prices are not the same. So even though

one area is doing poorly, its currency can't change to adjust its relationships with other areas. This has become one of the major issues within the eurozone where economic conditions in countries such as Greece and Ireland don't match those in Germany or France. Other benefits of alternative currencies include the ability to retain money locally, supporting local job creation and businesses (Lietaer and Dunne 2013: 75).

The Andersonville Study of Retail Economics (Civic Economics 2004) conducted just outside Chicago found that for every $100 spent with a local firm, $68 remained in the Chicago economy, while for every $100 spent with a chain firm, only $43 remained in the local economy. They found also that every square foot occupied by a local firm contributed $179 to the local economy, while a square foot occupied by a chain firm contributed only $105. Furthermore, the study found that over 70 percent of the consumers in the area preferred to support locally owned businesses.

Ithaca HOURS[6]

Paul Glover founded Ithaca HOURS in 1991 in Ithaca, New York, for people who live within a 20-mile radius. The organization issues a directory with about 1,500 offers of goods or services purchasable in HOURS. Each Ithaca HOUR is valued at $10, based on the average per hour wage in the region. HOUR notes, in five denominations, can be used to buy plumbing, carpentry, electrical work, roofing, nursing, chiropractic, child care, car and bike repair, food, eyeglasses, firewood, gifts, and thousands of other goods and services (see Figure 4.3). The Ithaca HOUR credit union accepts them for mortgage and loan fees and people pay rent with HOURS. Many Ithaca restaurants accept them as 'complementary currency,' as do movie theaters, bowling alleys, two large locally owned grocery stores, the local hospital, many neighborhood yard sales, fifty-five farmer's market vendors, the Chamber of Commerce and 300 other businesses.

One HOUR of service is usually exchanged for one hour of another service, but prices can be negotiated such that a doctor can get more HOURS for work related to his profession than a babysitter, although at least one dentist accepted hour-for-hour payments. Ithaca HOURS has about 1,000 members, although anyone can use HOURS. While only a small part of the economy (1 percent by one estimate), the velocity of Ithaca HOURS is higher, because there is little to gain from 'saving' or 'investing' them.

As Fridra Papavasiliou describes it:

> By promoting local trade, complementary currency emphasizes the significance of direct relationships between producer and consumer as the catalyst against competition from global "free trade": commodities and services, whose prices do not reflect the social and environmental costs

Figure 4.3 **Paul Glover founded Ithaca HOURS in 1991 in Ithaca, New York, a local currency now accepted by hundreds of businesses** (Source: paulglover.org).

> of their production and whose consumption pits the short-term benefit of cheaper prices against the long-term costs of deteriorating local economic and social conditions.
>
> (2010: 210–211)

These are only a few of the many ways that alternative currencies can compensate for problems with standard bank credit currency. The Economics Department at the University of Missouri, Kansas City, for example, issues *buckaroos* for community service performed by students, each hour of service being worth one buckaroo. A portion of student tuition can be paid in buckaroos, and earning buckaroos is even a requirement in some classes.

The Chicago Plan and Public Banks

Who Creates Money?

Whenever we think about money and its origins, it leads directly to a debate on the nature of money, which in turn has a critical bearing on arguments as to who should control the issuance of money.

As we outlined earlier, Stephen A. Zarlenga's (2002) masterful book, *The Lost Science of Money: The Mythology of Money, The Story of Power*, traces this debate back to ancient Mesopotamia, Greece and Rome, and, as did David Graeber (2011), details how the private creation of money has continually led to social problems and the use of a society's monetary system for private gain. The abuses of this power generally take one of two forms; either private money is created as interest-bearing debt in which a small group accumulates riches through the interest on the money it creates, or an abundance of debt is issued in times of economic expansion followed by a withdrawal of credit (and money) during economic contractions leading to borrower defaults and forfeiture of collateral (e.g. land, crops, slaves) and the further concentration of wealth in the hands of lenders. Whether the credit/default cycle is the result of deliberate manipulation of the money supply or not is unimportant; it is nevertheless an inherent characteristic of systems of private money creation (see Benes and Kumhof 2012: 14).

When governments or states issue money, on the other hand, the benefits accrue, theoretically, to everyone. Zarlenga describes the success of paper monies issued by North American colonies in the 17th and 18th centuries and how they promoted economic activity and funded state expenses. This strategy often eliminated the need for tax collection. The Continental Congress issued currency during the American Revolution, an effort undermined largely by British counterfeiting (Rhodes 2012). Greenbacks were issued by President Abraham Lincoln to fund the war against the South. The United States also issued money successfully between 1907 and the Federal Reserve Act of 1913. The main argument against government-created money is that political exigencies can lead to excessive money creation, which in turn can promote inflation and devaluation of the money supply. However, most cases of rampant inflation can be traced back to factors other than excessive money creation (see e.g. Benes and Kumhof 2012: 14–16). Boom and bust economic cycles are clearly connected to the creation and contraction of credit by private money creators.

The Chicago Plan

Similar to the New Money Theorists discussed in the previous chapter, the 'Chicago Plan,' a proposal by University of Chicago economists in 1933, advocates moving the money creation process from private banks to the federal government. The Chicago Plan attempts to protect the United States from the kind of banking crisis that precipitated the Great Depression. It forbids banks from lending out more money than they have in reserve, instituting, in effect, a 100 percent reserve rule. Implementation of the Chicago Plan would require

the government to issue currency for the purpose of paying all debts, both public and private. Banks would become what most people think they are, simple intermediaries, accepting savings and lending out what they collect. Banks would deal exclusively in simple money (Lietaer and Dunne 2013: 69–70) and bank credit-money would be illegal.

When Franklin D. Roosevelt assumed the US presidency in 1933, bank deposits were not insured by the government and banks held only a fraction of what had been deposited. Farmers, businessmen and salaried workers, fearful of losing their money, crowded into banks, demanding to withdraw their savings. Roosevelt followed the lead of many states and quickly shut down depositors' access to banks, declaring a national bank 'holiday' to prevent massive bank failure. In a memo a few months later to the secretary of the Treasury, William Woodin, Roosevelt denounced the bankers and economists for their neglect of the problem:

> I wish our banking and economist friends would realize the seriousness of the situation from the point of view of the debtor classes—i.e., 90 per cent of the human beings in this country—and think less from the point of view of the 10 percent who constitute the creditor classes.
>
> (quoted in Phillips 1992: 4)

The country demanded that Roosevelt adopt a plan to address the safety of bank deposits, the financing of economic development and control of money by the Federal Reserve. This was the situation when economists at the University of Chicago sent their plan to about forty members of the Roosevelt administration. Secretary of Agriculture Henry Wallace gave the Chicago Plan to the president less than a week later in the hope that Roosevelt would give it serious consideration. Wallace wrote:

> The memorandum from the Chicago economists which I gave you at [the] Cabinet meeting Tuesday, is really awfully good and I hope that you or Secretary Woodin will have the time and energy to study it. Of course the plan outlined is quite a complete break with our present banking history. It would be an even more decisive break than the founding of the Federal Reserve System.
>
> (quoted in Phillips 1992: 8)

The Chicago Plan became a central feature in debates over reforming the banking sector to avoid another credit crisis (see Friedman and Schwartz 1963). In a paper released in 1936, Yale economist Irving Fisher, one of the first

'celebrity' economists, outlined what he considered the four major advantages of requiring the 100 percent reserve rule (see Benes and Kumhof 2012: 4–7). First, it would prevent banks from creating excessive money during economic expansions and then destroying that money by constricting credit during subsequent economic contractions. In effect, Fisher is saying that boom and bust economic cycles would end if government-issued money backed bank deposits. Second, banks could lend without worrying about liabilities, because reserves would cover all deposits (the 100 percent reserve rule). Third, the Chicago Plan would allow the government to issue interest-free money and reduce net government debt to zero. Finally, in addition to the reduction of government debt, the Chicago Plan would virtually eliminate private debt. Implementation would contain a provision to buy back private debt using government-created debt-free money. Households, consumers and businesses would, in effect, become debt-free.

Fisher and other proponents of the Chicago Plan overlooked a fifth advantage of debt-free, government-issued money—uncoupling economic stability from the need for perpetual growth. Growth, remember, is necessary in our current system because banks create only the principal when they issue money as debt; the need for interest payments forces us into an uncertain future. Without perpetual economic expansion, debts cannot be repaid, borrowers default (individual, corporate and sovereign) and economies collapse.

Several versions of the Chicago plan were proposed during congressional debates over banking reform in 1933 and 1935, but they all included a 100 percent reserve backing for bank deposits, either gradually or immediately, and a formula by which the government would regularly issue more money based on the level of economic activity.

Would some version of the Chicago Plan have worked as Fisher and others said it would? Economists Jaromir Benes and Michael Kumhof (2012: 55), in a paper released by the International Monetary Fund, review the Chicago Plan describing the results of a simulation of one version of the plan. They conclude that their simulation completely validates Fisher's claim and that the Chicago Plan would reduce business cycle volatility, eliminate bank runs and instantly reduce government and private debt. Regarding claims that government-issued currency would lead to inflation, they say (2012: 56):

> This ability to generate and live with zero steady state inflation is an important result, because it answers the somewhat confused claim of opponents of an exclusive government monopoly on money issuance, namely that such a monetary system would be highly inflationary. There is nothing in our theoretical framework to support this claim.

And, as we mentioned previously, inflation is as much a consequence of interest-bearing money as it is of excessive money creation.

The question, then, is why did the Chicago Plan fail to be approved by Congress in the mid-1930s, and, more importantly, why hasn't it been implemented since? In his telling of the history of the Chicago Plan, Ronnie J. Phillips (1992) said that "it lost as a matter of pure political expediency," and not because people rejected its principles. An article in the February 25, 1935, *New York Herald Tribune* notes that the banking reforms of 1933 might never have been enacted if legislators and bankers didn't fear the alternative, a proposed requirement for a 100 percent reserve. The article also noted that the Chicago Plan had gained wide academic support (Phillips 1992: 35).

The legislation that did pass between 1933 and 1935 sought to restore the safety of banks and increase government control over the monetary system. That was achieved by government-backed federal deposit insurance and other measures, such as the Glass-Steagall Act of 1933 that separated commercial and investment banking to prevent banks from speculating with depositor money or making risky loans. Repeal of the Glass-Steagall Act in 1999 contributed to the economic collapse of 2008.

The Public Bank Solution

Public banks have much in common with the principles of the Chicago Plan; remove the money creation function from private interests and assign it to governments, states or regions. The Chicago Plan leaves the function of money creation centralized in the hands of the state, a situation criticized by some as adding to centralized government power (see Lietaer and Dunne 2013: 70). A public banking system, on the other hand, can be highly decentralized with community, regional or national banks.

Public banks operate in the public interest. Ideally their investment strategies lead to: (1) job creation in the local community; (2) production of the most durable goods; (3) research and development to enhance the quality of life; (4) renewable energy; (5) sustainable public infrastructure; and (6) local sustainable agriculture.

Public banking, as we've mentioned, goes back to ancient Mesopotamia, and the rights to create money have shifted back and forth between private and public interest throughout history. In the United States, public banking can be traced back to the original colonies, when, short of British money and gold with which to trade, the individual colonies issued their own scrip that was accepted in trade. Pennsylvania had a state loan office that issued money and collected interest and returned it to the provincial government and used this money in place of taxes. In fact it was the British *Currency Acts* of 1751 and 1764,

which sought to regulate or eliminate colonial scrip, that helped bring about the American Revolution.

Public banks are already common throughout the world. Ellen Hodgson Brown (2013), in her book *The Public Bank Solution: From Austerity to Prosperity*, points out that publicly owned banks account for 40 percent of all banks globally, particularly in the BRIC countries: 45 percent of all banks in Brazil, 60 percent in Russia, 75 percent in India and 69 percent or more in China. And public banks are common in other countries around the world, one exception being the United States; the country's only public bank is the Bank of North Dakota (BND).

Brown, who is president of the Public Banking Institute[7] as well as an author, describes how the BND differs from private banks. Founded in 1919, the bank sought to ensure a dependable supply of affordable credit for farmers and ranchers. Public banks such as the BND also make low-interest loans to students, small businesses and start-ups. The BND addresses the problem of affordable credit often faced by lower income groups, particularly in rural areas not serviced by large private banks.

Most states, with the exception of North Dakota, currently deposit their tax revenues (the public's money) in private Wall Street banks, which use these deposits for their own private gain when they issue fees for services and transactions. This money could be deposited in the state's own bank instead and used to fund projects and programs with long-term benefits for the public—the very same public services and projects currently being cut from so many state budgets.

Public banks can also help state budgets by drastically cutting the costs of public projects, such as California's 'bullet train,' now under construction. Brown (2016) notes that had the State of California issued its own money through a public bank, it would have saved virtually half the final cost. If California followed North Dakota's example and deposited money it already has in its own public bank, it could save the $9.5 billion in interest owed to private investors. In all, Brown illustrates that a public bank in California would have added $4.5 billion to the state's revenue.

The Bank of North Dakota is only one of many public banking models. For most of the 20th century, the publicly owned Commonwealth Bank of Australia, the nation's central bank, engaged in commercial banking, "keeping the other banks honest." In Alberta, Canada, the publicly owned Alberta Treasury Branches connect nearly every town in a shared credit system. Public and private banks operate effectively together in many countries, including Switzerland, Germany, India, China and Brazil.

Interestingly there now seems to be a growing interest in developed countries to explore the possibilities of returning the money-creation function to the

state (see e.g. KPMG 2016), most explicitly following the proposals contained in the Chicago Plan. Proposals to implement a Sovereign Money System, in which government-run central banks would create new money, while private banks would serve simply as intermediaries between savers and borrowers, have been introduced to the legislative bodies of Iceland (2015), the UK (2014), the Netherlands (2016), Switzerland (2015) and the United States (2011). While no action has been taken, discussion about the creation of a Sovereign Money System continue.

There are other banking options that reduce or, as in the case of Islamic financing, ban loans at interest. Islamic finance, while centuries old in principle, re-emerged in the late 1960s and early 1970s in response to the rise of pan-Islamism and the oil boom. It rests on the application of Islamic law, or *sharia*, which emphasizes justice and partnership. Financially, that means that speculation (*gharar*) and charging of interest (*riba*) are banned, because they involve a fixed interest rate in an uncertain world. Relevant passages (see Maurer 2005: 27) in the Qur'an that refer to a ban on interest (usury) include the following:

> God has laid his curse on usury and blessed almsgiving with increase. God bears no love for the impious and the sinful.
>
> (2:276)

Generally Islamic financial contracts are constructed in such a way as to be profit-sharing transactions (*mudaraba*) or joint partnerships (*musharaka*). Rather than gaining interest, bank depositors share in the profits of the bank (see Figure 4.4). For example, if I want to open a pizza parlor, I still approach the bank to get the money, but instead of *lending* me the money, the bank becomes my partner in the enterprise, and, in place of interest on the loan, shares in the profits. Unlike Western finance and a loan at interest, where you are obligated to pay the extra amount whether or not your venture succeeds or fails, with Islamic finance that is not the case; the 'lender,' or more properly the partner, shares in whatever income accrues, as well as sharing the risk. The economy may, of course, grow, but only if the real economy (the pizza parlor) succeeds.

Some claim that Islamic finance is simply a way to get around the ban on interest by naming it something else (e.g. repurchase at a higher price). But it is clear that Islamic financial instruments are growing in number. By 2014 *sharia*-compliant assets exceeded US$2 trillion (INCEIF 2016). While that represents only about 1 percent of worldwide financial instruments, Muslims account for 20 percent of the world's population, thus posing the potential for significant growth in interest-free financial transactions.

Figure 4.4 **Islamic finance explicitly prohibits making loans at interest and Islamic banks have devised various financial instruments to accommodate that rule.**

Digital Currencies: The Birth of Bitcoin and Blockchain

Historically, governments, temple and religious authorities, businesses and even individuals have claimed the right to create money. As we've seen, the creation of the Bank of England and later the creation of the US Federal Reserve put that right into the hands of privately owned banks. This stewardship is questioned when things go horribly wrong, such as the economic crisis in the 1890s, the Great Depression of the 1930s or the economic collapse of 2007–2008. Trouble may start when private banks reduce lending (interest-bearing debt),

or when businesses reduce investment, or the velocity of the money diminishes (as with widespread money hoarding). In fairness to banks, they provide that all-important authentication function that allows us to enter into complex transactions knowing the money involved actually exists and claims to ownership are valid. Banks, as middlemen, and their associates (e.g. credit agencies, debt collectors, the state), perform essential services. The question is, are banks really earning what they charge? This is one of the issues addressed by computer software developers who design programs to issue and regulate money by allowing networks of computers to do the job. Digital or cryptocurrencies seek to replace the traditional middlemen. In doing so, digital currencies reduce the profit margin of money management, while freeing the economy from government intrusion. Digital currencies of the early 1990s, such as E-gold and Liberty Reserve, never gained acceptance. Both were accused of money laundering and shut down by the government. The most successful digital currency to date is Bitcoin.

Bitcoin

Bitcoin is one of many digital currencies developed over the past decade, partly in response to the economic crisis of 2007–2008. They consist of computer-generated credits (e.g. bitcoins) that can be used to buy goods and services. The key to these schemes are the computer programs (*blockchain*, in the case of Bitcoin) that create the currency, code each unit of currency with the owner and create a public ledger to keep track of their ownership and exchange. Ostensibly, the goal of Bitcoin and other cryptocurrencies is to eliminate the intermediaries (e.g. governments or banks) between buyers and sellers, developing a decentralized system of trust among strangers.

Cryptocurrency shifts control of money and information from powerful elites to the public (Vigna and Casey 2015: 5–6). As we've seen, banks siphon off at least 15 to 20 percent in interest payments from every commodity and service that we buy, not to mention the trillions we pay in fees to use bank services (e.g. credit and debit cards). Over the course of a lifetime you could hand over a million dollars.

Monetary systems usually depend on centralized ledger-keeping, either cuneiform tablets maintained at the temple, or ledger books at banks, or computer entries. Incentives for tampering with the ledger must be minimized, building a sense of trust in the rules, or at least a belief that sufficient barriers to bad behavior are in place. This 'bookkeeping' function confers enormous power on central record-keepers, who may be legally entitled to siphon off a portion of every exchange.

Imagine a Papuan village that used cowrie shells as money (see e.g. Pospisil 1972), with each individual shell marked with the identity of its owner and

with every household maintaining a ledger recording who owned every shell. Imagine also that whenever the ownership of a shell passed from one person to another, that transaction was announced to the entire village and recorded in every ledger. Basically that is how Bitcoin, or more specifically Blockchain, works. The difference is that bitcoins don't actually exist; each is a 64-character alphanumeric code assigned to the digital address (or 'wallet') of the owner. The power of the code lies in the enormous amount of information it can contain.[8]

There are websites (e.g. https://bitcoin.org/en/choose-your-wallet) that assign wallets to hold your bitcoins and Bitcoin exchanges (e.g. https://btc-e.com/) to buy and sell bitcoins, and sites where you can see each bitcoin transaction as it occurs (e.g. see https://blockchain.info/). When you transfer a bitcoin or a fraction of it, the ownership is taken from your wallet and deposited in the wallet of the new owner. The blockchain contains all the credits and balances associated with each bitcoin address (i.e. wallet); there is no file or document that can be copied or lost and your ownership of bitcoins consists of the balance that the blockchain ledger recognizes as yours. You can lose or forget the password to your bitcoin wallet, but the bitcoins themselves can never be lost, because they don't exist (Vigna and Casey 2015: 124–125). When you look at addresses on the blockchain you can't identity the owners, only a string of alphanumeric symbols.

Mining (or maintaining the blockchain) is a reward for being the first computer operator to solve a randomly generated, mathematically complex puzzle when a transaction is completed. These puzzles get more and more difficult as the finite number of bitcoins are minded. To illustrate, as of this writing, there have been 447279 blocks of transactions completed.[9] A block is simply a random number of transactions. The program randomly creates these blocks—each block can contain 100 transactions or it may contain thousands. Miners gain bitcoins when they are able to assign a hashmark (hashing) to the end of a series of transactions, thus creating a block. The owner of that computer or groups of computers then receives a set amount of bitcoins. The originator of the program wrote it so that the puzzles that allow the hashmark to be assigned get harder and harder, until the last bitcoin is mined in approximately 2140, at which point a total of twenty-one million bitcoins would have been created. But who started it?

Origins

The creator of Bitcoin is the mystical Satoshi Nakamoto. Whether the pseudonym represented a single individual or a group is (was) unknown with various people 'outed' as the founder. As of May 2, 2016, an Australian, Craig Wright, claimed to be Bitcoin's inventor.[10]

In October 2008, 'Nakamoto' posted an online paper with illustrations, equations and footnotes explaining his system of digital 'currency.' Each 'coin' consisted, he said, of a chain of digital signatures that an owner could transfer to another person by digitally signing a hash of the previous transactions and adding the public key of the next owner and adding these to the end of the coin.

The duty of traditional brick-and-mortar central banks is to maintain the value of currency and control inflation. Individual banks must be trusted to transfer funds electronically and not undertake excessive lending. This trust is periodically violated, resulting in a financial crisis. Some 250 sovereign debt crises have been documented since 1800 (Reinhart and Rogoff 2009). At least ninety-six major banking crises and 178 monetary crises have occurred globally over the past thirty years (see Hallsmith and Lietaer 2011).

Nakamoto unveiled his Bitcoin project at a time when trust in private bank balance sheets had virtually evaporated (Vigna and Casey (2015: 64). The collapse of Lehman Brothers and the major insurance group AIG had precipitated an economic crisis. Bitcoin was heralded as a currency that required no bank, no government and no financial intermediaries or 'trusted third party.' Nakamoto had apparently managed to create a system without a centralized authority enforcing the rules.

So how would Nakamoto prevent people from gaming his system and spending bitcoins they didn't really have? Nakamoto's solution was twofold. The first was his breakthrough blockchain ledger. The second part of the solution involved an algorithm that created Bitcoin incentives for people to expend time and considerable computer power maintaining system integrity by 'mining' bitcoins.

And how many bitcoins would be released and when? Nakamoto began by releasing fifty bitcoins every ten minutes. The release rate was then reduced to twenty-five until the end of 2012. It is now being reduced by half every four years until the supply ends at zero in approximately 2140. By that time, twenty-one million coins will exist. As the payoff for miners decreases, they will begin earning a modest transaction fee. It was, as Paul Vigna and Michael put it, "an elegant, free-market solution to a dilemma that has dogged societies for centuries: how to align people's pursuit of self-interest with the needs of their community" (Vigna and Casey 2015: 66).

The Growth of Bitcoin

Of course, Bitcoin had little value at first, because it wasn't being accepted as payment for anything. Nevertheless, about 230 members of a computer forum saw the potential and began mining Nakamoto's new money. One collector, Roger Ver, earned the name 'Bitcoin Jesus' by giving them away, hoping to

attract other converts. Another, computer programmer Lazlo Hanyecz, was able by 2010 to collect about half of all the Bitcoins mined. In May of that year he came up with the idea of ordering two pizzas from Papa John's in Jacksonville, Florida, offering to pay 10,000 bitcoins for them. Because Papa John's wouldn't accept them, he needed an intermediary to pay for them. Someone in England agreed to accept the bitcoins and she or he paid the necessary $41 to Papa John's online with his or her credit card.

Hanyecz did four more pizza deals but discovered he wasn't acquiring as many, because more people got into the mining operation. By mid-July 2010, a bitcoin had increased in value from $0.008 to $0.08; a bitcoin was now worth more than one cent. Then in July 2010 Jed McCaleb created Mount Gox, the first Bitcoin exchange, where people could buy and sell bitcoins. By October it was averaging 30,000 trades a day when he sold it to a French programmer, Mark Karpeles, by which time there were over 31,000 members on the Bitcoin forum. By February 2011, a bitcoin was worth $1.00.

Underground entrepreneurs saw the value of Bitcoin's anonymity. *Silk Road* opened in March 2011, an online market featuring drugs and other illegal products and services. *Silk Road* was, as Jake Halpern (2015) called it, an *Amazon* for the underworld because Bitcoins at the time could not be traced to their owners. New York Senator Chuck Schumer referred to it as "the most brazen attempt to peddle drugs online that we have ever seen" (Vigna and Casey 2015: 86). The site was eventually closed when its creator, Ross Ubricht, was arrested by the FBI for drug dealing. In 2015, Ubricht was sentenced to life in prison.

Then, in July 2011, when Bitcoins were worth $31, someone hacked into Mount Gox and 'stole' $460 million worth of Bitcoins. Confidence in the currency temporarily collapsed. However, Bitcoin survived the hacking at Mount Gox, and at one point in November 2013 a Bitcoin was valued at $1,216.73 and the market valuation of the total stock of Bitcoins approached US$1 billion. Bloomberg *Businessweek* ran a story, "Meet the Bitcoin Millionaires," featuring photos of Jered Kennam Yifu Guo and Roger Ver (Raskin 2013). Most of the 'Bitcoin barons' were in their twenties. Yet, as of mid-2014, only an estimated half of all US citizens had heard of Bitcoin; only 3 percent had used it, and 65 percent said they were unlikely ever to use it.

The Unbanked

Bitcoin has also been proposed to a solution to the problem of the 'unbanked,' the some 2.5 billion adults who don't have access to banks. They can't start savings or checking accounts and they can't obtain credit cards. Cell phones, as we described earlier, offer some means of engaging the larger formal economy, but Bitcoin enthusiasts propose using the cryptocurrency to bring these billions into the 21st century (Vigna and Casey 2015: 186).

In the mind of a bitcoiner, say Paul Vigna and Michael J. Casey (2015: 186–187):

> Bitcoin is a force unto itself that will reshape and improve people's lives everywhere it goes, which leads them to this notion that they can both get rich quick and do tremendous good. It's like capitalism with a radical, altruistic bent. Nowhere is this more evident than in how bitcoin is being offered as a solution for the world's poor—and in this case they do have a compelling case to make for a better, more widely accessible form of money).

The Current and Future Status of Bitcoin

Currently (January 8, 2017) bitcoins are valued at about $900 each, so that the 2 pizzas that Lazlo Hanyecz purchased in 2010 cost approximated $9 million. There are over 70,000 merchants globally who accept bitcoins, including Overstock.com, Dish Network and Dell, and you can check online (e.g. http://spendbitcoins.com/places/) what (and where) you can purchase with bitcoins. However, so far Bitcoin as a method of payment represents a tiny proportion of global exchanges, about $50 million a day, which pales against the $30 billion processed daily by Visa and MasterCard.

But is digital currency, either Bitcoin or another, the currency of the future? There are some major concerns. The first is the security of bitcoins. Bitcoins are much like cash: once you spend it, there is no way to get it back. Digital wallets can be hacked, or people may forget their password. In early August 2016 the Hong Kong Bitcoin exchange, Bitfinex, was hacked and almost 120,000 bitcoins were stolen, initially driving the value of bitcoins down 20 percent (Hughes 2016). Of course credit card numbers can also be hacked, as many have been, so even the present main system is not foolproof.

A second concern is the safety of the blockchain and the fear of the 51 percent attack. The blockchain—the string of blocks, each containing a random number of bitcoin transactions—is the official ledger containing the identity of each bitcoin and the address (wallet) of the owner along with every transaction in which it has been involved. Furthermore every transaction has to be verified as legitimate by a *majority* of the servers on which it appears. Because it exists on thousands of computer servers, it is, theoretically, immune to manipulation. However, given the way the blockchain functions, essentially by consensus, if someone or a group could accumulate 51 percent of all bitcoins, they or it would control the ledger. They could, then, spend each bitcoin multiple times; it would be as though you could give the same $10 bill or write multiple checks of $10 to 100 people when you only had $10 in your account. There was a point in the evolution of Bitcoin that a small group did in fact accumulate close to

51 percent of all bitcoins. However, Bitcoin promoters respond by saying that Bitcoin is so diversified that such an attack would now be impossible. It is also a doomsday device: if people lose confidence in the blockchain, Bitcoin's value will plummet and nothing will be gained by the manipulation.

A third concern is price volatility, the up and down movement of the worth of bitcoins. Ordinary currencies can rise and fall in value—that is, what they can purchase—but nowhere near the volatility of bitcoin, which went from $0.008 a bitcoin, to some $1,200, down to $200, and then up again to $650 as of July 2016 and to almost $900 in early January of 2017 (see Figure 4.5). It's as though the price you paid for a gallon of gasoline plunged 90 percent then rose by 50 percent four months later; over the same period, with dollars, your gas bill would have dropped and risen by no more than 12 percent (Vigna and Casey 2015: 107).

For these reasons, most financiers see bitcoin more as a commodity, much like a stock, than a money—something to invest in rather than use as a currency. The US Internal Revenue Service, in fact, treats Bitcoin as a stock for tax purposes. A fourth concern is the environmental impact of Bitcoin. In 2014 one researcher estimated that $1 billion was invested in bitcoin 'mining rigs,' the highly specialized computer systems competing to add that final hashmark to Bitcoin transactions. Electricity costs are such that the rigs are located in areas with low electricity costs, generally areas with hydropower. Some fear that if bitcoins became the world dominant currency, bitcoin mining operations could produce dangerous levels of carbon emissions before 2140, when the entire supply of Bitcoins will be in circulation (see Gimein 2013).

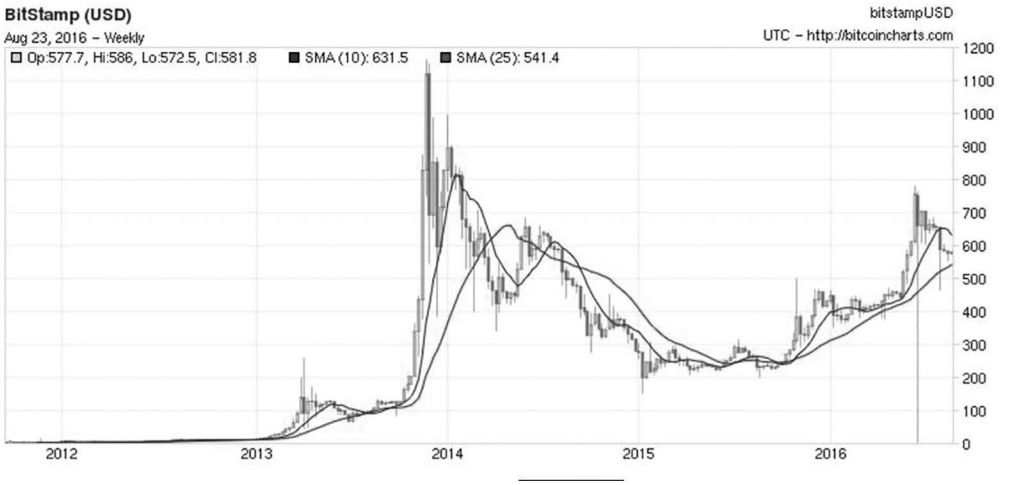


Figure 4.5 **Fluctuations in the value of bitcoins** (Source: http://bitcoincharts.com/charts/bitstampUSD#igWeeklyztgSza1gSMAzm1g10za2gSMAzm2g25).

A fifth problem with Bitcoin is its concentration in the hands of a few, with some 44 percent of all bitcoins in the hands of 1,528 addresses, each with a balance of more than 1,000 bitcoins. This is a small cohort of bitcoin barons, with wealth concentration probably worse than the present concentration of wealth in the hands of the 1 percent.

A sixth problem is that Bitcoin, like gold, is deflationary; because there will be only a fixed amount, in times of crisis when money would need to be injected into the system, it would be incapable of doing that. Furthermore, in times of panic people would hoard it, thus further restricting the flow of currency.

Finally, it is highly ideologically driven, largely by a radical distrust of government and, by extension, people; Bitcoin is essentially a technological solution to the basic issues of efficiency and trust.

As mentioned previously, as of mid-2014 only half of US citizens have heard of Bitcoin, 3 percent have used it and 65 percent said they were unlikely ever to use it. Yet, as Vigna and Casey (2015: 295–296) note, there are significant advantages to digital currencies, including the reduction of the enormous cost of the 'bankcentric' model, the integration of the billions of unbanked into the global economy, and the blockchain applications that promise to hold middlemen, centralized institutions and government agencies accountable (Vigna and Casey 2015: 295–296).

How could Bitcoin enter the mainstream economy? A huge retailer, such as Walmart, might cut its transaction costs of $350 billion a year that it pays to tens of thousands of suppliers worldwide by adopting Bitcoin. A major government might adopt Bitcoin for its own national cryptocurrency. A government might use Bitcoin for special purposes, such as reducing procurement costs. Perhaps a 'killer app' will come on the market, giving people access to a user-friendly application of Bitcoin technology to manage finances. Or Bitcoin might come to the rescue in a financial meltdown, similar to M-Pesa's adoption in Kenya during the 2007 political crisis when the traditional financial system broke down.

Conclusions

The views expressed here, as well as the predictions of most economists, strongly suggest that the long history of monetary crisis is not over. Perhaps the requirement for perpetual economic growth will prove to be the downfall of our present monetary system. Or perhaps extreme economic inequality will put too much strain on society. Shorter intervals between economic downturns may create the public impression of a permanent crisis, particularly among those least able to bear unemployment and economic slowdowns.

Can we change our current system of privately issued, interest-bearing credit-money? A crisis-driven transition would likely come with widespread hardship.

But do we have to hit rock bottom again? Maybe a less painful opportunity to improve our monetary system will present itself, and what might that look like? Solutions could be waiting in social arenas where the economy and politics overlap. Learning about money is a good first step toward recognizing what kinds of solutions would work best.

Notes

1. Foreword, in Lietaer and Dunne (2013: xi).
2. For example, in the United States, income taxes made up 47% of total government receipts, with social security and insurance taxes at 34% of receipts. www.cbpp.org/research/policy-basics-where-do-federal-tax-revenues-come-from.
3. http://timebanks.org/.
4. www.orexchange.org/.
5. You can view what services are needed and available at www.orexchange.org/membership.
6. See www.ithacahours.com/.
7. www.publicbankinginstitute.org/intro_to_public_banking.
8. If you are interested in the number of bitcoins that code will accommodate the answer is 1,461,501,637,330,902,918,203,684,832,716,283,019,655,932,542,976.
9. You can see the entire process taking place at https://blockchain.info.
10. See www.bbc.com/news/technology-36168863.

BIBLIOGRAPHY

Abouharb, M. Rodwan and David Cingranelli. 2007. *Structural Adjustment and Human Rights*. Cambridge University Press.

Ahamed, Liaquat. 2009. *The Lords of Finance*. Penguin Group.

Akin, David and Joel Robbins. 1999. *Money and Modernity: State and Local Currencies in Melanesia—Introduction*. Pittsburgh University Press.

Allen, R. C. 2011. 'Why the Industrial Revolution Was British: Commerce, Induced Invention, and the Scientific Revolution' *Economic History Review*, Vol. 64, No. 2: 357–384.

Arrighi, Giovanni. 1994. *The Long Twentieth Century*. Verso.

Atkinson, Richard D. 2012. 'U.S. Manufacturing: Decline and Economic Development Prospects' *Economic Development Journal*, Vol. 11, No. 3: 5–11.

Bell, Stephanie. 2000. 'Do Taxes and Bonds Finance Government Spending?' *Journal of Economic Issues*, Vol. 34, No. 3: 603–620.

Bell, Stephanie. 2001. 'The Role of the State in the Hierarchy of Money' *Cambridge Journal of Economics*, Vol. 25: 149–163.

Bell, Stephanie and John F. Henry. 2001. 'Hospitality Versus Exchange: The Limits of Monetary Economies' *Review of Social Economy*, Vol. 59, No. 1: 203–226.

Bell, Stephanie, John F. Henry and L. Randall Wray. 2004. 'A Chartalist Critique of John Locke's Theory of Property, Accumulation, and Money: Or, Is It Moral to Trade Your Nuts for Gold?' *Review of Social Economy*, Vol. 57, No. 1: 51–65.

Benedict, Ruth. 1959 [1934]. *Patterns of Culture*. Houghton Mifflin Harcourt.

Benes, Jaromir and Michael Kumhof. 2012. 'The Chicago Plan Revisited', IMF Working Paper 13/202. www.imf.org/external/pubs/ft/wp/2012/wp12202.pdf.

Bohannan, Paul. 1959. 'The Impact of Money on an African Subsistence Economy' *Journal of Economic History*, Vol. 19, No. 4: 191–503.

Brewer, John. 1989. *The Sinews of Power: War, Money and the English State: 1688–1783*. Unwin Hyman.

Bridgman, Benjamin, Andrew Dugan, Mikhael Lal, Matthew Osborne and Shaunda Villones. 2012. *Accounting for Household Production in the National Accounts, 1965–2010*. U.S. Bureau of Economic Analysis. www.bea.gov/scb/pdf/2012/05%20May/0512_household.pdf.

Brown, Ellen. 2013. *The Public Bank Solution: From Austerity to Prosperity*. Third Millennium Press.

Brown, Ellen. 2016. Bank of North Dakota Soars Despite Oil Bust: A Blueprint for California. May 2. https://ellenbrown.com/2016/05/02/bank-of-north-dakota-soars-despite-oil-bust-a-blueprint-for-california/#more-11466.

Bush, Barbara and Josephine Maltby. 2004. 'Taxation in West Africa: Transforming the Colonial Subject into the "Governable Person"' *Critical Perspectives on Accounting*, Vol. 15: 5–34.

Cahill, Damien. 2014. *The End of Laissez-Faire: On the Durability of Embedded Neoliberalism*. Edward Elgar.

Cahn, Edgar. 1992. *Time Dollars: The New Currency That Enables Americans to Turn Their Hidden Resource-Time-Into Personal Security & Community Renewal*. Rodale Press.

Cahn, Edgar. 2004. *No More Throw-Away People: The Co-Production Imperative*, 2nd edition. Essential Books.

Carruthers, Bruce G. and Wendy Nelson Espeland. 1991. 'Accounting for Rationality: Double-Entry Bookkeeping and the Rhetoric of Economic Rationality' *American Journal of Sociology*, Vol. 97, No. 1: 31–69.

Catchpowle, Lesley, Christine Cooper and Andrew Wright. 2004. 'Capitalism, States and Ac-counting' *Critical Perspectives on Accounting*, Vol. 15: 1037–1058.

Chaia, Alberto, Tony Goland and Robert Schiff. 2010. 'Counting the World's Unbanked' *McKinsey Quarterly*, March. www.mckinsey.com/industries/financial-services/our-insights/counting-the-worlds-unbanked.

Chapman, Anne. 1980. 'Barter as a Universal Mode of Exchange' *L'Homme*, Vol. 20, No. 3: 33–83.

Cipolla, Carol M. 1977. *Before the Industrial Revolution: European Society and Economy, 1000-1700*, 3rd edition. Routledge.

Civic Economics. 2004. Andersonville Study of Retail Economics. www.dartmouth.edu/~opdc/planner/wp-content/andersonvillesummary.pdf.

Clark, William R. 2005. *Petrodollar Warfare: Oil, Iraq, and the Future of the Dollar*. New Society.

Codere, Helen. 1950. *Fighting with Property: A Study of Kwakiutl Potlatching and Warfare. 1792–1930*. J.J. Augustin.

Collinson, Patrick and Jon Palmer. 2011. 'Local Currencies the German Way: The Chiemgauer' *Guardian*. www.theguardian.com/money/2011/sep/23/local-currencies-german-chiemgauer.

Cook, R.M. 1958. 'Speculation on the Origins of Coinage' *Historia*, Vol. 7: 257–262.

Copeland, Morris A. 1974. 'Concerning the Origin of a Money Economy' *American Journal of Economics and Sociology*, Vol. 33, No. 1: 1–18.

Crawford, M. 1970. 'Money and Exchange in the Roman World' *Journal of Roman Studies*, Vol. 60: 40–48.

Credit Suisse. 2013–2014. *World Wealth Report*. www.credit-suisse.com/au/en/news-and-expertise/research/credit-suisse-research-institute/publications.html.

Creutz, Helmut. 2010. *The Money Syndrome: Towards a Market Economy Free from Crisis*. FastPrint.

Dalton, George. 1961. 'Economic Theory and Primitive Society' *American Anthropologist*, Vol. 63: 1–25.

Dalton, George. 1965. 'Primitive Money' *American Anthropologist*, Vol. 67, No. 1: 44–65.

Dalton, George. 1982. 'Barter' *Journal of Economic Issues*, Vol. 16, No. 1: 181–190.

Davies, Glyn. 2002. *A History of Money: From Ancient Times to the Present Day*. University of Wales Press.

Dawson, Gloria. 2016. 'Where a Suitcase Full of Cash Won't Buy You Lunch' *New York Times*, July 30. www.nytimes.com/2016/07/31/business/where-a-suitcase-full-of-cash-wont-buy-you-lunch.html.

Del Mar, Alexander. 1886. *Money and Civilization*. George Bell and Sons.

Desmonde, William H. 1962. *Magic, Myth, and Money: The Origin of Money in Religious Ritual*. Free Press of Glencoe.

Dickson, P.G.M. 1967. *The Financial Revolution in England: A Study in the Development of Public Credit, 1688–1756*. St. Martin's Press.

Di Muzio, Tim, ed. 2014. *The Capitalist Mode of Power*. Routledge.

Di Muzio, Tim. 2015. *The 1% and the Rest of Us: A Political Economy of Dominant Ownership*. Zed.

Di Muzio, Tim and Richard Robbins. 2016. *Debt as Power*. Manchester University Press.

Dobbs, Richard, Susan Lund, Jonathan Woetzel and Mina Mutafchieva. 2015. *Debt and (Not Much) Deleveraging*. McKinsey. www.mckinsey.com/insights/economic_studies/debt_and_not_much_deleveraging.

Dodd, Nigel. 2014. *The Social Life of Money*. Princeton University Press.
Douglas, C. H. 1922. *The Control and Distribution of Production*. Cecile Palmer.
Douglas, Mary. 1967. Primitive Rationing: A Study in Controlled Exchange. In *Themes in Economic Anthropology*, edited by Raymond Firth, pp. 119–145. Tavistock.
Drucker, Phillip. 1966. *Cultures of the North Pacific Coast*. Chandler.
Dunn, J. J. 2012. 'The Decline of Manufacturing in the United States and Its Impact on Income Inequality' *Journal of Applied Business Research*, Vol. 28, No. 5: 995–1000.
Eichengreen, Barry. 1996. *Globalizing Capital: A History of the International Monetary System*. Princeton University Press.
Eichengreen, Barry. 2011. 'A Critique of Pure Gold' *National Interest*, September/October: 35–45.
Eichengreen, Barry and Nathan Sussman. 2000. 'The International Monetary System in the (Very) Long Run', IMF Working Paper.
Einzig, Paul. 1966. *Primitive Money in Its Ethnological, Historical and Economic Aspects*. Pergamon Press.
Ezzamel, Mahmoud. 2009. 'Order and Accounting as a Performative Ritual: Evidence from Ancient Egypt' *Accounting, Organizations and Society*, Vol. 34, No. 3–4: 348–380.
Ezzamel, Mahmoud and Keith Hoskin. 2002. 'Retheorizing Accounting, Writing and Money with Evidence from Mesopotamia and Ancient Egypt' *Critical Perspectives on Accounting*, Vol. 13, No. 3: 333–367.
Febrero, Eladio. 2009. 'Three Difficulties with Neo-chartalism' *Journal of Post Keynesian Economics*, Vol. 31, No. 3: 523–541.
Feinberg, Kenneth R. 2006. *What Is Life Worth? The Inside Story of the 9/11 Fund and Its Effort to Compensate the Victims of September 11th*. Public Affairs.
Fioramonti, Lorenzo. 2013. *Gross Domestic Problem: The Politics Behind the World's Most Powerful Number*. Zed Books.
Fisher, Irving. 1933. 'Stamped Scrip and the Depression' Letter to the Editor, *New Republic*, April 12, 74.
Forstater, Matthew. 2005. 'Taxation and Primitive Accumulation: The Case of Colonial Africa' *Research in Political Economy*, Vol. 22: 51–65.
Fouquet, Roger and Peter J. G. Pearson. 1998. 'A Thousand Years of Energy Use in the United Kingdom' *Energy Journal*, Vol. 19, No. 4: 1–41.
Friedman, Milton and Anna Jacobson Schwartz. 1963. *A Monetary History of the United States, 1867–1960*. Princeton University Press.
Garfinkle, Steven J. 2004. Shepherds, Merchants, and Credit: Some Observations on Lending Practices in Ur III Mesopotamia. *Journal of the Economic and Social History of the Orient*, 47: 1–30.
George, Susan. 1988. *A Fate Worse Than Debt*. Penguin.
Gelles, David. 2014. *An Employee Dies and the Company Collects the Insurance*. DealBook. http://dealbook.nytimes.com/2014/06/22/an-employee-dies-and-the-company-collects-the-insurance/.
Gesell, Silvio. 2013 [1916]. *The Natural Economic Order*. Isha Books.
Gierson, Phillip. 1977. *The Origins of Money*. Athlone Press.
Gilbert, Emily. 2005. 'Common Cents: Situating Money in Time and Place' *Economy and Society*, Vol. 34: 357–388.
Gilbert, Emily and Eric Helleiner. 1999. *Nation-States and Money: The Past, Present and Future of National Currencies*. Routledge.
Gimein, Mark. 2013. 'Virtual Bitcoin Mining Is a Real-World Environmental Disaster' *Bloomberg.com*. www.bloomberg.com/news/articles/2013-04-12/virtual-bitcoin-mining-is-a-real-world-environmental-disaster.
Gleeso-White, Jane. 2012. *Double Entry: How the Merchants of Venice Created Modern Finance*. W. W. Norton.
Goldsmith, R. W. 1987. *Premodern Financial Systems*. Cambridge: Cambridge University Press.

Goodhart, Charles A.E. 1998. 'The Two Concepts of Money: Implications for the Analysis of Optimal Currency Areas' *European Journal of Political Economy*, Vol. 14: 407–432.

Graeber, David. 2001. *Toward an Anthropological Theory of Value: The False Coin of Our Own Dreams*. Palgrave Macmillan.

Graeber, David. 2009. 'Debt, Violence and Impersonal Markets: The Great Transformation Today'. In *Market and Society: The Great Transformation Today*, edited by Chris Hann and Keith Hart. Cambridge University Press.

Graeber, David. 2011. *Debt: The First 5,000 Years*. Melville House.

Graziani, A. 2009. *The Monetary Theory of Production*. Cambridge University Press.

Grierson, P. 1977. *The Origins of Money*. Athlone Press.

Guttmann, Robert. 1994. *How Credit-Money Shapes the Economy: The United States in a Global System*. M.E. Sharpe.

Hager, Sandy Brian. 2013. 'What Happened to the Bondholding Class? Public Debt, Power and the Top One Per Cent' *New Political Economy*, Vol. 19, No. 2: 155–182.

Hager, Sandy Brian. 2016. *Public Debt, Inequality, and Power: The Making of a Modern Debt State*. University of California Press.

Hallsmith, Gwendolyn and Bernard Lietaer. 2011. *Creating Wealth: Growing Local Economies with Local Currencies*. New Society.

Halpern, Jake. 2015. 'Bank of the Underworld' *Atlantic*. www.theatlantic.com/features/archive/2015/04/bank-of-the-underworld/389555/.

Hamilton, Earl J. 1934. *American Treasure and the Price Revolution in Spain, 1501–1650*. Harvard University Press.

Häring, Norbert. 2013. 'The Veil of Deception over Money: How Central Bankers and Textbooks Distort the Nature of Banking and Central Banking' *Real-World Economic Review*, Vol. 1, No. 63: 1–18.

Harmes, Adam. 2001. 'Institutional Investors and Polanyi's Double Movement: A Model of Contemporary Currency Crises' *Review of International Political Economy*, Vol. 8, No. 3: 389–437.

Hart, Keith. 2001. *Money in an Unequal World: Keith Hart and His Memory Bank*. Texiere.

Hart, Keith. 2009. 'The Great Economic Revolutions are Monetary in Nature': Mauss, Polanyi and the Breakdown of the Neoliberal World Economy. http://storicamente.org/hart.

Hart, Keith. 2012. Money in Twentieth-Century Anthropology. In *A Handbook of Economic Anthropology*, 2nd edition, edited by James G. Carrier, pp. 166–182. Edward Elgar.

Hart, Keith. 2013. Contemporary Research on the Anthropology of Money and Finance. http://thememorybank.co.uk/2013/09/04/contemporary-research-on-the-anthropology-of-money-and-finance/.

Harvey, David. 2005. *A Brief History of Neoliberalism*. Oxford University Press.

Henry, James S. 2003. *The Blood Bankers*. Four Walls Eight Windows.

Horsefield, Keith J. 1960. *British Monetary Experiments, 1650–1710*. Harvard University Press.

Hotz, Robert Lee. 2014. 'Why You Shouldn't Put Your Money Where Your Mouth Is' *Wall Street Journal*, April 18. www.wsj.com/articles/SB10001424052702303456104579489510784385696.

Huber, Joseph. 2014. 'Modern Money Theory and New Currency Theory: A Comparative Discussion, Including an Assessment of Their Relevance to Monetary Reform' *Real-World Economics Review*, No. 66: 38–57.

Huber, Joseph and James Robertson. 2000. *Creating New Money: A Monetary Reform for the Information Age*. New Economics Foundation.

Hudson, Michael. 2000. 'Mesopotamia and Classical Antiquity' *American Journal of Economics & Sociology*, Vol. 59, No. 5: 3–26.

Hughes, Jennifer. 2016. 'Bitcoin Plunges after Hong Kong Hack' *Financial Times*, August 3. www.ft.com/cms/s/0/3dea1b58-5928-11e6-9f70-badea1b336d4.html#axzz4GGsM4p3Q.

Humphrey, Caroline. 1985. 'Barter and Economic Disintegration' *Man*, Vol. 20: 48–72.
Hutchinson, Frances and Brian Burkitt. 1997. *The Political Economy of Social Credit and Guild Socialism*. Routledge.
ILO. 2016. World Employment and Social Outlook—Trends 2016. www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_443472.pdf.
INCEIF. n.d. 'Overview of Global Islamic Finance Industry' *The Global University of Islamic Finance*. www.inceif.org/industry-growth/.
Independent Evaluation Office of the International Monetary Fund. 2011. 'IMF Performance in the Run-Up to the Financial and Economic Crisis IMF Surveillance in 2004–2007', Independent Evaluation Office of the IMF.
Ingham, Geoffrey. 1999. 'Capitalism, Money and Banking: A Critique of Recent Historical Sociology' *British Journal of Sociology*, Vol. 50, No. 1: 76–98.
Ingham, Geoffrey. 2000. 'Class Inequality and the Social Production of Money' *Sociological Review*, Vol. 48, No. 1: 66–86.
Ingham, Geoffrey. 2004. *The Nature of Money*. Polity Press.
Ingham, Geoffrey. 2013. 'O Sacred Hunger of Pernicious Gold! What Bands of Faith Can Impious Lucre Hold?' *European Journal of Sociology*, Vol. 54: 127–146.
Karimzadi, Shahzavar. 2013. *Money and Its Origins*. Routledge.
Keister, Orville R. 1963. 'Commercial Record-Keeping in Ancient Mesopotamia' *Accounting Review*, April: 371–376.
Kennedy, Margrit I. and Declan Kennedy. 1995. *Interest and Inflation Free Money: Creating an Exchange Medium that Works for Everybody and Protects the Earth*. New Society.
Kerstein, Samuel. 2016. 'Is It Ethical to Purchase Human Organs?' *Guardian*, June 29. www.theguardian.com/commentisfree/2016/jun/29/purchase-human-organs-kidney-wait-list-ethics.
Keynes, John Maynard. 1936. *The General Theory of Employment, Interest and Money*. Palgrave Macmillan.
Killingray, David. 1986. 'The Maintenance of Law and Order in British Colonial Africa' Source *African Affairs*, Vol. 85, No. 340: 411–437.
Knafo, Samuel. 2014. 'The Politics of Liberal Financial Governance and the Gold Standard' *New Political Economy*, Vol. 18, No. 1: 43–63.
Knapp, Georg F. 1924. *The State Theory of Money*. Palgrave Macmillan.
KPMG. 2016. Money Issuance: Alternative Monetary Systems. A Report Commissioned by the Icelandic Prime Minister's Office. https://home.kpmg.com/content/dam/kpmg/is/pdf/2016/09/KPMG-MoneyIssuance-2016.pdf.
Kraay, Colin M. 1964. 'Hoards, Small Change and the Origin of Coinage' *Journal of Hellenic Studies*, Vol. 84: 76–91.
Krier, Dan. 2009. 'Speculative Profit Fetishism in the Age of Financial Capital' *Critical Sociology*, Vol. 35, No. 5: 657–675.
Lau, Jeffrey Y. F. and John Smithin. 2002. 'The Role of Money in Capitalism' *International Journal of Political Economy*, Vol. 32, No. 3: 5–22.
Lerner, Abba P. 1947. 'Money as a Creature of the State' *American Economic Review*, Vol. 37, No. 2: 312–317.
Lerner, Gerda. 1987. *The Creation of Patriarchy*. Oxford University Press.
Lietaer, Bernard. 2010. 'The Wörgl Experiment: Austria (1932–1933)' *Currency Solutions for a Wiser World*. www.lietaer.com/2010/03/the-worgl-experiment/.
Lietaer, Bernard and Jacqui Dunne. 2013. *Rethinking Money: How New Currencies Turn Scarcity into Prosperity*. Berrett-Koehler.
Maddison, Angus. 2001. *The World Economy: A Millennial Perspective*. Development Centre of the Organization for Economic Co-operation and Development.

Malanima, Paolo. 2006. 'Energy Crisis and Growth 1650-1850: The European Deviation in a Comparative Perspective' *Journal of Global History*, Vol. 1: 101–121.
Mallaby, Sebastian. 2010. *More Money Than God*. Penguin.
Martin, Felix. 2014. *Money: The Unauthorized Biography*. Alfred A. Knopf.
Maurer, Bill. 2005. *Mutual Life, Limited: Islamic Banking, Alternative Currencies, Lateral Reason*. Princeton University Press.
Maurer, Bill. 2006. 'The Anthropology of Money' *Annual Review of Anthropology*, Vol. 35: 15–36.
Maurer, Bill. 2015. *How Would You Like to Pay? How Technology Is Changing the Future of Money*. Duke University Press.
Mauss, Marcel. 1952. *The Gift: Forms and Functions of Exchange in Archaic Society*, 2nd edition. Translated by I. G. Cunnison. Free Press.
McLeay, Michael, Amar Radia and Ryland Thomas. 2014. 'Money Creation in the Modern Economy' *Quarterly Bulletin Q1 Bank of England*.
Moore, Jason. 2010. 'This Lofty Mountain of Silver Could Conquer the Whole World': Potosí and the Political Ecology of Underdevelopment, 1545–1800' *Journal of Philosophical Economies*, Vol. 4: 58–103.
Mosler, W. 1997–1998. 'Full Employment and Price Stability' *Journal of Post Keynesian Economics*, Vol. 20, No. 2: 167–182.
Muldrew, Craig. 1998. *The Economy of Obligation: The Culture of Credit and Social Relations in Early Modern England*. Palgrave Macmillan.
Needleman, Jacob. 1994. *Money and the Meaning of Life*. Doubleday.
Nef, John U. 1977. 'An Early Energy Crisis and its Consequences' *Scientific American*, November: 140–150.
New York Times. 2014. 'How Much for a Kidney?' www.nytimes.com/roomfordebate/2014/08/21/how-much-for-a-kidney.
Nitzan, Jonathan and Shimshon Bichler. 2009. *Capital as Power: A Study of Order and Creorder*. Routledge.
Oliver, Roland and G. N. Sanderson. 1985. *Cambridge History of Africa, Volume 6: 1870–1905*. Cambridge University Press.
Papavasiliou, Faidra. 2010. 'Fair Money, Fair Trade: Tracing Alternative Consumption in a Local Currency Economy'. In *Fair Trade and Social Justice*, edited by Sarah Lyon and Mark Moberg. New York University Press.
Parry, J. and Bloch, M. 1989. *Money and the Morality of Exchange*. Cambridge University Press.
Peacock, Mark S. 2003–2004. 'State, Money, Catallaxy: Underlaboring for a Chartalist Theory of Money' *Journal of Post Keynesian Economics*, Vol. 26, No. 2: 205–225.
Phillips, Ronnie. 1992. 'The "Chicago Plan" and New Deal Banking Reform', Working Paper No. 76, The Jerome Levy Economics Institute of Bard College. www.levyinstitute.org/pubs/wp/76.pdf.
Piketty, Thomas. 2014. Capital in the Twenty-First Century (Cambridge, MA: Belknap Press).
Podobnik, Bruce. 2006. *Global Energy Shifts: Fostering Sustainability in a Turbulent Age*. Temple University Press.
Polanyi, Karl. 1957 [1944]. *The Great Transformation: The Political and Economic Origins of Our Time*. Beacon Press.
Pospisil, Leonard. 1972. *Kapauku Papuan Economy*. Yale University Publications in Anthropology, Number 67. Human Area Relations Files Press.
Powell, Marvin A. 1996. 'Money Is Mesopotamia' *Journal of the Economic and Social History of the Orient*, Vol. 39, No. 3: 224–242.
Putnam, Robert D. 2000. *Bowling Alone: The Collapse and Revival of American Community*. Simon and Schuster.
Quiggin, A. Hingston. 1963 [1949]. *A Survey of Primitive Money: The Beginnings of Currency*. Methuen.

Radford, R. A. 1945. 'The Economic Organisation of a POW Camp' *Economica*, Vol. 12: 189–201.
Raskin, Max. 2013. 'Meet the Bitcoin Millionaires' *Bloomberg.com*. www.bloomberg.com/news/articles/2013-04-10/meet-the-bitcoin-millionaires.
Reinhart, Carmen M. and Kenneth S. Rogoff. 2009. *This Time Is Different: Eight Centuries of Financial Folly*. Princeton University Press.
Richards, R. D. 1958. *The Early History of Banking in England*. Frank Cass.
Robertson, James. 2012. *Future Money: Breakdown or Breakthrough*. Green Books.
Rodney, Walter. 1972. *How Europe Underdeveloped Africa*. Howard University Press.
Rogoff, Kenneth S. 2016. *The Curse of Cash*. Princeton University Press.
Rowbotham, Michael. 1998. *The Grip of Death: A Study of Modern Money, Debt Slavery and Destructive Economics*. Jon Carpenter.
Rubini, Dennis. 1970. 'Politics and the Battle for the Banks, 1688–1697' *English Historical Review*, Vol. 85: 693–714.
Ryan-Collins, Josh, Tony Greenham, Richard Werner and Andrew Jackson. 2014. *Where Does Money Come From? A Guide to the UK Monetary and Banking System*. New Economics Foundation.
Saad, Lydia. 2014. 'The "40-Hour" Workweek Is Actually Longer—by Seven Hours' *Gallup.com*. www.gallup.com/poll/175286/hour-workweek-actually-longer-seven-hours.aspx.
Saad-Filho, Alfredo and Deborah Johnston. 2005. *Neoliberalism: A Critical Reader*. Pluto Press.
Schwarts, Herman. 2009. *Subprime Nation: American Power, Global Capital and the Housing Bubble*. Cornell University Press.
Semenova, Alla. 2011. 'Would You Barter with God? Why Holy Debts and Not Profane Markets Created Money' *American Journal of Economics and Sociology*, Vol. 70, No. 2: 376–400.
Sidahmed, Mazin. 2016. 'Ramen Is Displacing Tobacco as Most Popular US Prison Currency, Study Finds' *Guardian*, August 22. www.theguardian.com/us-news/2016/aug/22/ramen-prison-currency-study.
Simmel, Georg. 1907 [2004]. *The Philosophy of Money*, edited by D. Frisby. Routledge.
Smil, Vaclav. 1994. *Energy in World History*. Westview Press.
Smithin, John, ed. 2000. *What is Money?* Routledge.
Soederberg, Susanne. 2013. 'The US Debtfare State and the Credit Card Industry: Forging Spaces of Dispossession' *Antipode: Radical Journal of Geography*, Vol. 45, No. 2: 493–512.
Soederberg, Susanne. 2014. *Debtfare States and the Poverty Industry: Money, Discipline and the Surplus Population*. Routledge.
Spufford, Peter. 1988. *Money and Its Use in Medieval Europe*. Cambridge University Press.
Stark, Richard. 1997. *The Rise of Christianity*. Princeton University Press.
Stavrianos, L. S. 1981. *Global Rift: The Third World Comes of Age*. William Morrow.
Stewart, Heather. 2009. 'This Is How We Let the Credit Crunch Happen Ma'am' *Guardian*, July 26.
Thomas, Brinley. 1986. 'Was There an Energy Crisis in Great Britain in the 17th Century' *Explorations in Economic History*, Vol. 23: 124–152.
Turkle, Sherry. 2015. *Reclaiming Conversation: The Power of Talk in a Digital Age*. Penguin.
Vigna, Paul and Michael J. Casey. 2015. *The Age of Cryptocurrency: How Bitcoin and Digital Money Are Challenging the Global Economic Order*. St. Martin's Press.
Vilar, Pierre. 1986. *A History of Gold and Money 1450–1920*. Translated by Judith White. Verso.
Weatherford, Jack. 1997. *The History of Money*. Crown.
Weiner, Annette B. 1988. *The Trobrianders of Papua New Guinea*. Holt, Rinehart and Winston.
Wennerlind, Carl. 2011. *Casualties of Credit: The English Financial Revolution, 1620-1720*. Harvard University Press.
Werner, Richard A. 2014a. 'Can Banks Individually Create Money Out of Nothing?—The Theories and the Empirical Evidence' *International Review of Financial Analysis*, Vol. 36: 1–19.

Werner, Richard A. 2014b. 'How Do Banks Create Money, and Why Can Other Firms Not Do the Same? An Explanation for the Coexistence of Lending and Deposit-Taking' *International Review of Financial Analysis*, Vol. 36: 71–77.

Williamson, John. 1989. *What Washington Means by Policy Reform*. In *Latin American Readjustment: How Much Has Happened*, edited by John Williamson, pp. 7–20. Institute for International Economics. www.wcl.american.edu/.

Wolf, Martin. 2016. 'Helicopter Drops Might Not Be Far Away' *Financial Times*. https://next.ft.com/content/9b3c71f8-d97f-11e5-a72f-1e7744c66818.

Wolff, Edward N. 2012. *The Asset Price Meltdown and the Wealth of the Middle Class*. New York University.

Wolff, Edward N. 2013. 'The Asset Price Meltdown and the Wealth of the Middle Class' *Journal of Economic Issues*, Vol. 47: 333–342.

Wood, Ellen Meiksins. 2002. *The Origin of Capitalism: A Longer View*. Verso.

Wray, L. Randall. 1998. *Understanding Money: The Key to Full Employment and Price Stability*. Edward Elgar.

Wray, L. Randall. 2002. 'State Money' *International Journal of Political Economy*, Vol. 32, No. 3: 23–40.

Wray, L. Randall. Ed. 2004. *Credit and State Theories of Money*. Edward Elgar.

Wray, L. Randall. 2015. *Modern Money Theory*, 2nd edition. Palgrave Macmillan.

Wrigley, E.A. 2010. *Energy and the English Industrial Revolution*. Cambridge University Press.

Zarlenga, Stephen A. 2002. *Lost Science of Money: The Mythology of Money: The Story of Power*. American Monetary Institute.

Zelizer, Viviana A. 1989. 'The Social Meaning of Money: "Special Money"' *American Journal of Sociology*, Vol. 95, No. 2: 342–377.

Zelizer, Viviana A. 2011. Human Values and the Market: The Case of Life Insurance and Death in Nineteenth Century America. In *Economic Lives: How Culture Shapes the Economy*, pp. 19–39. Princeton University Press.

INDEX

Page numbers in italics refer to figures and tables.