**Envisioning the economy of the future and the future of political economy**

**Lille July 2019**

**The changing nature of money**

**Introduction**

Is it possible to control the banking system, manage the money supply and avoid another financial crisis? The fundamental weakness of the established macroeconomics and monetary theory was exposed by the global financial crisis of 2007/8. Conventional monetary theory contributed to the crisis by failing to recognise the problems until it was too late. (Turner 2016:241-251; Wolf 2014: 191-202). Not only did almost all economists fail to foresee the crisis but they are also uncertain about how to respond (Blanchard et al. 2016).

 One of the underlying problems is a failure to recognise how money has changed. Current economic and monetary theory treats “money” as one homogeneous undifferentiated concept. The changing nature of money is ignored. This means that policy is based on a mixture of ideas from the 18th century and theory based on the current reality of bank money. It is not surprising that such mixed bag of ideas is inconsistent and ineffective.

The distinctive contribution of this paper is to consider the effect of different forms of money in the theory of markets, the nation-state and money. There are and have been a wide variety of types of money. But, for most people, most of the time, “money” means the currencies in common use in their society. But the balance of currencies in use is constantly changing.

Money today is completely different from money as it was imagined in the 18th century. Gold coins used to be money in the 18th century. There has been a gradual change so that now money is plastic cards, digital records and mobile phone messages.

Claim money will be used as a convenient term for today’s money. Claim money means money which is a claim on banks or a nation state. It has no physical existence and exists solely as accounting records. More specifically this paper asserts:

1: The money in common use has changed over the last 300 years. As the change has been gradual, this has not been recognised in economic theory.

2. Money in use today is “claim money” which has no physical existence. It exists as a network of credit and debt relationships based on economic agents which are recognised as wealthy and/or powerful so that credits or debts to these recognised counterparties (states and banks) are universally recognised as valuable.

3. Claim money existed before commodity money. Claim money is usually preferred in settled communities because it is easy to transport, flexible and more secure. In the last 300 years, claim money has gradually become universal. Commodity money is no longer used.

4. Claim money does not behave like the commodity money discussed in classical economic theory. Many elements of monetary theory are based on commodity money and are out-of-date. Obsolete monetary theory has caused financial crises.

5. Significant changes in policy would result from using relevant monetary theory applicable to claim money.

Sections 3, 4, 5 and 6 of the paper describe the gradual change in the nature of money and monetary theory. Section 7 reviews the differences between claim money and commodity money. Section 8 identifies two notable consequences for monetary policy. Section 9 summarises and concludes.

**Section 2. The evolution of money**

Money is fundamental to our society, so it seems natural to think of it as solid, unchanging, permanent. But money has changed. It is becoming ever more ethereal.

 “*The intangible nature of most money today is perhaps the best evidence of its true nature. … money is a matter of belief, even faith: belief in the person paying us; belief in the person issuing the money he uses or the institution that honours his cheques or transfers. Money is not metal. It is trust inscribed. And it does not seem to matter much where it is inscribed: on silver, on clay, on paper, on a liquid crystal display. Anything can serve as money, from the cowrie shells of the Maldives to the huge stone discs used on the Pacific islands of Yap. And now, it seems, in this electronic age nothing can serve as money too.”* (Ferguson 2009:30)

 *“…..there is no common view about what counts as money in a general sense. There never has been a consensus about this: the extant literature about money is replete with debates over competing definitions. Even our language is confused .*” (Dodd 2014:5 )

Describing how money changes requires clear definitions. This is how terms will be used in this paper.

**Money (abstract)** - a general term including everything that is or may be used as a means of exchange. This includes coins, notes, phone messages, internet credit but also the large round stones used by the Yapp islanders, cowrie shells, beads and tobacco used in North America and a growing number of local community currencies.

**Money - in common use** - the selection of currencies in common use in a particular society at a particular time. This is the meaning of “money” as it is used in everyday speech. It will also be the meaning of “money” in the rest of this paper, unless otherwise specified. Thus the Bristol Pound would be money in the abstract sense but would not be money in the common use sense – because it is not commonly used.

**Currency** – any particular form of money in the abstract sense – e.g. the Euro, British Pound etc but also cowrie shells, tobacco or any community currency

**Type (or form) of money** – a group of currencies that are created and supported in similar ways such as:

**Commodity money** – money based on the value of a specified weight of a commodity (usually a precious metal)

**Credit money or Bank money** – money created when a bank or other institution advances credit

**Fiat money** – money created by order of the government (or central bank) of a nation state

**Claim money** – a term used for convenience to describe the form of money in general use today –a combination of fiat money and credit money. Today’s US dollars, British pounds and Euros are all currencies that fit the general description of claim money. But the historic forms of these currencies were not claim money. This paper describes the gradual transition from the historic commodity money versions of these currencies to the claim money versions used today.

Claim money will be used inclusively to include varying combinations of credit money and fiat money. All fiat money is claim money, because it is created by nation states. But not all claim money is fiat money. Most claim money is credit money, created by banks.

Claim money exists as accounting records. It can be created by tapping computer keys. The accounting record has to be backed by a powerful or wealthy institution, such as a bank or a government. The term “claim money” is suggested because claim money is a record of a claim on a bank or a government.

**Purchasing power** or **Money Supply**– the sum of all the currencies available for use in a particular time and place

Money today is changing. Cash is being replaced by debit and credit cards. A recent report on “Access to Cash Review” suggests that cash use will shrink drastically in the next two decades.

This change in the money in common use is driven by personal convenience. But it is also driven by the effect of other people’s decisions. While most people will use digital payments by choice; other people, especially the poorest people, may be compelled to use digital payments against their wishes.

*10 years ago, cash was used for 6 in 10 payments in the UK. In 15 years, it could be just 1 in 10. Sweden, a country at the forefront of moving to a cashless society, has probably the lowest use of cash in the world at 15%. It’s plausible that the UK could be at that level, or even lower in 10 -15 years.*



P13

*What will drive cash use down:*

* *Increased acceptability of cards*
* *Shops and others stop accepting cash*
* *Increased use of online shopping*
* *Increased use of cards, mobile apps etc. on public transport*
* *Problems and costs of processing and banking cash for retailers, especially as it becomes less common*
* *More of UK covered by broadband and mobile connectivity*
* *Accelerated closure of bank branches and ATMs*
* *New innovative services which make digital payments even easier, such as biometrics*

P17

“*In almost every case, the drive towards digital payments has been centred on making the customer’s experience easier, faster and more frictionless” P33*

*“Insight from Sweden and China demonstrated that the issue of cash acceptance by merchants and retailers was more likely to drive the death of cash than issues around cash access.” P6*

Access to Cash Review: Final report March 2019

Money is a social institution. We accept money because we believe we can pass it on to someone else in exchange for something we want. The changing nature of money is the result of social customs, convenience of use, technical availability and political realities as communities of people discover new ways of performing the standard functions associated with money;

A full history might trace the evolution of money over the last 5,000 years (see Graeber 2011) but the next sections will be less ambitious and merely trace how money has changed over the last 300 years.

**Section 3 Claim money and commodity money**

The next few sections describe how the money in common use has gradually changed over the last 300 years. Many intermediate currencies were backed by stores of precious metals held by banks or by the state. But the overall trend is consistent. The role of precious metals (commodity money) has steadily declined. Backing by banks and state (claim money) has expanded. Commodity money was finally excluded from the monetary system when the link between the U.S. dollar and gold was ended in 1971.

Adam Smith and David Hume were seminal writers in the late 18th century, at the beginning of modern economics. This was the era of the enlightenment. Ideas from the enlightenment are the accepted truths of today, particularly in economics. But the relevance of enlightenment ideas needs to be carefully reviewed. It was a different era from today. Darwin’s ideas of evolution had not yet been discovered and the autocratic rulers of the enlightenment were unlike the democratic governments we expect today.

Enlightenment thought was inspired by Newton’s discovery of the laws of motion. Smith and Hume were looking for laws of human behaviour just as Newton had described the laws of the planet’s motion. They aimed to describe a rational basis for a “science of man”.

“*It is at least worthwhile to enquire if the science of man will not admit of the same accuracy which several parts of natural philosophy are found susceptible of*” (Hume 2007[1739]:407)

When Smith and Hume were writing, there was a variety of money. In Europe, precious metal bullion (silver or gold) was the international means of exchange. But a more diverse range of money was used locally.

*“(in England) low denomination private token coins made of copper tin and lead had been issued by merchants and towns since the 13th century. By the early 1600s, approximately 3 thousand London businesses issued unauthorised farthing token coins which often circulated no farther than several city blocks.  ...  the Royal Mint reported in 1787 that only 8% of the copper coins in circulation resembled the king's coin. Production of private tokens by towns and merchants extended even to include small-denomination silver money during the Napoleonic wars when Britain's inconvertible currency produced an enormous shortage of official silver coins.”* (Helleiner 2003:24) (see also ibid pp19-31)

*“Faced with a woefully inadequate and unreliable supply of official coinage, businessmen in the provinces in particular were forced increasingly to improvise. There were five main methods used to try to fill the currency gap: tokens of metal; truck, or payment in goods; paper notes issued by company shops and quasi- banks; the use of foreign coins, especially silver and eventually and by far the most effectively as we have seen by proper banks. “* (Davies 2002:293)

A general “science of man” needed a simple description of money so Smith and Hume focused on a simplified description of the international means of exchange (precious metal coins and bullion). To support this, Adam Smith outlined a “conjectural history” based on his ideas of what might have happened. This was the fashion at the time, before modern archaeology and anthropology.

Adam Smith’s ideas about the origin of money were based on some sketchy pieces of historical knowledge (Smith 1979:126-132). As Graeber (2011:26)points out, Smith’s idea of prehistory subtly shifts its focus to describe a community like an 18th century Scottish village with a butcher and a baker.

So at the start of modern economics, the standard description of money was based on commodity money (gold and silver). It was a much simplified version of what was, in reality, a complex mix of currencies.

Adam Smith’s barter view of the origin of money has two major flaws. Firstly, there is no anthropological or historical evidence for it. Experts on barter do not believe that money originated from barter (Humphrey & Hugh-Jones 1992:2) According to Graeber (2011:29 – 34) barter occurs rarely, and it occurs between people who do not trust eachother and may never meet again.

The second weakness of the barter theory is that it only considers exchanges completed on a single occasion. In reality, people live in communities. Many early communities would be settled groups of people living in the same place for years. In any settled community, people may prefer to ask for repayment at a different time, or keep a continuing informal network of debts and credits, which will enable them to expect help from their neighbours when they need it. Barter concentrates on exchange rather than production. Production processes take time. The costs and time needed to gather raw materials and produce goods for exchange have to be financed in advance.

Henry Thornton, who was a banker, provides a more realistic description, written about 25 years after Smith.

*“Even in that early and rude state of society in which neither bills nor money are as yet known, it may be assumed, that if there be commerce, a certain degree of commercial credit will also exist.”*

*“It must happen, even in the infancy of society, that one man will deliver property to his neighbour without receiving, on the spot, the equivalent which is to be given in return.”*

(Thornton 1939:75)

Claim money, i.e. records of debts and credits, was easier to create and more useful than commodity money. The earliest forms of money were records of credits and debts. Modern archaeology has found large stores of records of debts from at least 2,000 B.C. (Graeber 2011:214-217)

Precious metal coins were a derivative form of money invented about 700 B.C.; hundreds of years after credit and debt records. Graeber (2011) and Ingham (2004) suggest that coins became widespread in an age of warring states because they were useful for paying soldiers. In today’s more peaceful society, records of credit and debt are generally preferred to coin and notes because they are more easily transportable, transferable and secure.

The use of bank (credit) money was growing during the 18th century. Banknotes could be produced by any local bank. The dangers of over-issue of bank notes were well known. John Laws’ Banque Generale France caused widespread financial distress in France when it collapsed in 1720. The collapse of the bank of Ayre in Scotland, impoverished the Duke of Buccleugh, Adam Smith’s principal backer.

Smith and Hume had different attitudes to paper money. David Hume asserted that only precious metal was good quality money and banks that circulated paper notes were short-changing the nation (Arnon 2011:14). Adam smith took a more pragmatic approach, suggesting that paper money enabled a limited supply of gold to be more effectively used, provided the poorest people were protected from the risk of bank collapses (Arnon 2011:40-44).

These ideas were the fore-runner of a continuing debate about credit and controlling the money supply, which continues through the 19th century and up to today. Adam Smith and David Hume bequeathed to later economists the idea that precious metal is the only real money. This continues to influence conventional economics up to the present day.

**Section 4 Money in the 19th century – Claims outgrow gold**

The doctrine promoted by classical economics and followed during the 18th and 19th centuries was to link the national currency to the value of gold. This became increasingly difficult because of the limited supply of gold. The use of increasing amounts of claim money overcame this problem.

Discussion over the nature of money was given a new focus when, in 1797, to preserve supplies of gold for the war with Napoleon, the British government instructed the Bank of England not to exchange gold for banknotes. At the beginning of the 19th century, two well-known debates (the Bullion debate and the Currency debate) discussed the growing use of claim money and established the basis of the Gold Standard. They both covered similar topics. One side of the debates (the Bullionists and the Currency school) argued that the availability of banknotes should be restricted according to the availability of gold. The other side of the debate (Baring and the later Banking school) argued that the issue of bank notes and bank loans fluctuated according to the needs of the economy and there was no need for a restriction. Any restriction in the availability of money would damage the economy.

David Ricardo was the principal proponent of the Bullionist view that paper money had to be linked to gold, continuing the 18th century view that gold was the only real standard of value and considering paper money, credits and debts as a less preferable, derivative type of currency.

 Both debates were resolved in a similar way. The conventional view of commodity money (Bullionists and the Currency School) won the theoretical debate. But, in practice, the growth of credit and paper money continued unrestricted.

The Bullion report recommended that the issue of bank notes should be restricted. But these recommendations were not accepted or implemented because of the practical and political difficulties of restricting the economy in the middle of the Napoleonic war.

The 1844 Banking Act restricted the issue of bank notes and linked the issue of notes to the availability of bullion at a fixed rate of £3 17s 9d per ounce. But banks were still able to create additional purchasing power by taking deposits and making loans. There is an implicit assumption that official money is the fundamental form of money and credit arrangements are derivative.

*“The monetary theory of credit ..... developing the theory of the network of credit ‘payments’ from the case of payment in specie ... assigns to legal tender money a logically privileged position.”* (Schumpeter 1954:719)

 This leads to the belief, common today, that controlling the amount of official money should also limit the amount of credit.

*From the bullionist argument sprang an idea that was to be central to the modern quantity theory of money: the stock of money could be effectively controlled through the control of a narrow monetary base* (Skidelsky 2018:46)

But the development of the monetary system during the 19th century suggests that credit money is not derivative but is a separate and alternative form of money. The legal and practical limits on official commodity money (gold) did not limit credit but led to an increasing use of credit as an alternative supply of purchasing power.

National governments have always been responsible for ensuring a stable money supply. At times, as in the 18th century, banks or local manufacturers have started creating their own bank notes or tokens. But the central government has eventually found it necessary to control independent currency creation, both to assert the authority of the national government and also to ensure a reasonably secure and stable money supply.

* Markets can create “bubbles” or they develop surpluses in one area and shortages in others. Faced with the possibility of a collapse in the national medium of exchange, governments find themselves compelled to intervene
* Money is power. It can fund lobbying or election campaigning. It can also fund armies. National governments cannot allow such an important source of power as the money supply to be outside their control and they often need money to fund armies

During the 19th century, national governments took a renewed responsibility for the monetary system by creating modern territorial currencies. Today, we assume that currencies will correspond to nation states, with the notable exception of the European Union. But this situation is comparatively recent. It is the result of deliberate policy choices made by nation states during the 19th century. Helleiner (2003) describes four motives for the creation of national currencies.

* to promote national (rather than local) markets
* to control macro-economic policy
* to administer state taxes and expenditure more effectively
* To promote a national identity.

The creation of national currencies provided an essential pre-condition for today’s claim money by enforcing a national unit of account.

The growth in the use of credit (claim) money continued. Following further banking crises in 1847, 1857, 1866; Bagehot (1873 ) emphasised the way that bank credit far exceeded the amount of coins and notes in circulation.

The second half of the 19th century was the peak period of the Gold Standard supported by the British Empire and the financial and industrial dominance of the UK. But gold was being replaced in daily life by various forms of credit money (Davies 2002:355). The growth of bank money was an unavoidable result of the growth of population and prosperity. The total amount of purchasing power had to outgrow the supply of gold and the difference was supplied by various forms of bank money.

*“During the course of the century the total supply of gold increased substantially, but in irregular spurts; yet it could not keep pace with the steady increase in population and the increase in the average standard of living. The more manageably elastic part of the money supply was provided by the banking system..”* (Davies 2002:285)

 *“Luckily, the world’s stock of monetary gold increased substantially during this period , from £519million in 1867 to £774 million in 1893, an annual rate of increase of 1.5 per cent; and to £1909 million by 1918, at an average annual rate of 3.7 per cent; helping to give confidence to a financial world that still worshipped gold, while in fact relying on bank deposits at least twenty times as large.”* (Ibid p359)

As the 19th century drew to a close, it was becoming increasingly clear that international monetary system could not be based on gold indefinitely

**Section 5 20th century – Money without Gold**

At the beginning of the 20th century, some economists were realising that commodity money no longer provided an accurate description of the money supply. Knut Wicksell developed a theory of credit money:

*“We can assert that all money – including metallic money – is credit money. For the force which is directly responsible for the generation of value always lies in the belief of the receiver that he will be able to obtain for it a certain quantity of commodities”* ( Wicksell 1936: 49)

He believed that the money supply depended on the interest rate set by the central bank. This remains the basis for modern monetary policy

Central banks should set interest rates that corresponded with a natural rate of interest. But this relies on the belief that there is some independent natural scale of value. Thus the ideas of commodity money slip in without being acknowledged as such.

Macleod (1882), J Mitchell Innes ( 1913,1914 ) made the case that money is a record of credits and debts rather than being based on a commodity. It is important that the credit is transferable , so one of the parties needs to be widely recognised, such as the state or a bank (Martin 2013:26 -31). Today, alomost all of our money is created by banks making loans (Ryan-Collins et al 2011; McLeay et al. 2014).

Keynes linked money to the state’s ability to define the legal form of tender ( Keynes 2011:4) Knapp (1924) believed that money is created by the state. The state creates money, uses it to pay for public services or for armies, and then collects money back as taxes. This forces people to work or provide supplies for the government and the army. There are numerous examples of money being used in this way, from Alexander the Great to 19th century colonialists.( Graeber 2011:50-52) This idea has been developed in a modern context by “Modern Money” theorists (Wray 1998)

These three approaches,

* Taxes make money
* Bank credit makes money
* State defines the legal tender

are theoretically distinct. But by the beginning of the twentieth century, “money” in North America and Europe was based on territorial currencies. In a modern state, money needs to be valid for taxes, legally enforceable and available as bank credit. It is no longer practical for banks, the state and the church to use different currencies, as they sometimes did previously.

While the Gold Standard was still the theoretical basis of international trade, the conditions supporting the standard were being undermined. The amount of claim money, based on credit, vastly exceeded the amount of gold reserves that nominally supported them, so that the gold standard system was increasingly unstable. The structure of international trade was changing. The manufacturing and political dominance of Britain and Western Europe was waning. The working poor were less ready to accept periods of unemployment in order to maintain international monetary standards.

The First World War marked the practical end of the Gold Standard. The influence, empire and manufacturing might of Britain had enabled the Bank of England to act as the centre point of the Gold Standard. But the war weakened the empire, diverted British manufacturing onto weapon production and left Britain in debt to the United States which was now the growing manufacturing and financial power.

Between the two world wars, the international monetary system was

*“disturbed by misaligned exchange rates, insufficient and unhelpfully distributed reserves, and the growth of reserve currency backing, and at the same time incapable of responding to disturbances due to rigidities in wage structure, rising tariffs and the failure of co-operation*.” (Eichengreen 1985:22)

Policy makers were less ready to ” *sacrifice other objectives on the altar of exchange-rate stability*”. (Ibid p24). The role of gold in the international monetary system continued to wane.

*Central Bank reserve consists of much less of gold and much more of the obligations of other countries .  The proportion of foreign exchange within Central Bank reserves was 12% in 1913 but had risen to 25% by 1925 and 42% by 1928.  In other words there was more paper money relative to gold.* (Coggan 2011:86)

Excessive growth of credit in the USA, the 1929 financial crisis and unsustainable reparations imposed on Germany created widespread unemployment contributing to the growth of fascism and the Second World War.

After the Second World War, the victors were determined to create a more stable financial order to reduce the likelihood of further wars. The political and financial strength of the USA meant that the final Bretton Woods arrangement created an international financial order based on the U.S. dollar which was, in turn, linked to gold at a fixed price. Though this new financial order was nominally based on gold, it also depended on the United States.

Unfortunately, US and UK policy makers promoted international credit markets because this enabled them to get easy access to credit. (Helleiner 1994). The (probably unintentional) result was to weaken the whole system by creating uncontrollable international flows of credit. The Bretton Woods system finally collapsed when President Nixon ended convertibility between the dollar and gold in 1971. In pursuing its role as an international hegemon, the USA no longer had sufficient gold reserves to manage the cost for the Vietnam war and the accumulation of large overseas dollar balances.

This marks the end of a process of gradual change since the 18th century. The following table illustrates the variety of currencies that have been used and the gradual transition from currencies backed by precious metal to credit currencies backed indirectly by the state (implicitly and through deposit insurance)

|  |  |  |
| --- | --- | --- |
| Period | Currency | Source of value |
| Up to early 19th century | Tally sticks (Split notched sticks used in U.K. especially for taxes) | Backing by state |
| 18th & early 19th century | Shop and factory tokens  | Backing by Shop or factory – plus lack of available alternative |
| Before 1971 | Gold and silver bullion  | Conventionally accepted as valuable plus indirect state intervention (large amounts of bullion held in state banks and therefore taken out of the market) |
| After 1971 | Gold and silver bullion  | Market value but still considerable state intervention |
| Before 1971 | Gold and silver coins  | A combination of value of the precious metal plus backing of the state of origin. Coins had to be more valuable than the constituent metal or they would be melted down for bullion. |
| Up to mid 19th century: | Bank notes (up to mid 19th century: transition date varies depend on state) | Backing by bank |
| After mid 19th century: transition date varies depending on state | Bank notes  | Backing by bank reinforced by backing for banks by state |
| Continuing | Token coins (issued by state in non-precious metal) | Backing by state but not very valuable so not used for large amounts of value |
| From 1970s | Plastic cards | Backing by bank or issuer – but this is reinforced by backing for banking system by state |
| From 1990s | Phone money | Backing by issuer but also backed in some states by state backing |
| From 2000s | Bitcoin and similar digital currencies | Market value – can be unstable |
| Availability varies from 1930s onwards | Local currencies  | Usually backed by link to a local or national bank |

After 1971, the international financial system was no longer “commodity money” – based on a physical quantity. It was entirely “claim money” based on an international network of credit and debts.

**Section 6 On the way to crisis - 1970 onwards**

Once the U.S. dollar was no longer linked to gold, large international flows of credit meant that fixed exchange rates were unsustainable. Oil price rises helped to create inflation. Free market ideas and the political influence of international banks led to the de-regulation of international finance. Restrictions imposed on the financial sector after the 1930’s depression were reduced or eliminated.

Financial crises

Most economists believe that markets, left to themselves, will reach a stable equilibrium. The evidence does not support this. Reinhart & Rogoff’s (2009) database shows that financial crises have been a recurring feature of economic life as far back as records go.

*“for the advanced economies, during 1800 – 2008, the picture that emerges is one of serial banking crises”* Reinhart & Rogoff (2009:141 )

They document 202 banking crises in 41 countries between 1800 and the present. This includes 15 banking crises in France, 13 crises in the US and 12 crises in the UK in the following years:

*U.K. 1810,1815,1825,1837,1847,1857,1866,1890,1914,1974,1984,1991,1995,2007*

*U.S.A. 1814, 1818, 1825, 1836, 1857, 1873, 1884, 1890, 1907, 1914, 1929, 1984, 2007*

*(ibid: Table A.3.1 )*

Financial and credit transactions, involve a prediction of future events. Keynes, Minsky (1982) and Keen (2011:378-401), in different ways, have all explained why crises occur. In the short term, optimistic predictions can be self-fulfilling. But maintaining a financial system which is over-optimistic, requires a continual stream of ever more extreme predictions of the future. Eventually, the gap between predictions and reality causes a crash.

Monetary policy aims to prevent crises. There are several reasons why it has failed.

* The core business of banks is to make loans so it is in their interest to increase the amount of borrowing.
* While it would be difficult for one bank to take more risks than average, it is quite possible for the general level of risk taking to gradually increase (as happened before the GFC)
* It is also politically attractive to increase the level of economic activity by encouraging borrowing so that state authorities may collude with the banking system in encouraging borrowing beyond a safe level.

The Gold Standard enforced a form of monetary policy. Central banks had to have a gold reserve. If the reserve fell too low, then interest rates had to be raised to attract more gold (Skidelsky 2018:54-55). The regulated exchange rates of the Bretton Wood era maintained the same type of discipline. In the 1980’s there were attempts to target the money supply directly which were ineffective.

* The quantity of claim money cannot be directly measured (see below)
* Banks actually take decisions on lending first and then apply for any high powered money needed to meet the regulations afterwards.
* It would be difficult for a central bank to restrict the lending of any individual bank without creating doubts about the viability of the bank and running the risk of creating a banking crisis.

**Current conventional monetary policy**

Current conventional monetary policy is the result of superficially adapting the commodity money theory from the 18th century without altering the underlying fundamentals. Wicksell’s ideas are influential. The result is an illogical compromise based on the belief that

* banks should control money creation because states cannot be trusted
* banks cannot be trusted either, so states need to control the banks.

Central banks aim to regulate the amount of lending by adjusting the interest rate. The most widely accepted policy rule is the Taylor rule (Taylor 1993). This is often tempered by the judgement and political experience of a panel of economists. The Taylor rule assumes that reducing the interest rate will increase purchasing power by increasing bank lending and vice versa. But this is not straightforward. There are at least 17 different ways that the interest rate could affect the amount of economic activity (Fender 2012). Reducing the interest rate could reduce bank lending because banks decide that the costs of lending exceed the income from interest.

The 2007/8 global financial crisis surprised central banks and establishment economists. But it should not have been unexpected. It was merely the most serious of a series of similar financial crises. Reinhart and Rogoff (2009) comment:

“*the United States has driven straight to the quantitative tracks of a typical financial crisis* “( ibid p203)

 “ *the outsized US borrowing from abroad that occurred prior to the crisis was hardly the only warning signal. In fact the US economy, at the epicenter of the crisis, showed many other signs of being on the brink of a deep financial crisis. … Indeed, from a purely quantitative perspective, the run-up to the US financial crisis showed all the signs of an accident waiting to happen*” (ibid p201)

Over the past 300 years the development of money has been driven by four realities

1. The need for increasing supplies of money for a growing and more prosperous population
2. The easiest way to supply additional money is as credit, in paper and then in electronic form
3. National governments are inextricably reliant on and responsible for national money
4. The market, on its own, is not stable and will create periodic crises so that states need to take action, from time to time, to maintain a viable monetary system

As the financial system has become globalised, this has made crises more frequent and more difficult to manage. In order to manage a global system of financial claims we need a better understanding of claim money. This will be the subject of the next section.

**Section 7 The Differences between Claim money and Commodity money**

The last 4 sections have identified that the money in common use has gradually changed over the last 3 centuries as a result of social and technical changes, political pressures and people’s preference for credit money.

Money is a standard of value. Commodities are valued against eachother in terms of their value in money. People who have access to money have privileged access to the ability to determine value. And the nature of money can be a politically and commercially contested issue. Consider, for example, colonial rulers attempts to introduce money in their colonies (Graeber 2011:50-52) or the political battle over silver coinage in the United States (Skidelsky 2018:50-52).

By discussing commodity money based on precious metals at the beginning of The Wealth of Nations, Adam Smith asserted that there was an independent standard of value, which he claimed to be historically prior to all commercial transactions. At the beginning of the 19th century, gold gained prominence as the international standard of value. Then, between 1900 and 1971, gold lost its pre-eminence and dropped out of the monetary system. Nevertheless economic theory made only token changes.

*“Scientific economics is essentially a synthesising discipline. It holds its accumulated knowledge, spewing out any that is obviously inconsistent with it, and assimilating innovations too important to be ignored. The cases we have considered exhibit a common pattern: the pure essence of the theory is diluted for policy purposes, leaving the core theoretical structure intact.”* (Skidelsky 2018:201)

Economists nominally accepted that gold was no longer a monetary standard, but nevertheless, continued to base their thinking on the idea that an independent standard of value existed, even though the actual nature of this independent standard became ever more nebulous.

In practice, there never has been an absolute standard of value. Maintaining a stable monetary standard has required the power and authority of the state. During the 19th century, Britain’s power as the international hegemon, supported the value of the gold standard. Between the World Wars, the absence of an accepted hegemonic power, contributed to monetary instability. Then from 1946 to 1971, the United States supported the international monetary system. Now, we probably need to look to national governments to take a greater role in maintaining the value of their national currencies.

Reviewing monetary theories over the last 300 years; there is a gradual and reluctant acceptance of claim money. In the 20th century, as the preponderance of claim money became indisputable, the area of discussion changed from claim money vs commodity money to a discussion over the role of the state.

|  |  |  |
| --- | --- | --- |
| Date | Author | Idea |
| 1752 | David Hume | Paper money is dangerous |
| 1776 | Adam Smith | Paper money can be useful, but the poor need to be protected |
| 1810 | Ricardo | Paper money is the reality – but should be replaced by gold bullion |
| 1840 | Currency theorists | Paper money can no longer be entirely replaced but should be controlled so that it operates as closely as possible like gold |
| 1873 | Bagehot | Financial transactions are much larger than the nominal amount of currency. The bank of England needs to be ready to act as lender of last resort. |
| 1898 | Wicksell | Credit is the principal source of money creation. Stability depends on the market rate of interest equalling a natural rate of interest |
| 1936 | Keynes | Government may need to act as spender of last resort to reduce unemployment |
| 1963 | Friedman | Government cannot alter unemployment without disrupting the natural equilibrium of the economy. The quantity of money needs to be controlled |

Unfortunately, monetary theory has not really reflected the complete change in the nature of money. What we need now, is a complete review of monetary theory starting from the modern reality that all money is claim money.

An exhaustive list of the differences between claims money and commodity money is beyond the scope of this paper. Five important differences are highlighted in the following table and described in detail below.

|  |  |  |
| --- | --- | --- |
|  | **Commodity money** | **Claim money** |
| Debt | Absence of money | Debt is money |
| Amount | Measurable | Not measurable |
| Circulation | Limited by amount of commodity | Limited only by any restrictions on issue (but see above) |
| Money and goods | Money can be produced by mining | No link between money and physical production |
| Geographic scope | International | National |

Understanding of debt

In a commodity money system, the final means of payment is by paying the commodity, e.g. by paying in gold. Any intermediate forms of payment are in principle, backed by gold which could be demanded, even if it is not usually expected. In this system, debt means payment by gold is postponed, delayed or transferred to someone else. Thus in a commodity money system, debt means the absence of gold with which to make the payment.

But in a claim money system, the promise of future payment is treated as valuable in itself, allowing discounts for interest lost and the possibility of non-payment. So, loans become assets in the bank’s accounts, because they create expectation of future re-payments. In practice, almost all our current money is just a record of expected future payments. The creditor counts the debt as an asset. So, in a claim money system, one person’s debt is also someone else’s money.

Measuring the amount in circulation

The amount of commodity money can be measured, at least in theory, because it is a single measurable quantity and the weight of gold can be measured.

Claim money, however, exists in many forms. Banknotes or coins are exchangeable on sight. Card, cheque or phone accounts require a check on the balance on a central account. Deposit accounts may require a notice period. Larger sums of money may be held in stocks, shares or specialist accounts. Assets may have different interest rates, different notice periods and varying degrees of risk.

In mathematical terms, the quantity of claim money is multi-dimensional. Several numbers; quantity, interest, notice period, risk are needed to describe it. Such a quantity cannot be measured with a single number. To get round this problem, different definitions of money have been invented M0; M1; M4 and so on. This may work for measurement purposes. But such measures are no use for regulation because financial agents devise alternative assets to avoid the regulation but provide a similar asset. This is expressed in the so-called “Goodhart’s law”

*“Any observed statistical regularity will tend to collapse once pressure is placed on it for control purposes”* ( Goodhart 1975)

Circulation (quantity)

The total quantity of commodity money is physically limited by the amount of the commodity (gold) available. There is, however, no limit to the amount of claims that can be created by typing figures into a computer or physically printing bank notes.

Unfortunately, limiting the amount of claim money is difficult to achieve. This is partly because it is impossible to measure the quantity of claims money in the way that it might be possible to measure commodity money.

Physical production of money

In theory, a monetary commodity is just like any other commodity and its quantity should adjust to meet demand. If more of the money commodity is needed, then the shortage of money would mean that prices fall- or the value of money in comparison to other commodities would rise and people would mine more money. In contrast, extra claim money can be produced without any effort, by adjusting written or computer records. But it is only permissible for this to be done by banks or central banks or other agencies authorised by nation states. So a shortage of money or an excessive level of debt, cannot be corrected by producing extra goods, because only banks or government agencies are permitted to produce money.

Geographic scope

A monetary commodity, such as gold, is the same all over the world. So gold transferred from the United States to Britain is identical to gold already in the U.K. However, U.S. dollars transferred from America to Britain are not the same as U.K. pounds. They need to be changed from dollars to pounds at whatever exchange rate is available at the time the money is needed. So the price-specie-flow mechanism, as described by David Hume does not apply and the more complicated dynamics of modern exchange rates are important.

Equally important is the political responsibility for the value of currencies. In practice this responsibility rests with national governments. Claim money is, in essence, a claim on a particular institution. So there are two aspects to guaranteeing the value of money; ensuring the viability of the banking system and protecting the value of the unit of account (such as the U.K. pound).

In the gold standard system, the value of a unit of currency was measured in a weight of gold. This was a value for financial transactions, but for daily life it is more important how much food, clothes and shelter money can buy. For the last half-century, the changing value of currencies have been measured by the statistical calculation of measures of inflation. This is a financial measure which is politically important in every country and managing the level of inflation is generally treated as an important responsibility of national governments.

This is not an exhaustive description of the differences between commodity money and claim money but it provides the basis for the following section which concentrates on two practical consequences for monetary policy.

**Section 8 Two issues for a relevant monetary policy**

Two issues will be discussed as examples of how the differences between commodity money and claim money should change monetary theory and policy.

1. **Acknowledging the problem of debt**

**National governments need to give a much higher priority to considering the overall level of debt, including private,public and commercial debt.**

“*If there is one common theme to the vast range of crises we consider in this book, it is that excessive debt accumulation whether it be by the government, banks, corporations, or consumers, often poses greater systemic risks than it seems during a boom*” (Reinhart & Rogoff. 2009:xxv)

Debt tends to be neglected in conventional economics. In theory based on commodity money regime, debt is treated as the absence of money and, at any time, one person’s debt is balanced by someone else’s credit.

*“Ignoring the foreign component, or looking at the world as a whole, the overall level of debt makes no difference to aggregate net worth -- one person's liability is another person's asset.”* (Eggertsson & Krugman 2010)

In contrast, in a claim money regime, debt is money. One person’s debt is someone else’s money. Debt is both

* Interpersonal : A pays B so B is in debt to A and A has a claim to repayment from B
* Intertemporal: Money now in exchange for a promise to pay later

It is the intertemporal aspect of debt that causes problems; credit now in exchange for repayment later. Bank loans create both money and debt. Money created through bank loans involves the creation of a matching amount of debt, which implies a stream of future repayments.

Borrowers expect they will have sufficient income in the future to repay the loan. But one person’s income is someone else’s expenditure. Since most money is bank debt in one form or another, almost all expenditure is the proceeds of a bank loan. So A can only repay his loan if B takes out a loan so that he has money to pay A. It is possible for an entire society to over promise the income they are likely to have in the future. An increasing level of debt is attractive for governments, business and consumers in the short term- but leads to crises in the longer term

Keen (2011:337-356) explains the attraction of an increasing level of debt. Increasing bank lending creates a growth in demand. There is more money to spend, more employment, more profit. Tax receipts increase. Existing debts are easier to repay. But increasing debt also has to be repaid. While each individual may find it easier to repay their debt, this is only possible because other people are taking on more debt. The society as a whole is repaying existing debt by taking on more future debt. A crisis becomes inevitable. Keen uses the picture of a car accelerating. Initially it seems attractive, but then it becomes dangerous and eventually, you have to turn round and go back to where you started. Keen has incorporated these ideas into a computer model which behaves in a similar way to the global economy. An apparently stable period hides the steady accumulation of debt which eventually pushes the economy into crisis.

A high level of debt depresses the economy as well as threatening a crisis. Households, firms and governments all respond to a high level of debt by reducing spending. But reduced spending by one person means reduced income for someone else. There is a danger that the whole economy can go into a downward spiral (Turner 2016: 74-87).

 The problem of a high level of debt is not easily solved. What usually happens is that one economic actor improves their financial position at the expense of another sector. E.g. government debt is reduced but household debt is increased.

*“Debt doesn’t go away – it simply shifts around*” (Turner 2016:80)

This is a necessary consequence of the use of credit (bank) money. Banks create money by also creating debt. So increasing the level of bank lending, which is often the conventional solution, can only shift the debt around the system, reducing debt in one place but creating it somewhere else.

Only central bank (fiat) money is created free of debt. It is what Mellor (2016 p42) describes as “debt-free” money. So the next essential change needs to be a review of the role of the central bank and the state.

1. **The role of the nation state**

**The nation-state (central bank and government combined) need to take a central role in controlling the money supply by adjusting the amount of fiat money through running government deficits or surpluses as needed.**

Economics has inherited from the enlightenment an inherent bias against the nation state. Adam Smith and his contemporaries developed economics in the 18th century, as part of the enlightenment. They hoped to develop a “science of man” explaining human behaviour just as Newton’s theories had explained the motion of the planets. This required money to be an indicator of an independent universal standard of value.

Thus enlightenment thought started from an inherent bias against the nation state.

* Because it aimed to set up an independent “scientific” guide to decision making separate from the judgements of princes or nobles
* Because at that time Europe was a jigsaw of kingdoms constantly at war and juggling for power.
* Because the enlightenment was about releasing people to make their own judgements and decisions free from the power of hierarchy and religion.

So Adam Smith created an idealised model of money and the economy which would be stable and self-regulating, just as the motion of the planets needs no external control. In such an economy, state intervention would be superfluous and even harmful. However, even Adam Smith recognised that we do not live in such an ideal world. Governments are necessary to maintain common services and to protect private property. Blyth(2013) summarises his view as “Can’t live with it, can’t live without it, don’t want to pay for it” .Economists have sought for the ideal, self-regulating economy for 300 years without success. Experience shows that money needs the support of national governments.

Governments have been required not to create money because of a fear that they would overuse this privilege. But banks regularly over-extend credit and governments almost always review the rules in order to save the banks. In view of this, the idea that revising the rules once again, in order to prevent another crisis seems optimistic. It seems far more likely that it will lead to the idea that “This time is different” and yet another crisis.

Reinhart & Rogoff report that financial liberalisation often precedes crises (Reinhart & Rogoff 2009:271) Financial liberalisation is a natural result of commodity money theory, based on the idea that there exists, in some nebulous form, a universal standard of value that can apply internationally.

Preventing nation states from creating money has not prevented financial crises. Indeed, in the case of the European Union, it seems to have caused, rather than prevented a crisis. (Wolf 2014 45-84). So monetary theory based on commodity money seems to have encouraged rather than prevented financial crises.

Relying on banks, which are private corporations aiming to maximise profits, to create our money is philosophically dubious. Why should private companies supply a public good? It also gives banks an excessive amount of influence over the structure of the economy. Creating money indirectly through the loan rate and commercial banks is a cumbersome way of producing a result that can be achieved much more simply.

*“Central banks and governments together can create nominal demand in whatever quantity they choose by creating and spending fiat money. Doing so is considered taboo -  a dangerous path towards inflation perdition. But there is no technical reason money finance should produce excessive inflation and by excluding this option we have caused unnecessary economic harm. .. money finance of physical differences is technically feasible and desirable.. it may be the only way out of our current problems.” (*Turner 2016:214)

Even Adam Smith mentions the printing of paper money by the State of Philadelphia with qualified approval. He wrote that the success depended on :

*“ The demand for some other instrument of commerce…..secondly on the good credit of the government…….Thirdly upon the moderation with which it was used”* (Smith 1999:410)

Claim money theory would suggest that money is no longer an international standard of value. Instead there is a network of inter-related national standards of value. Each national government has responsibility for regulating its national currency by controlling how much money there is in circulation. Instead of maintaining an outdated reliance on bank money creation, which gives undue influence to commercial banks and fails to prevent financial crises, we should givea greater emphasis to state money creation.

In an ideal claim money system, the nation state would ensure that the money supply was at an appropriate level, neither too much nor too little. The easiest way to do this is to adjust the supply of fiat money directly. The nation state would therefore supply as much money as seemed necessary. State payments increase the supply of money, taxes reduce the supply of money. So to increase the supply of money, the state would run a deficit (payments > taxes). To reduce the supply of money, the state would run a surplus (taxes> payments). If all went well, the amount of economic activity would be increasing at a fairly steady rate, so the state would generally run small deficits so that the money supply increased slowly and steadily. If the amount of economic activity appeared to be increasing too fast and there were other signs of potential problems (inflation, exchange rate problems, property bubbles) then the state might slow down the economy by running a surplus. This might be comparatively easy politically, because in this situation, tax income would be rising, so it might only be necessary to keep to previously planned expenditure, instead of increasing it in line with tax income.

A modern economy is complex. The rules that might be needed to operate a state money creation system in practice are beyond the scope of this paper. They will probably involve a mixture of theory, practice and some (cautious) experimentation. The following summary points may help to indicate what is suggested:

* The state would be involved in creating or destroying money in order to control the level of economic activity by running a fiscal surplus or deficit as required
* Decisions may be delegated to a semi-independent central monetary authority as at present
* The aim would not be to achieve a balanced budget (which is an out-of date irrelevance) but to manage the level of economic activity so as to achieve maximum possible employment while avoiding exchange rate instability and financial bubbles.
* In general, it is to be hoped that the economy would be steadily expanding, so in most years, the government might run a small deficit
* Commercial banks should not be regulated excessively, but they can be indirectly controlled by regulating interest rates
* For approved projects, the government could create money directly rather than borrowing from banks.
* To reduce the current dangerous level of debt, the government could create money, (which would stimulate the economy) at the same time as increasing interest rates (to reduce bank lending and prevent government money creation from over-heating the economy)
* Note that government money creation is likely to require some simultaneous measures to reduce bank lending in order to prevent overheating the economy.

For a detailed discussion of some practical issues of state money creation see Turner( 2016:214-240)

**Section 9 Conclusion**

Money is a combination of different currencies, not a homogeneous whole. People want to have money that the people around them will accept, so that the currencies in common use in a particular time and place is what most people mean by the term “money”.

Money changes to reflect the popularity and availability of different currencies. In the last three centuries, commodity money based on gold and silver has dropped out of use. Credit money, based on credit at banks has become popular. Modern technology has made this money ever more immaterial, just a number accessed over the internet.

Claim money is a convenient term for today’s money, which is a combination of credit money and fiat money created by government order. Claim money has completely replaced commodity money. It does not behave like commodity money. Unfortunately, economic theory remains largely based on commodity money while the money in practical use has changed.

It was only possible to cover some of the ways that economic theory differs from the reality of claim money. 5 issues were identified: understanding of debt, production of money, measuring and controlling the quantity of money and the role of the nation state. Monetary policy needs to change. The total level of debt, including household and commercial debt as well as public debt needs to be measured and controlled. Nation states should manage the economy by creating and destroying fiat money, by running surpluses or deficits as needed. The role of banks in money creation needs to be limited.

This is an ambitious paper; attempting to cover both monetary theory and policy consequences. Many issues were briefly touched upon and need further research. How does this different understanding of money affect our understanding of 19th century monetary theorists? What alternative paths might have been taken? There have been many proposals for alternative forms of money and alternative ways of regulating the monetary system. Some of these have been tried in reality. These have not been discussed at all in this paper. How might a changed understanding of money affect our understanding of these alternatives?

It has not been possible to cover the many issues involved in turning the ideas in this paper into real effective economic and monetary policy. It is to be hoped that this paper is a beginning. It does not attempt to produce complete policy proposals. Modern economies are complex. Countries are different. In monetary matters, confidence is important. Drastic changes may affect people’s confidence. Gradual change is more likely to be effective.

Money has always been a difficult issue for economists. It does not easily fit into some of the most elegant economic theories. This paper has introduced a different way of conceptualising money. I hope it will lead to further developments and to more discussions, eventually leading to practical and positive changes in policy.

**References**

Access to Cash Review (2019*) Final Report* Access to Cash Review London [viewed 27/5/19] available at www.accesstocash.org.uk

Arnon, A. (2011) *Monetary Theory and Policy from Hume and Smith to Wicksell* Cambridge:Cambridge University Press

Bagehot W. (1873) *Lombard Street* London:King

Blanchard, O., Rajan, R., Rogoff, K. & Summers, L. (eds.) (2016) *Progress and confusion : the state of macroeconomic policy*  Cambridge Mass. :M.I.T. Press

Blyth, M. (2013) *Austerity – the history of a dangerous idea* Oxfrod:Oxford University Press

Coggan, P. (2011) *Paper Promises* London:Penguin.

Davies, G. (2002) *A History of Money* Cardiff:University of Wales Press.

Dodd,N. (2014) *The Social Life of Money* Princeton:Princeton University Press.

Eatwell, J. & Taylor, L. (2000) *Global Finance at Risk* London:Polity Press.

Eggertsson, G. and Krugman, P. (2010) Debt, Deleveraging, and the Liquidity Trap: Quarterly Journal of economics vol 127 issue 3 also at <http://wws.princeton.edu/faculty-research/research/item/debt-deleveraging-and-liquidity-trap-fisher-minsky-koo-approach>

Eichengreen, B. (ed) (1985) *The Gold Standard in theory and history* London:Methuen.

Fender, J (2012) *Monetary policy*, Chichester:Wiley.

Ferguson, N. (2009) *The Ascent of Money* London:Penguin.

Graeber, D. (2011) *Debt - the first 5000 years* New York:Melville House.

Goodhart, C.A.E. (1975) ‘Monetary Relationships: A view from Threadneedle Street’ in *Papers in Monetary Economics*, Vol 1 Reserve Bank of Australia 1975

Helleiner, E. (2003) *The Making of National Money* Ithaca:Cornell.

Helleiner, E. (1994) *States and the Re-emergence of Global Finance*, Ithaca:Cornell.

Hume, D. (2007 [1739]) *Abstract to A treatise on Human Nature* (Norton D.F. & Norton M.J. eds) Oxford:Clarendon.

Humphrey, C. & Hugh-Jones S. (1992) *Barter, exchange and value* Cambridge:Cambridge University Press.

Ingham, G. (2004) *The Nature of Money*, Cambridge:Polity.

Keen, S. (2011) *Debunking Economics* London:Zed Books.

Keynes. J.M. (2011[1930]) *A Treatise on Money* Connetticut:Martino Publishing.

Knapp, G (1924) *The State theory of money*,London:Royal Economic Society.

Macleod, H. (1882) *The principles of political economy* London:Longmans,Read, Green & Dyer.

Martin, F. (2013) *Money –the unauthorised biography* London:The Bodley Head.

McLeay, M, Radia, A. & Thomas, R (2014) Money Creation in the Modern Economy *Bank of England Quarterly Review* 2014 (1)

Mellor, M. (2016) *Debt or Democracy* London:Pluto.

Minsky, H.P. (1982) *Can “It” Happen Again* New York:M.E.Sharpe.

Mitchell Innes, J. (1913) “What is Money?” in Wray, L.R. (ed.) 2004 *Credit and State Theories of Money* Cheltenham:Edward Elgar.

 Mitchell Innes, J. (1914) “The credit theory of money ?” in Wray, L.R. (ed.) 2004 *Credit and State Theories of Money* Cheltenham:Edward Elgar.

Reinhart, C. & Rogoff, K. (2009) *This time is different* Princeton:Princeton University Press.

Ryan-Collins, J., Greenham, T., Werner, R. & Jackson, A. (2011) *Where does money come from?* London:New Economics Foundation.

Schumpeter, J.A. (1954) *History of Economic Analysis,* London: Allen &Unwin.

Skidelsky, R. (2018) *Money and Government* London:Allen Lane.

Smith, A.(1979 [1776]) *The Wealth of Nations Books I-III ,*London:Penguin.

Smith, A.(1999 [1776]) *The Wealth of Nations Books IV-V* London:Penguin.

Taylor, J.B. (1993) ‘Discretion versus policy rules in practice’ Carnegie-Rochester Conference Series on Public Policy 39, 195-214

Thornton, H. (1939(1802)) *An Enquiry into the Nature and Effects of Paper Credit* London: Allen & Unwin.

Turner, A. (2016) *Between Debt and the Devil* Princeton:Princeton University Press:

Wicksell K (1936) *Interest and prices* (trans. R. Kahn), London:Macmillan.

Wolf, M. (2014) *The Shifts and the Shocks* London:Allen Lane.

Wray, L.R. (1998) *Understanding Modern Money,* Cheltenham: Edward Elgar.