The Fractional Reserve Banking System
Uli Kortsch

I. Overview

The intricacies of this topic are one of the least understood, but very major parts, of our society. I often use the metaphor that it is like explaining water to fish. We live in this system, are moved, swirled, and fed (or not) by it, but generally have no idea how it actually works. Some time ago I was having lunch with a Ph.D. and asked him from where the dollar in his wallet actually came from. His answer: “I earned it, of course.” I said Yes, but that is not my question – how did the dollar actually come into being? Upon thinking on this strange topic, most would say that the Fed (or equivalent central bank in other countries) has “printed” it – isn’t that what they did as part of the post Great Recession QE\(^1\) program? Actually, both parts of that response are wrong.

In this short paper we will look at how this system developed, and what keeps it going today. We will look at both its pros and cons – or to be more emphatic, both its truths and its lies. We will take a quick look at the 3 different kinds of money (4 in the US), how they are created, used, and generally misunderstood. We will look at the effects this system has on us personally, corporately, and the decisions it influences internationally. And finally, we will take a quick look at an alternative. It will be quite a ride.

II. History and Legal Development

a. Money in General

The monetary historian Alexander Del Mar writes: “As a rule political economists do not take the trouble to study the history of money; it is much easier to imagine it and to deduce the principles of this imaginary knowledge.” Del Mar wrote more than a century ago, but this statement still applies today. An excellent example is the textbook explanation for the origins of money, which holds that money arose in private trading transactions, to overcome the double coincidence of wants problem of barter. As shown by Graeber\(^2\), on the basis of extensive anthropological and historical evidence that goes back millennia, there is not a shred of evidence to support this story. Barter was virtually nonexistent in primitive and ancient societies, and instead the first commercial transactions took place on the basis of elaborate credit systems whose denomination was typically in agricultural commodities, including cattle, grain by weight,

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1 Quantitative Easing
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and tools. Furthermore, there is plenty of evidence that these credit systems, and the much later money systems, had their origins in the needs of the state, of religious/temple institutions, and of social ceremony, and not in the needs of private trading relationships. An excellent in-depth discussion of this whole topic is the recent book *Money Changes Everything: How Finance Made Civilization Possible* by William Goetzmann.

Jesus understood the power of money, and spent more time talking about it than either prayer or salvation, but how often do we hear that in church?

b. Money in Banking and Credit Creation

Any debate on the origins of money is not of merely academic interest, because 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 – and that then leads to our current fractional reserve system. Specifically, the private trading story for the origins of money has time and again, starting at least with Adam Smith\(^3\), been used as an argument for the private issuance and control of money. When we look at alternatives to the current system, this question becomes of supreme importance in the minds of many. More on this later.

Until recent times this has mainly taken the form of monetary systems based on precious metals, especially under coinage of bullion into coins. Even though there can at times be heavy government involvement in such systems, the fact is that in practice precious metals tended to accumulate privately in the hands of the wealthy, who would then lend them out at interest. Since the thirteenth century this precious-metals-based system has, in Europe, been accompanied, and increasingly supplanted, by the private issuance of bank money, more properly called credit. On the other hand, the historically and anthropologically correct state/institutional story for the origins of money is one of the arguments supporting the government issuance and control of money under the rule of law. In practice this has mainly taken the form of interest-free issuance of notes or coins, although it could equally take the form of electronic deposits.

There is another issue that tends to get confused with the much more fundamental debate concerning the control over the issuance of money, namely the debate over “real” precious-metals-backed money versus fiat money. As documented in Zarlenga\(^4\), this debate is mostly a diversion, because even during historical regimes based on precious metals the main reason for the high relative value of precious metals was precisely their role as money, which derives from government fiat and not from the intrinsic qualities of the metals. These matters are especially


confused in Smith (1776), who takes a primitive commodity view of money despite the fact that at his time the then private Bank of England had long since started to issue a fiat currency whose value was essentially unrelated to the production cost of precious metals. Furthermore, as Smith certainly knew, both the Bank of England and private banks were creating checkable book credits in accounts for borrowing customers who had not made any deposits of coin (or even of bank notes).

The historical debate concerning the nature and control of money is the subject of Zarlenga (2002), a masterful work that traces this debate back to ancient Mesopotamia, Greece and Rome. Like Graeber (2011), he shows that private issuance of money has repeatedly led to major societal problems throughout recorded history, due to usury associated with private debts. Zarlenga does not adopt the common but simplistic definition of usury as the charging of “excessive interest”, but rather as “taking something for nothing” through the calculated misuse of a nation’s money system for private gain. Historically this has taken two forms. The first form of usury is the private appropriation of the convenience yield of a society’s money. Private money has to be borrowed into existence at a positive interest rate, while the holders of that money, due to the non-pecuniary benefits of its liquidity, are content to receive no or very low interest. Therefore, while part of the interest difference between lending rates and rates on money is due to a lending risk premium, another large part is due to the benefits of the liquidity services of money. This difference is privately appropriated by the small group that owns the privilege to privately create money. This is a privilege that, due to its enormous benefits, is often originally acquired as a result of intense rent-seeking behavior. Zarlenga (2002) documents this for multiple historical episodes. The second form of usury is the ability of private creators of money to manipulate the money supply to their benefit, by creating an abundance of credit and thus money at times of economic expansion and thus high goods prices, followed by a contraction of credit and thus money at times of economic contraction and thus low goods prices. A typical example is the harvest cycle in ancient farming societies, but Zarlenga (2002), Del Mar (1895), and the works cited therein contain numerous other historical examples where this mechanism was at work. It repeatedly led to systemic borrower defaults, forfeiture of collateral, and therefore the concentration of wealth in the hands of lenders. For the macroeconomic consequences it matters little whether this represents deliberate and malicious manipulation, or whether it is an inherent feature of a system based on private money creation.

5 A common phrase used in economics to denote the practice of manipulating public policy for the purpose of increasing private profits, i.e., getting something for nothing because of political lobbying.
III. Different Types of Money  

a. Reserves

This section excludes reserves held by central banks in different currencies to facilitate international trade.

Reserves under the fractional reserve banking system are the funds created and held by central banks – the Federal Reserve Bank in the USA. They do not ever enter common on-the-street usage and are thus deeply misunderstood. This is what is created in the QE programs, common since the Great Recession of 2007/2008. The media frequently uses the phrase “printing money” to describe this action, but this leads to the conclusion that these funds actually end on the street, which they do not.

For commercial banks, reserves consist of money in the vault plus funds held in their account at the respective central bank. On average, US banks hold about 10% of their assets as reserves. When a customer deposits currency (cash) into their account it increases the bank’s reserves. Reserves are used to clear accounts between separate banks, using the central bank as a clearing house. These clearances are needed for checks, money wires, ach transfers, etc. and are normally aggregated overnight to make the process simpler. In effect, the fractional reserve banking system consists of two separate and distinct money circuits, which intersect at only one point, but do not interact other than at the point of account clearing and the use for currency purchases by banks, but more on that below.

The question then naturally arises as to what the point was of all the trillions of reserves created to counter the effects of the Great Recession. In economics, we call the method of reaching a desired effect upon the economy through central bank actions the “transmission mechanism”. QE created reserves, which were used to purchase certain types of securities on the secondary market from banks. This consisted simply of an accounting entry at the central bank, whereby a particular bank would sell one of these securities (mostly treasuries) to the central bank which would then increase the reserves in that bank’s account. Not a single cent actually hit the street! The desired transmission mechanism was (and still is in Europe and Japan) that this accounting entry would lower the interest rate on that security inducing the investing public to look for more lucrative returns – and that worked to an extent. The undesirable side effect of this action is that

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6 I will stop using the word “commercial” before banks from now on, assuming that the reader will understand that the plural will always denote commercial or normal banks, excluding central banks.

7 Banking assets are most commonly loans issued to customers.

8 I believe $13 trillion to date globally. Under US reserve requirements this could theoretically result in $130,000,000,000,000 on the street – but obviously did not, as explained in this article.

9 US law forbids the Fed from operating on the primary market, i.e., directly purchasing treasuries from the federal government, as this is deemed to result in inflation through debt monetization.
we have seen an enormous increase in wealth inequality through asset price inflation. The reason is that the value of securities is inversely proportional to the interest rates. As the rates are depressed, the values go through the roof. In theory, at an interest rate of zero, securities have an infinite value! The effect of QE therefor is that the majority of the benefit went to the top 0.01% of the population.

b. Currency

Currency is what we normally call cash. Notes are printed by the Federal Reserve Bank and called Federal Reserve Notes, but more on that later. Coins are created by the Mint, a division of the Treasury and then deposited in the federal government’s account at the Fed at face value. Notes, on the other hand, are only credited at the cost of production, meaning a $100 note only has a “value” of ~9 cents. This distinction is very important when we later look at alternative money systems.

Banks purchase currency from the Fed using their reserve accounts to do so, and again this is largely an accounting entry, as for banks reserves consist of both cash in the vault and amounts held in their account at the Fed. The amount of currency the banks purchase is dependent on their forecast of customer demand.

c. Bank-Money

This is finally the point at which things become interesting for us. Bank-money is what we hold in our accounts at the bank. It is also called electronic money, not to be confused with digital money, which is a completely different animal – one of the near future for us all. About 99% of all US dollars consist of bank-money with only ~1% being currency. This, then, is the real thing which we normally call money.

100% of bank-money is created through debt. We think that when we borrow money from a bank, that some prior depositor deposited his savings and the bank has now allocated some of that to us through our signing of a loan contract. This is not what happens, but instead loans create savings rather than the other way around. This is the most important fact to learn about our fractional reserve banking system, as all other parts depend on this. The Bank of England recently issued a short paper on this called Money Creation in the Modern Economy and in that states three times that most university economics text books do not teach this correctly.

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10 The measurement of inflation rates does not directly include any asset prices, which is why prices of many items may skyrocket with a supposedly zero rate of inflation. Go figure!
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The implications from this one fact are staggering. For instance, it means that if we as a society were to pay off all our debts, privately, corporately, and governmentally, there would be no more US dollars. We must have debt! Further, in order to foster crime, international malfeasance, etc., we must carry that amount as debt. If you consider this logically, then you will also quickly realize that we will always be short, because if debt creates money, then what creates the interest to pay on that debt – it must be further debt, demanding more interest, demanding debt, and so on ad infinitum. Therefore we must always have a certain default rate, leading to lost homes, jobs, and so on.

This short essay will not suffice to list all the societal costs which we bear as a result, but this begs the question: then who gains? The word used to describe the gains is seigniorage; that is, the difference between the cost of producing the money and the face value. If it costs 1 cent to produce a dollar note, then the seigniorage is 99 cents. To whom does that accrue? To the banks, and a huge percentage of that goes to the top bankers with their salaries and share options with value in the tens of millions (or more). Consider that the price of all goods which have been converted to a digital buy/sell system have greatly decreased, except for banking. The share of GDP going to the finance industry has steadily increased – is this not counterintuitive?

d. US Notes

There is an alternative to this system, described briefly below, generally called the Chicago Plan\(^\text{12}\). In it, the seigniorage goes to the government in order to serve all citizens. Over the course of several decades, starting in 1865, this was initiated by President Lincoln, but then forced out by the owners of the largest banks\(^\text{13}\). Over the course of its operation, in comparison to today’s aggregates, Treasury issued about $5 trillion in non-debt based currency called US Notes. These were recalled at various times, reissued, … so that today about $274 million are still in circulation. They are listed in the monthly report of US debt, but specifically excluded from the official debt ceiling, as they do not qualify as debt in the normal sense – I call them no-debt debt, as they are non-interest bearing, non-debt based, and non-redeemable in anything other than themselves. To date they have saved Treasury ~$14 billion in interest payments. They look identical other than that the number on the bills are always red (green for Fed Notes) and if you see one do not take it to a bank or spend it as it is worth much more than its face value.

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\(^{12}\) So called because it was largely developed by economists from the University of Chicago, the best known among them being Irving Fisher. Almost all economists in the US signed off on this for Congress to pass so that the Great Depression would be conquered. Again, the big banks killed it.

\(^{13}\) I have a thorough description of this, including all the acts of Congress and the Supreme Court decision deeming this to be constitutionally correct at http://infrastructurewithoutdebt.org/historical-documentation
Ecclesia on Biblical Banking Principles with a focus upon
Fractional Reserve Banking

IV. Money Creation

Much of this has been covered above. Only a few points still need clarification.

a. The Need for Money Creation

The relationship between money in circulation and the production of goods and services need to be roughly stable over time or price levels will experience either inflation or deflation, neither of which are generally desirable. There is the effect of “good deflation” coming from increased productivity, as seen in electronic devices, but this is not relevant to the discussion here. Overall price deflation tends to increase bankruptcies as the real\textsuperscript{14} value of debt increases over time, as well as structural job entrenchment and other factors. Inflation, on the other hand, tends to lead to misapplication of investments and savings leading to dire effects. As humans we have a great difficulty of assessing the exponential effects of inflation, especially when that gets into the two-digit level or higher. On the whole, the poor get poorer under those circumstances and we deplete the middle class.

b. The Word “Fiat”

In the American context, this word has almost become a swear word, but all it really means is “government mandated.” We could, for instance, insist that driving on the right side of the road is “just fiat” – but that is never said, is it? As explained in the historical section above, even when the US was on the gold standard, the price level of gold was “fiat” as it was arbitrary. Further, the US dollar was never backed by more than 40\% of its aggregate by gold, even when that gold was fiat valued. This helps to explain how it was ever possible to have the Great Depression under a gold standard, as this was theoretically impossible.

c. Driven by Banks’ Desire for Profits

Under the current system, the complete control of our aggregate money supply is driven by the desire for bank profits. The influence factor used by central banks to attempt to control this is interest rates, generally by changing the Fed fund rates (in the US). To deliberately make money more expensive (the cost of money is called interest, right?) at times of inflation feels counterintuitive, unless perceived through the prism of money expansion being through debt. Higher interest rates make it more difficult for borrowers to borrow as they realize they cannot afford the interest plus principle payments. As less folks borrow, the money supply stops increasing or even starts to decrease (remember, money is destroyed when principle is paid.

\textsuperscript{14} The terms “real” versus “nominal” take on significance at times of aggregate price changes. “Nominal” meaning that the value number has not changed, versus “real” meaning that in fact the value has changed vis-à-vis everything else.
back), and this stops inflation in its tracks. One of several problems with this is that there is a lag time of at least 2 years for this to take effect.

d. Procyclicality

In our modern economy, most bank loans are not for productive purposes, as corporations largely finance themselves through share and bond issues, factoring, etc. Further, banks do not lend to the most job-creating activity we have, that of entrepreneurs. Instead, about 70% of all bank loans are mortgages, with the majority of these going to refinancing or home repurchases, and therefore non-job-creating. These are deemed to be safer, as they are asset-backed.

Why is this activity procyclical? On the upswing, if A refinances his/her house at a price, then B insists that the rise has been 10% over the year so therefore he should receive a tad more, at which point C insists on getting even more than either A or B and so on. On the downswing, the exact opposite is true, meaning that of all valuations, real estate tends to swing too high while rising and too low while falling. All this has a substantial impact on the aggregate money supply, so that on the upswing too much is created and on the downswing too much is destroyed. The end result is human suffering.

V. Banking Functions

Banks perform many needed functions other than money creation through debt issuance, such as check clearing, wiring funds, and so on. These would continue if the fractional reserve banking system were to be changed to another type.

Banks have two outrageous rights which no other financial institutions have, these being the right to create money, as already discussed, but also the right to comingle their own funds with those of their customers. The result of this for customers is that the funds they deposit into “their” account are not legally theirs anymore, but are replaced with an IOU from the bank stating that upon demand, the bank will return the funds. The customer therefore has become nothing more than a general obligor to the bank in case of bankruptcy. This part of the system is what necessitated the creation of the Federal Deposit Insurance Corporation (FDIC) during the Great Depression as so many banks went bankrupt. The amount insured was increased to $250,000 per account during the Great Recession, but by Act of Congress, only 1.15% of the aggregate deposits need to be insured – the rest is insured by us, the taxpayer. In the aftermath

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15 Please recall the discussion above on how QE drove asset levels through the roof and therefore questioning this whole structure of asset backing.

16 This is a $63 word for saying that the system amplifies business cycles, meaning the highs are more vertiginous and the lows more destructive.
of the 2007/2008 crisis, even that low percentage could not be maintained, and has only recently been reestablished.

VI. Results

In a single phrase, this system: privatizes profits but socializes losses.

On the positive side, the system provides good liquidity during times of business cycle upswing and has been continuously improved through the centuries, such that it is more stable today than ever.

A complete description of the negative consequences carried by all of society are beyond the scope of this essay. Here is a short list but the transmission mechanism of this system to these consequences will need to be logically deduced by the reader:

- Necessity of large amounts of debt carried by all segments of society;
- Resulting in increasing and unsustainable interest payments to those able to lend: the rich;
- Resulting in ever increasing inequality, unless mitigated by redistributionism, which essentially means stealing from the rich to give to the poor. This is deemed to be fair, as there is a gut feeling that something is wrong, but instead of treating the actual disease, we treat the symptom;
- Ever increasing systemic scarcity. Just two examples of this: for most couples it now takes both spouses working to make ends meet; another example is that it now takes 30 years to “build” a house (meaning the length of time needed to pay off a mortgage);
- This scarcity leads to large business cycles needed to wipe out unsustainable debt, ending in business failures, resulting in job and then home losses, increasing crime, divorce, suicide, etc.;
- This same list of effects can be seen internationally in which whole nations can and do declare bankruptcy resulting in riots, demagogues leading countries, wars, famines, and so on;
- If I were to list the effects on government leading to unrealistic taxation policies and rates, inability to deal with those unable to care for themselves, health insurance, plus the degrading of general government services – well, this would be way too long!

VII. Alternatives

Alternatives do exist, have a strong historical following among mainstream economists, but have been consistently stymied by the banking industry. Although there are variations, the general rubric can be called the Chicago Plan, or Sovereign Money. Banking intermediation can follow
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the structure of moving funds created by a central bank, or the structure of Dr. Kotlikoff’s Limited Purpose Banking (LPB). In this short explanation I will combine the Chicago Plan with LPB.

In its essence, this plan does what most everybody now thinks actually happens; that is, that banks actually intermediate funds from prior savers, and that money is created through direct government action (Treasury in the US and the central bank in some other countries). Now for the details.

1. The Fed creates a Monetary Commission\(^\text{17}\) which is responsible for keeping the relationship between monetary aggregates and total production stable. Every three months it uses the data available to decide upon amount of money creation and deposits that into the account of the federal government at the Fed. No inflation or deflation is allowed to occur and all factors leading to the regular decisions are open to the public. Further, treasuries can be used to go short or long on the rate of inflation, allowing the general public (mostly hedge funds) to be part of this process, as the effect of forcing the Fed to sell these securities on the open market, sanitizes the money supply\(^\text{18}\).

2. I am suggesting that a portion of these created funds be moved as block grants into the States, depending on population (not their spending). A suggested amount would be 25% of the total.

3. The result of this would be lowered taxes, improved government services, deficit elimination, a slow reduction of debt, and ultimately that of the Fiscal Gap\(^\text{19}\).

4. There would be no reduction in liquidity at point of conversion.

5. At system conversion, the Monetary Commission would purchase the banking assets equaling the 90% missing in liquidity under the current fractional system and transfer that amount to the banks.

6. This would create a single circuit system, and reserves would cease to exist as such.

7. All banks would convert to the LPB system, whereby they would operate under 2 “windows\(^\text{20}\)”, one being the depository and payment window, and the other being the investment window.

\(^{17}\) This is the name suggested by Irving Fisher, but today it most likely would just be the FOMC.

\(^{18}\) This is a process more commonly used by developing country central banks in order to decrease the money supply as this is affected by uncontrollable external factors.

\(^{19}\) The total amount owed by the federal government contractually minus the total expected revenues, out to infinity, using Net Present Value functions. Today that is about $200 trillion.
8. The operations of the depository and investment window would be what people think they have today. All funds would continue to be owned by the customer with the bank simply acting as custodian, following the customer’s wishes e.g., cash my checks, pay my credit cards, … If the bank were to go bankrupt, all funds would still be there for the customer and no FDIC insurance would be needed.

9. The investment window would be mutualized, such that a small bank might set up 10 mutual funds, e.g., one for mortgages, one for car loans, … and a large one say 150. Each would have its own risk and reward structure, clearly visible to the customer. These would all be normal equity-based mutual funds as we have today, and the customer would be free to choose as to how much he/she wishes to invest into which fund. During the Great Recession, the mutual funds did not go bust, it was the banks.

10. The result of this structure would mitigate, and in many cases totally eliminate the negative consequences of our current fractional reserve system.

VIII. Conclusion

We live in a system foisted onto us by a small minority who gain the unearned benefit of the losses experienced by over 99% of society. As Henry Ford famously said many years ago: “It is well enough that people of this nation do not understand our banking and monetary system, for if they did, I believe there would be a revolution before tomorrow morning.”

It appears to me that there is a crack in this monolithic structure which we must widen to finally see an end to what has been built by a few but carried by the many. May God give us the grace, strength, and wisdom to do so.