



Money and banking: a short primer

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(The following brief introduction was not part of the presentation made on 2nd June)

When speaking of crypto-currencies and crypto-finance, it is useful to know how our monetary system works.

If someone believes that banks somehow create money out of thin air, then the way bitcoins are created by “mining” may not seem too surprising, and the idea that bitcoins are somehow money may not be difficult to accept.

However, to someone who is aware of the fact that money is created when a bank issues a loan, bitcoin creation will indeed appear curious.

Then there is the wider discussion of the impact of new technologies and new concepts, such as distributed ledgers or blockchains, on the financial system.

Do these technologies have the potential to fundamentally change our financial system, or will they just change the way we transact?

To give an example: 50 years ago, everyone paid cash for small purchases, now almost everyone pays with a plastic card, in the future we will probably use a “wallet” in our smartphone. How fundamental is that change given that, for most people, it does not really matter how they pay, as long as a practical payment method is available?

To start discussing such issues, it is essential to know what money is, what banks do: the basics of our money system. That is the purpose of this presentation.

(Because of time constraints, some parts of this presentation were not addressed in full length during the workshop on 2nd June)

The origins of money

Let's start at the beginning. Humans are social animals. We have evolved living in small bands, cooperating, helping each other. From the very beginning, life as a human was a constant give and take. As long as the social unit was small enough, this way done in a completely informal way.

When we became sedentary, the size of our social groups increased. We started to live in villages. Within the extended family, the previously informal give and take remained of course. But for transactions with others, people began to keep track of their obligations towards each other.

Record-keeping was invented. There was a need to precisely measure the obligations that humans had towards each other. Gradually, a common measure of value was agreed upon.

In some cases, this measure of value represented valuable goods, for example grain and silver in Mesopotamia, salt in parts of Africa.

In other cases, the measure of value was something quite arbitrary. Cowrie shells were used in parts of Africa and in China. Cowries may have some decorative value, but otherwise they do not have intrinsic value. For accounting purposes, that does not matter much – as I shall explain in a few moments.

Now, at the very moment when a unit of value was agreed upon, money was born.

The famous anthropologist David Graeber writes: “The difference between a debt and an obligation is that a debt can be precisely quantified. This requires money.” (“Debt, the first 5000 years”, p 21)

So Graeber says that one needs money in order to quantify. What I'm saying is that the quantification itself creates the money. These are two faces of the same coin.

Once we have a unit of account, an obligation can be described precisely. Saying “he owes me two goats and a large jug of wine” is somewhat vague. Every goat is different, and this year's wine was excellent, while next year the wine may taste like vinegar. It is much more precise to say “he owes me 2 and a 5/16th bags of grain” (of standard size)

Now to the question why the unit of account does not matter so much. Why does a string of cowries do the job as well as a weight of silver?

The first reason is that it was almost all virtual money, accounting money. For example, 4 or 5 thousand years ago in Mesopotamia, debts were calculated in silver but silver rarely changed hands. What changed hands was grain, animals, commodities, manufactured products. Everything was accounted for in silver, mostly without needing the metal itself.

There is I think a second reason, and a very important one. There is less historical evidence for it, but it rings true to me. It is the following. That in old times people saw the economy as circular, as part of a repeating, natural cycle. After one cycle, when the debits and credits were tallied, the result was expected to be more or less zero. And if that was the expectation, then the intrinsic value of the unit of account obviously does not matter so much. Only small residual payments would have to be made in the currency itself, and ways could be found to avoid even that – for example by an extra service rendered or a gift made. One can understand how this kind of thinking would exist in small, cohesive groups.

Barter did exist, but it was something that was done with strangers, with whom having mutual obligation did not make sense as they were likely to be gone soon. When developing mutual trust is not an option, then barter is a reasonable solution.

As to coins, they came much later and were often not used for everyday purchases anyway. For example, Carthage built an empire and an advanced banking system without any coins. When they finally did issue coins, it was in denominations far too large for everyday transactions. They knew about coins of course, the Greeks and Romans used them, but the Carthaginians just did not seem to find them very useful.

Again to quote Graeber “What we now call virtual money came first”. (p 40)

Some of this may not fit with what you read in your economics textbooks. The reason for that is the curious fact that nowadays anthropologists seem to know more about the history of money than some economists.

Let’s briefly mention that institutions were needed for the recordkeeping, these were initially temples, which later became banks.

Finally, let me mention the man who was probably the first to provide a modern description of money and of its origins. His name is Alfred Mitchell Innes. He was a British diplomat. He published two essays in the *Banking Law Journal*, in 1913 and 1914.

Mitchell Innes basically concluded: “**credit and credit alone is money**”

Money proper

Here is a slightly more explicit definition.

Money is a particular kind of debt instrument: an anonymised, generally accepted debt certificate which can be used for repaying debts.

The acceptance can be tacit, or by force (that force being mainly government constraint).

Note that the idea of general acceptance was implicit in the term “credit” as used by Mitchell Innes.

Money as debt

The fact that money is debt can easily be seen on any bank’s balance sheet, where your deposits are listed on the liabilities side.

Physical representations of money, such as banknotes or coins, are called money tokens.

Such tokens represent an interest-free loan to issuer.

Again, this can easily be seen on any central bank's balance sheet: banknotes and coins issued appear as liabilities.

So when you burn a banknote, you are forgiving a loan. In general, the central bank in question will not know this. It may only be able to account for this as profit once it takes the banknotes out of circulation and finds out that some have not been tendered for exchange.

Given the size of public deficits, banknote burnings on a large scale should be encouraged by all central banks. Strangely, however, burning banknotes is prohibited by law in certain countries, including the United States.

Types of money

Today, there usually is only one legal currency in every country, although there are some countries where secondary currencies play a more or less important role. For example, in Switzerland the WIR currency. In some countries with weak currencies, other currencies such as the U.S. dollar may be used.

Historically, there were often multiple types of money in circulation. Until modern times, kings and princes, cities, local rulers, monasteries and all kinds of institutions, factories, even shops issued money. Some of this money was generally accepted only in a specific area, sometimes a very small one – such as a specific village or town.

< What is money and what is not > - cf slides

Money cannot be owned

One can own a vehicle, a piece of furniture or a plot of land, but one cannot own money.

But money it is ultimately a contract and one cannot own a contract.

A holder of money is party to a contractual agreement.

Therefore, money cannot be owned.

Conversely, anything that can be owned cannot be money.

The word "currency" could be used to identify tokens that resemble money, but are not money.

Coins

Coins are particular types of money tokens, in that they have an intrinsic value which is the market value of the metal that they are made of. This is called the metal value or the melt value.

If the face value of the coin is significantly higher than its intrinsic value, the coin is worth its face value and is money. This is normally the case for any coin at issue. However, the metal content can be considered an insurance, or a put option in case of default or repricing by the issuer. This is why, when coins of different metal values circulate, people will tend to keep those with the highest, and spend those

with the lowest metal value. Thus, only the coins with the lowest metal value will tend to circulate. Thus the expression “bad money drives out good”.

When the melt value and face value are close to each other, the coin's market value will be higher than either melt or face value (either face + call on metal, or metal + put on face). As it does not make economic sense to use it for payment, the coin cannot be fully considered money. However, it can become money again if the metal price falls.

Finally, if the melt value of the coin is significantly higher than its face value, the coin will for all practical purposes be just a piece of metal and will cease to function as money. (Note that this discussion is mostly irrelevant to small denomination coins: when the metal in U.S. And Canadian copper pennies was worth more than the melt value, it was still not economical to melt them down)

Apart from that, note that old or rare coins often have a numismatic value that can be much higher than either their metal value or, in case the coin is still legal tender, the face value.

Money creation

In order to create money, the equivalent amount of debt has to be created.

Money creation on a small scale occurs for example when a shop, instead of giving legal tender as change, issues the shop's own tokens. As long as these tokens are generally accepted in the local economy, they are money. The tokens represent a debt of the shop.

This type of money issuance is of course rare nowadays.

Today, money creation is mainly done by banks.

The word “creation” is somewhat misleading, because what banks do is to transform specific, illiquid debt into generic, fungible, generally accepted debt, i.e. money.

So it would be more correct to say that banks transform, rather than create.

They take IOU's of physical persons and of corporations, up to a limit they consider prudent, put their stamp of approval on it and issue money on the back of it. In other words, the bank substitutes its own credit for the IOU issuer's credit.

In order to do so, banks need to know their customers, their business and their capacity to produce useful goods and services.

It is the central and indispensable function of banks.

Other function of banks

Money creation is the banking system's main function; it represents the “primary market” of money so to speak.

However, banks also have another function, and that is the recordkeeping of balances and transfers in the money system – the “secondary market” of money.

That recordkeeping function is in some ways much more visible to the general public. Most people take out banks loans relatively rarely, but they make frequent use of their bank accounts for making payments.

Money destruction

We have just seen how money gets created by debt issuance.

So logically, money gets destroyed when a debt gets repaid.

If we go back to our shop that issued tokens, when a customer comes and pays for his purchase with the shop's own tokens, the debt gets repaid, the money is destroyed. In the hands of the shop owner, his own tokens cease to be money. In the same way, a banknote in the vault of the ECB is not money – it is just a worthless piece of paper. It is like a contract without the signatures on it.

The money destruction in the banking system is a bit harder to pinpoint precisely, because the system is much more complex.

But the principle is simple.

When I go to the baker and buy a loaf of bread, this is a real payment. The baker probably owes some money to a bank (or other creditors) and has spent money and labour to bake the bread. The payment for the loaf of bread constitutes a debt cancellation and results in the reduction of the money in circulation.

But when a person sells a used bike to another, no money gets destroyed. Money does change hands, but the overall sum of debits and credits in the system does not change.

When the borrower cannot repay the debt, and defaults, money also gets destroyed.

Finally, money can be destroyed via debt forgiveness. This was actually a significant feature of the ancient Babylonian financial system, when private debts were cancelled at regular intervals, for example when a new king acceded to the throne.

Interest

< Discussion of the widget maker > - cf slides

< Discussion of Radu, Gadu, Badu > - cf slides

I have read articles where people argue that because interest rates are somehow “created out of nothing”, that there is therefore no money in the system to pay for the interest, and thus the amount of money must somehow increase for ever ... I'm not sure that is the exact reasoning, but there is the implication that a positive interest rate by itself creates monetary expansion or some kind of instability.

In reality this is not necessarily true, as the example of the widget maker demonstrates.

What the example of RGB shows, is that in certain situations positive interest rates can create instability.

Given that the lender carries the risk of default, and needs to be remunerated for its services anyway, so having positive interest rates seems somehow normal.

However, there have been long periods in history where money, at least cash, carried negative interest.

In Germany, from around 1130 until 1520, bracteates were commonly used. These coins were called back on a regular basis, often once or twice a year, each time losing 10% to 25% of their value. This is the same as a negative interest rate. These coins were used as a medium of exchange, not as a store of value.

In France, before state taxation was introduced, kings also regularly depreciated their coins. This was called “muer monnaie”. This was accepted by the population, who grumbled only when the king did it too often.

Units of account

Interestingly, there existed in parallel units of account which were stable and independent of the king’s money. For example, the banks in Paris had the “livre parisis” (Paris pound) as the unit of account, which was stable over the short term but might change in relation to the “livre tournois” (Tours pound). The king may issue tokens worth 1 livre parisis, later devalue them to 0.70, but this would not affect the livre parisis.

Later the livre tournois became the main accounting currency in France in the early 17th century, even though no coins were issued. It became purely a unit of account.

To give an idea: imagine a group of Europeans stranded on a desert island with no money at all. If they wanted to jump-start an economy, they would probably have no problems using the euro as a unit of account. We all have a sense of what a euro is. A Euro-based economy could thus be created without any actual Euros whatsoever.

Store of value or medium of exchange?

Today, money is viewed as a store of value by a majority of the population.

For that reason we live in a world where everyone wants money.

That is of course not possible, because for every unit of money in circulation there must be an equivalent debt (with some minor exceptions, for example the central bank’s “seed money”)

This is quite a fundamental contradiction in our money system, but it’s not the only one.

Another source of tension in the money system are the potentially different objectives of the debtor and of the creditor.

The debtor generally wants to repay his debt as soon as possible. To make this happen, the creditor (or more precisely: the class of all creditors) has to accept the goods and services that the debtor has to offer.

But what if the creditor refuses to consume? The debtor cannot force the creditor to buy, which is the only way to reduce the creditor’s credit balance and reduce the debtor’s debit balance.

Instead, the creditor may want to keep his credits accumulating – thus creating exactly the kind of instable situation described in the RGB story.

We end up with a small class of very rich creditors who, simply by not consuming, do not allow the great mass of debtors to discharge their debts. Does this situation sound familiar to anybody here?

It so happens that negative interest rates do put some pressure on creditors, a pressure which does not exist in environments with positive interest rates.

The elephant in the porcelain shop

Now there is of course one way in which everyone can have money. We just need to find someone who is willing to make massive amounts of debts, so that we can all be creditors.

In recent years, our governments have apparently agreed to take on this role. By taking on enormous amounts of debt, in order to stave off defaults that are a normal and healthy, if unpleasant, side-effect of the economic cycle, governments have created enormous amounts of money.

The problem is that instead of making every one of us a little bit richer, that money has allowed a few to remain (or become) colossally rich and not changed that much for the majority.

The other problem is of course that, one way or another, the money owned by the governments will someday have to be repaid by us – so it's like the left hand borrowing from the right and feeling rich as a result. Even if a government decides to default on its debts, it is still equivalent to the money being repaid –by another group of creditors.

One characteristic of government borrowing is that there is no strong pressure to repay quickly. As mentioned before, a normal borrower tries to repay the loan as quickly as possible, by providing goods and services to the economy. Governments do not feel the same pressure.

One can say that government debt has a tendency of being less “productive” than private debt. Productivity is what allows for debt repayment and thus money destruction. If the debtors as a whole are not productive enough, then money will not be destroyed fast enough and the money mass will grow – which is what we are experiencing today.

Conclusion

Using the credit theory of money, it is possible to approach monetary phenomena in a rational, logical way.

If you are only discovering this now, as some of you are, I invite you to take time for further investigations. This approach can be a real eye-opener: you may find that things suddenly start to make sense!

