

1 Introduction and early history

1.1 Learning outcomes

After studying this text the learner should / should be able to:

1. Describe the relationship between money and economic growth.
2. Elucidate the relationship between money and inflation.
3. Discuss the technical aspects of money.
4. Describe the concept of money creation.
5. Appreciate the history of primitive and later forms of money.
6. Describe the forms of money creation in the precious metal coin money age.

1.2 Introduction

Have you ever sat back and thought about what money really is, and what “backs it up”, if anything? Have you wondered what causes the amount of money circulating in the economy to increase every year? Instinctively you will know that it does because prices generally increase every year – slightly in some and more-than-slightly in others¹ – and know instinctively that the cause is an increase in the amount of money in circulation. The maxim that inflation is caused by *too much money chasing too few goods* has probably floated through your consciousness a few times.

Have you considered the role that you play in money creation? Whenever you utilise a bank credit facility such as a home loan or an overdraft facility, you and your bank create new money.

Have you pondered the role of the central bank in money creation? You will have heard, seen or read about the central bank's role in setting the repo rate / bank rate / base rate / official rate / discount rate (it's named differently in different countries). What happens after the central bank reduces or increases it and what gives rise to such central bank action? Have you speculated on what actually happens when a central bank says it injected so and so many billions into the economy and felt a little *irritated* because they (or the media reporter) did not elucidate this action?

You will have experienced share (also called *equity* and *stock*) market booms and the inevitable busts that follow. One of the main underlying causes is money creation, and yet this significant cause is rarely put forward, let alone how it contributes. The story is actually surprisingly simple: banks create money (= bank deposits) by extending loans. Bank loans are obviously extended if there is a demand for loans, and the bank considers the consumer creditworthy / project viable. Underlying the demand for new loans is additional economic activity being financed – *consumption* (C) or *investment* (I), and these are the two components of the *domestic demand* for goods and services, called *gross domestic expenditure* (GDE). It drives economic (called *gross domestic product* – GDP) growth, and impacts on company profits and therefore on share prices, and so on. To complete the “big picture” (the macroeconomy) we need to add *net external / foreign demand*: exports (X = foreign demand for domestic goods) less imports (M = domestic demand for foreign goods) which make up the *trade account balance* (TAB). Therefore the big picture is:

$$C + I = \text{GDE}; \text{GDE} + (X - M) = \text{GDP (expenditure on}^2\text{)}.$$

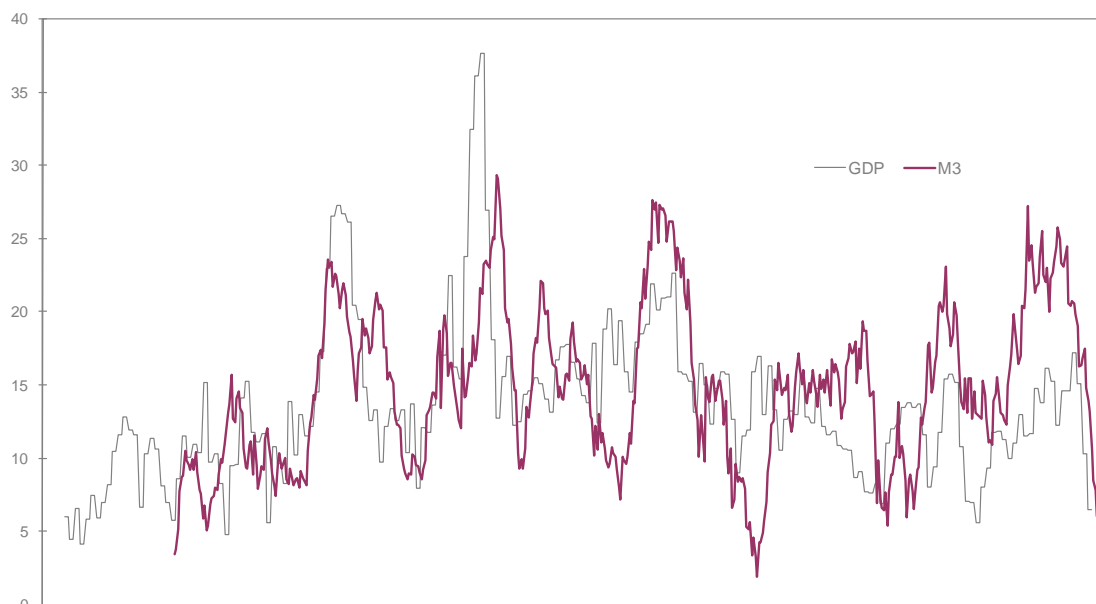


Figure 1: GDP & M3 (yoy%)

A simple time series chart (see Figure 1) will reveal the close relationship between nominal GDP and M3 (a broad measure of money). This is for a particular country for a period of 50 years. Note that the growth rates have never been negative over the period.

The story of money creation is so astonishing (in that it is truly simple) and the system so fine (caveat: if responsibly managed) that it has to be told in an uncomplicated manner. This text is an endeavour to achieve this ideal. One of the thrusts of these texts is that new bank lending does not begin with a new bank deposit. In fact, the *exact reverse* applies: a new bank deposit (= money) is the consequence of new bank lending, and this is so because we all accept bank deposits as the main *means of payments* (= the definition of money). In the genesis of banking days the bankers, the goldsmiths, who transmuted into bankers, certainly had to take in deposits of precious metal coins before they could lend. However, they soon learned that they could lend money *without taking deposits*.

The second thrust of these texts is to refute the notion that money creation revolves around the so-called reserve requirement (RR) of banks (also called the cash reserve requirement). The perceived dominance of the RR in money creation also has its genesis in the past: in the convertibility of bank notes into gold. However, this “standard” (of money creation management) left the world economic stage in the first half of the twentieth century. It was followed by the requirement that banks hold reserves with the central bank equal to a prescribed percentage of their deposits (the RR ratio). You will understand that this standard imposes a quantitative relationship between banks’ reserves with the central bank and bank deposits, and therefore constitutes a powerful money creation management tool.

This tool meant that the central bank had total control over money creation – just by managing the amount of bank reserves with itself (and it has the monopoly to do this). This standard did not last for long because with a quantitative control tool the price of money (= the interest rate) had to be left to its own volition. The consequences in terms of interest rate volatility were quite profound.

This standard gave way to one where interest rates are targeted, i.e. are not left to find their own level, and where the RR became a derivative of the system and not the driving force. Thus, instead of the RR being the kernel of the money creation process, in reality it is only one of many factors that affect bank liquidity. And bank liquidity is completely under the control of the central bank; because of this the central bank is able to manipulate bank lending rates to whatever level it deems propitious in terms of the desired growth rate in bank lending / money creation. Remember: the level of bank lending rates influences the demand for bank loans, and underlying this is GDE growth.

1.3 Money and inflation

We saw above that:

$$C + I = \text{GDE}; \text{GDE} + \text{TAB} = \text{GDP (expenditure on)}.$$

Of the two components of GDP, GDE is the largest by a long margin in most countries. And of the two components of GDE, C is the largest by a long margin in most countries. Thus C can be seen to be the chief driver of GDP growth. This gives rise to the adage *the consumer is king*. Alfred Marshall, a celebrated economist of the past, spoke of the *sovereignty of the consumer*. For example, in the US consumption expenditure makes up roughly 80% of GDP.

In Figure 1 we illustrated the relationship between M3 and GDP growth. Let's take this a little further. There is a celebrated identity in economics relating to the role of money (a product of the fine mind of Irving Fisher in the early twentieth century) referred to as the *quantity theory of money*:

$$MV = PT.$$

Put simply, over a period (say, a year) a change (Δ) in the money stock, ΔM , times the change in its velocity of circulation, ΔV (which generally is a stable number), is equal to the change in prices, ΔP (i.e. inflation), times the change in the total of economic transactions adjusted for inflation, ΔT (i.e. ΔGDP). Thus, assuming V to be stable, an increase in M will give rise to an increase in *nominal* GDP. Nominal GDP = actual GDP as measured at current prices, that is, not adjusted for inflation (*real* GDP \times inflation = *nominal* GDP). If there is no inflation it means that the increase in M is fully translated into an increase in GDP. Basically, this says that M growth plays a major role in driving *additional* economic output and the welfare of the country and its people.

It is an elegant and beautiful feature of the modern monetary system – because it means that funds are always available for new consumption and business projects ($C + I$). Money creation provides the fuel for economic growth. However, and this is critical, it is only elegant if money creation growth is carefully managed, and this is the formidable task of the central bank. If it is not prudently managed, it transmutes into a monster in the form of inflation, which can be a destructive force in terms of economic growth and employment. Thus in terms of the identity $MV = PT$, a small increase in M can lead to an equivalent increase in real GDP, while a massive increase in M can lead to an equivalent change in P , or even to a larger increase in P and a decline in real GDP.

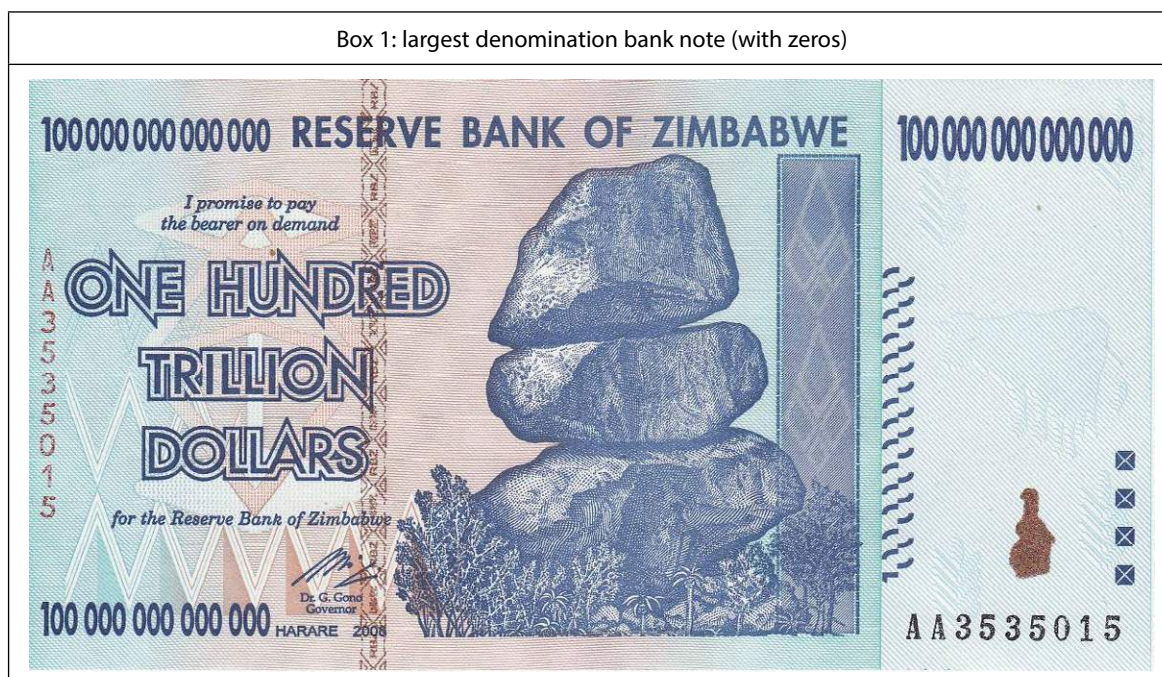
What actually happens when M increases at a high level? As we know, underlying an increase in the demand for loans is an increase in the demand for goods and services. If demand is high, and local industry cannot meet supply, local prices will rise ($\Delta P+$), and the exchange rate will fall. Foreign goods will become cheaper / local goods will become expensive, imports will rise, exports will fall, and the TAB will deteriorate. If M rises further and extensively, the vicious circle will be exacerbated.

If money creation is left unchecked, and is a consequence of a government debt trap (when government borrows from the banking sector to pay interest), and if it borrows from the central bank, the consequences are profound.

The worst inflation monster the world has experienced is 7 000 000 000 000 000 000% pa (7 sextillion % pa) in Zimbabwe in 2008. The previous record was 41 900 000 000 000 000% pa in Hungary in 1946³. In the Zimbabwean case GDP growth during the hyper-inflation period was negative every year and the unemployment rate grew to over 90%. The cause was massively excessive money creation.

The largest denomination bank note in the history of the world, for 100 quintillion pengo, was issued in Hungary in 1946. The largest denomination bank note with zeros printed on its face is the Zimbabwean 100 trillion dollar note (see Box 1), issued in 2009⁴. Prior to the issue of this note, thirteen zeros had been lopped off the bank notes (three in August 2006 and ten in August 2008). Following the issue of this note another twelve zeros were lopped off, making it equal to 100 Zimbabwe dollars.⁵

Box 1: largest denomination bank note (with zeros)



The monster side of money was also seen by the developed world in 2008 / early 2009, when the “credit / banking / sub-prime crisis” was at its peak. To a large degree this crisis had its genesis in the excessive creation of money by the credit granted to the many US sub-prime borrowers by the US banks, which led to an artificial and unsustainable boom. It also clearly demonstrated the fact that banks are inherently unstable, and therefore require rigorous regulation by government authorities. It may come as a revelation to young readers that the bank failures seen in this period is not a new phenomenon; history is littered with banking / credit crises and bank failures.

1.4 Money: technical issues

Money has a name: dollar, pound, rupee, franc, rand and so on. One of these or another name is the name of your country's *currency* or, more formally, the *monetary unit*⁶ of your country; this will be set down in some statute⁷ of your country. The unit (say one dollar) will most likely be made up of sub-units or parts (say 100 cents). This enables prices in your country to be in multiples of one cent⁸.

A glance at a bank note will reveal that it is issued by your central bank; so it is a liability of the central bank⁹. If you are in the UK and you have a fifty pound note it will say: *I promise to pay to the bearer on demand the sum of fifty pounds* (see Box 2). In some cases the note will state: *This note is legal tender for the payment of the amount stated thereon* or *This note is legal tender for all debts, public and private* (USD notes). Your note may even state both these phrases.

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What do these lofty phrases mean? The first one means nothing more than the central bank will exchange your weather-beaten bank note for a crispy new one. In days past it meant something more significant; we will discuss this issue in more detail later.

The *legal tender* covenant means that a creditor (think: a creditor provides credit and is therefore owed an amount of money) is legally obliged to accept payment from a debtor (think: a debtor makes a debt and therefore owes money)¹⁰ in the form of bank notes (and coins – although not stated on the coins¹¹) to the value specified on the note. If the payment of legal tender money is refused the debt is extinguished¹².

The question arises: does a country only have one currency that is designated legal tender by statute? The answer is yes (usually). This means that only the currency of a country may be used to pay for goods and services in that country (and from abroad after exchanging the local currency for a foreign one). However, in extreme circumstances (as in hyper-inflationary times) in a few countries, other currencies have been declared legal tender. For example, in Zimbabwe in 2009, the Zimbabwe dollar lost all its money attributes / roles (see below) and the South African rand (ZAR) and the US dollar (USD) were declared legal tender. The Zimbabwe dollar went into hibernation for its severe financial winter.

Money's primary role is to serve as a *means of payment / medium of exchange*. The other roles of money will be obvious: *unit of account* (also known as standard of value) and *store of value*¹³.

Unit of account means that records (accounting records in the modern age) can be kept of assets and liabilities in one standard, and that comparisons can be made between the assets and liabilities of different entities and at different times.

Store of value means that the medium of exchange maintains its purchasing value, that is, you can keep the money tucked away (under mattresses in the olden days and in the bank today) and spend it later when it will at least buy the same amount of goods and services as when you received the money.

1.5 The simplicity of money creation

Money is literally created by entries in the accounts of commercial banks, and this takes place when a bank loan / credit¹⁴ is applied for and accommodated by a bank. Thus, when the bank (let's assume for the moment there is only one bank) provides you with a loan facility, such as an overdraft, and you utilise the facility, that is you pay the furniture store for the new LCD TV, the furniture store deposits the money. So, the bank credit granted to you created the new bank deposit (= new money). These are entries in the accounts of the bank: the loan to you is an asset (= it owns) and the deposit is a liability (= it owes).

Sound incredulous? It is, and even more unbelievable is that we homo sapiens are responsible for this because we all *generally accept bank deposits as money*, that is, as a *means of payment / medium of exchange*. In other words we pay for the majority of goods and services we buy by the transfer of bank deposits, which *makes it money*. Notes and coins, the other component of money, are also used to make payments, but bank deposits are overwhelmingly used in this modern age. A new bank deposit is new money created, and it springs from bank credit / loan extension.

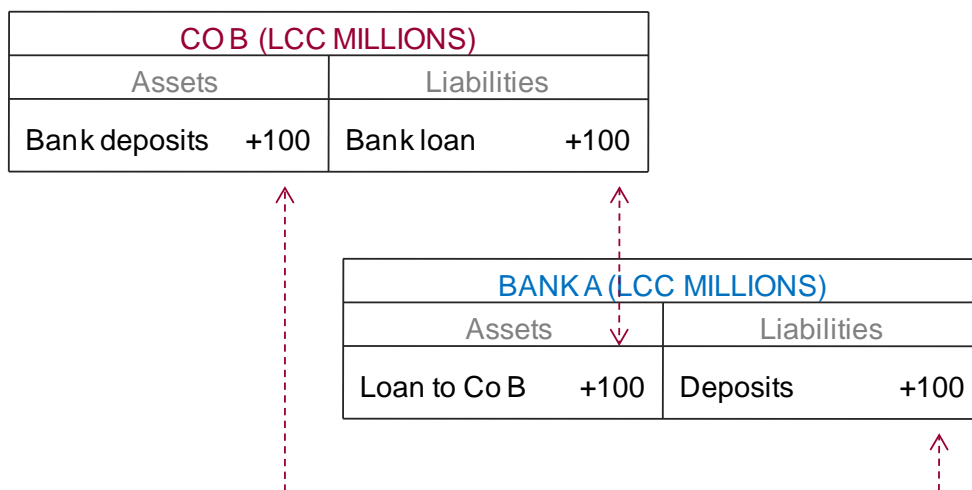


Figure 2

So, now we know that money (M) is comprised of *bank deposits* (BD) which are immediately available¹⁵ or available soon¹⁶ and *bank notes and coins* (let's call these N&C):

$$M = BD + N\&C.$$

Another example may be useful: Company A (Co A) which produces goods and wants to sell them, and Company B (Co B) which wants to trade in the goods produced by Co A. Co B does not have the money to do so and approaches Bank A (let's assume that it is the only bank) for a loan of LCC 100 million. It is in the business of lending money and grants¹⁷ the loan in the form of a credit to Co B's bank account in its books. Co B's balance sheet changes as indicated in Figure 2.

Bank A's balance sheet is the converse of Co B's balance sheet as indicated in Figure 2. It will be noted that the deposits of Co B, a member of the non-bank private sector (NBPS) of the economy, have increased, that is, the amount of money (M) in circulation has increased, by LCC 100 million. The increase in M has a balance sheet cause of change (BSCoC): the credit extended to the NBPS. The *actual* cause is the approach by Co B to the bank and the bank accommodating it, i.e. the *demand for loans / credit*.

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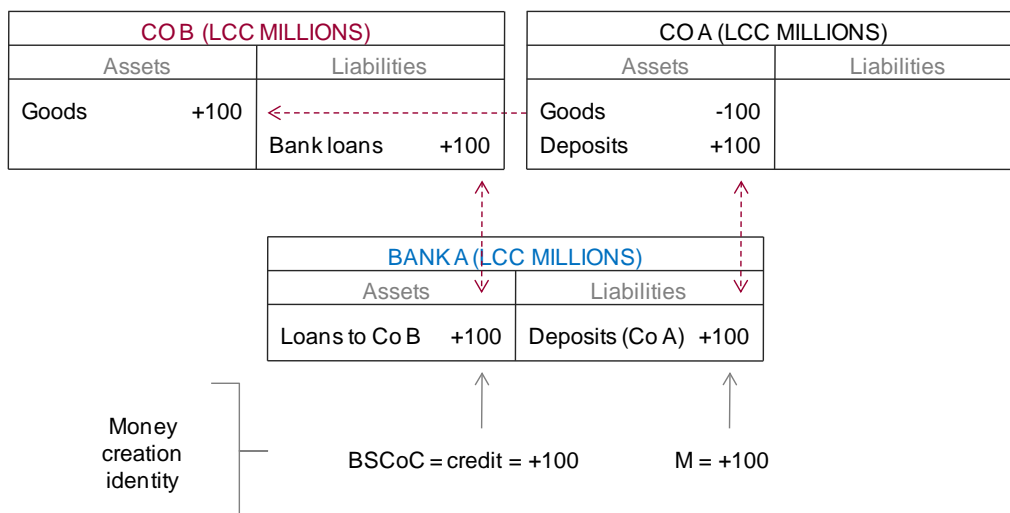


Figure 3

Let us take the transaction a little further. Co B clearly borrowed the money in order to buy goods from Co A. In addition there is a strong financial reason: the interest rate on his new deposit is lower than the bank's lending rate (reflecting the bank's margin). Co B will do an EFT payment to Co A via the internet, show Co A the proof of payment (pop), and take delivery of LCC 100 million worth of goods. The final balance sheet changes are as indicated in Figure 3. (Note that the changes in all the balance sheets balance.)

An alternative to the above is that Co B obtains an overdraft facility of LCC 100 million from the bank. This is more likely in real life, but the outcome is the same. In terms of the money-component identity, $M = BD + N\&C$, we have:

$$\Delta M = +LCC\ 100\ \text{million} = \Delta BD = +LCC\ 100\ \text{million}.$$

It should be apparent that we also have an identity from Bank A's balance sheet: $\Delta M = \Delta \text{credit to NBPS}$:

$$\Delta M = +LCC\ 100\ \text{million} = \Delta \text{loan to NBPS} = +LCC\ 100\ \text{million}.$$

Money was created by accounting entries by a bank. This shatters the notion that a bank must receive a deposit before it can provide credit; the path of causation is: *a bank creates new deposits by providing new credit*. The belief system that money creation rests on something tangible, like silver or gold, should now lie in ruins. This also indicates that banking is a good business; it is, and it is so because we, the general public, *generally accept bank deposits as a means of payment*. This simple reality makes it money.

A significant question now arises: does this not mean that the banks are able to create loans and its counterpart, money, *ad infinitum*? The answer is a yes, but it is a qualified yes. Because of the phenomenon of banks being able to create money by accounting entries, a *policy on money*, that is, a monetary policy, is required. Also required is exacting bank regulation and robust supervision because, inter alia, the phenomenon of money creation makes banks inherently unstable.¹⁸

You will have heard of the central bank of your country. You will have read or heard about your central bank's *key interest rate* (KIR – called by different names such as repo rate, discount rate, bank rate, base rate, but we call it by this generic name from here on). Central banks “control” money creation by the banks through its KIR, and in many cases are responsible for the supervision of banks.

In conclusion: money is bank notes and coins plus the short-term bank deposits of the private sector. Banks create money by accounting entries, that is, virtually “out of thin air”. In order to cement the understanding of this barely credible reality, and how monetary policy developed and is now implemented, we need to delve back into history to see how it all came about.

1.6 Barter

Money vastly facilitates the exchange of goods and services, that is, economic activity. Before money, goods and services were exchanged by barter. Barter is the exchange of goods and services for other goods and services, and it goes back to the earliest people.

Much evidence that barter took place is found in archaeological sites around the world. In the many sites goods have been unearthed that do not occur naturally in the area. Examples: amber from the Baltic has been found in Austria and France; shells and shell jewellery from the Atlantic coast were unearthed in Switzerland¹⁹.

Barter has obvious disadvantages. Firstly, the exchange of goods and services between two parties takes place only if there is a matching of opposing wants.²⁰

If there is no or a partial matching of wants, barter is inconvenient. Jevons in his work of 1875²¹ provides a fine example of a lack of matching of opposing wants. A French opera singer, Mademoiselle Zélie, after a performance in the Society Islands during a world tour, was paid one-third of the take, which equalled three pigs, twenty-three turkeys, forty-four chickens, five thousand cocoa-nuts and many bananas, lemons and oranges. She could only consume a small portion of these perishable goods, and fed the livestock with the remainder.

Mlle Zelig was obliged to donate what she had left before departing. She had provided the audience with a wanted service, but received in return goods that did not match her wants. Jevons suggests that the goods received “might have brought four thousand francs, which would have been good remuneration for five songs”, but the absence of a medium of exchange meant that the performer could not be properly remunerated.

Jevons²² also refers to the existence of a London company in 1875 called The African Barter Company Limited which carried on a barter trade with west coast African countries. The goods bartered were European “manufactures for palm oil, gold dust, ivory, cotton, coffee, gum, and other raw produce.” So, barter was alive and well in 1875 and, as we will see later, this was still the case in the first half of the twentieth century in some countries.

	Cabbage	Sheep	Chicken	Pumpkin
Cabbage	x	reciprocal	reciprocal	reciprocal
Sheep	yes	x	reciprocal	reciprocal
Chicken	yes	yes	x	reciprocal
Pumpkin	yes	yes	yes	x

Table 1: Number of prices with four products

“I studied English for 16 years but...
...I finally learned to speak it in just six lessons”
Jane, Chinese architect

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The second disadvantage is equally obvious: the absence of a common standard of values, that is, a price system where all goods have a rate of exchange (i.e. a price) in terms of a common *something*. When a small number of goods are to be exchanged pricing is not a big problem. To demonstrate, assume that there are four products as indicated in Table 1. If there are n products ($= 4$) there are n^2 combinations of prices ($4 \times 4 = 16$). If we eliminate the price of each product with itself ($= 4$) we have 12 prices ($n^2 - n$). If we eliminate the reciprocal prices, we divide this number by 2 [$(n^2 - n) / 2$] and arrive at a number of 6. This can be handled easily.

It should be evident that in a barter economy the number of prices increases exponentially as the number of products increases. For example, if there are 10 products there are 45 prices; if there are 50 000 products, there are 1 249 975 000 different prices. A large airliner has 3 million parts = 4 499 998 500 000 prices.

It is obvious that no modern economic system can operate under a barter system. As stated by Newlyn²³: “The complications of...barter arrangements clearly restrict the opportunity for exchange so severely that little progress could have been made towards a complex exchange economy without the introduction of a common medium of exchange.”

The other disadvantage of the barter system is that it is difficult and costly to store value. For example, you can store value in a block of rare wood, but you will need to have a storage place; and you have the added risk of a nest of woodborers adopting the block of wood as a home and pantry.

What happens to the number of prices if one of the products is used as a medium of exchange? Answer: the number of prices reduces to $n - 1$. In the example of four products above, if chicken was used as a medium of exchange, there would be just three prices (compared with six). If there are 50 000 products the number of prices will be 49 999, compared with 1 249 975 000.

1.7 Primitive money

The disadvantages of barter are so large that, as specialisation of production progressed and the number of products to be exchanged increased, a generally accepted means of payment / medium of exchange was adopted by different continents / countries / kingdoms / fiefdoms / communities, etc. By no means did this occur at the same time; each continent / country / kingdom / fiefdom...had a different history in respect of the adoption a common medium of exchange.

Over the centuries, before metal money, many commodities were used as a means of payment, including cattle, cloth, grain, oil, wine, jade, leather, quartz, whales' teeth, wampum (strings of beads), and so on²⁴. Perhaps the best known and mostly used non-metal medium of exchange was the cowrie shell (see Box 3).



The development of primitive money is one of the most significant developments in economic history. It was an essential condition for the shift from subsistence farming toward specialisation and division of labour. It took place over an extended period of time as the many advantages offered by a common medium of exchange were realised²⁵. The advantages include:

- Firstly, money splits a single barter transaction into two separate transactions: a purchase and a sale. The matching of opposing wants problem is eliminated.
- Secondly, money creates choices in terms of the timing of transactions: they can be separated in time. This removes obstacles to trade such as geographical distances.
- Thirdly, speed of execution of transactions rises as a result of the portability of a medium of exchange. In barter trade many large products need to be transported to make an exchange. With money, transactions are undertaken immediately, and delivery of one set, and not two, of goods takes place.
- In the fourth place, if the commodity money was durable and in short supply, it acted as a store of value. A producer of cabbages could sell them for money and therefore store value, as opposed to storing a product that will perish before the sale thereof.

The question arises: did money creation take place in the times of non-metal commodity money? The answer is yes, and it rests on the supply of the commodity used as money. A related question: did the increased money stock lead to inflation? Assuming a large increase in the volume of commodity money, the answer is also in the affirmative.

A fine example is presented by Morgan²⁶: when the Japanese invaded New Guinea in 1942 they took along a large volume of cowrie shells, and freely used them for payments. It caused a sharp fall in the value of the cowrie shell (= the cowrie shell could buy less and less as more and more were introduced = its purchasing power was reduced = inflation), prompting an aggrieved district officer to state that it “endangere[d] the economic and financial stability of the district.”

Cowrie shells were also extensively used as money in Africa. Davies²⁷ cites the example of Uganda: shortly before 1800 it took two cowries to purchase a woman (note: this does not mean a woman of easily-transferable affection). As a result of the amount of cowrie shells in circulation having increased dramatically, on the back of increased trade, by 1860 it took one-thousand cowrie shells to purchase a woman of the same quality.²⁸

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More or less at the same time, or later in some continents / countries / kingdoms fiefdoms (etc.), as the emergence of non-metal commodity money, primitive (that is, non-coin) metal money also emerged. Prior to primitive man refining his skills as a metallurgist, all metals were regarded as precious – because it was difficult to mine and to make into useful objects. No distinction was made between precious metals and base metals.²⁹

Non-coin metal money took on many forms, such as arrow heads, axes, tripods, basins, rings, anklets, gold dust (kept in quills), spears, knives, hoes, spades and so on.³⁰ It is interesting to speculate on whether *excessive* money creation could take place under such as monetary system. The answer is probably in the negative, and the reasoning is that metal objects took effort to mine and forge. These objects therefore represented production and it was not possible to replicate them easily. In other words there was a natural limit to their supply.

This brings us to the significant advent the precious metal coin, the age when “money was real money”³¹.

1.8 Precious metal coin money

A significant step in the history of money was payments of debts by *count* giving way to the use of precious metal money by *weight*. Examples of paying by count in times of barter are two hens for a goose, two geese for a pig, three lambs for a sheep³², and so on. An example in the non-coin commodity money phase is the payment of one-thousand cowries for a woman in Ghana in 1860. Over time this custom reversed, as we shall see, which is another critical event (that occurred slowly) in the history of money and money creation.

The use of precious metals as non-coin money seems to have a relatively short history – judging by the lack of information in the works of the authorities on the history of money. It is evident that precious metals were wrought into diverse shapes initially, such as “unmarked lumps of various shapes and sizes”³³, and “blobs or ‘dumps’”³⁴, and later into bars of various sizes. They were accepted as a means of payment according to *weight*. Over time these bars were developed into smaller and standardised sizes³⁵.

Initially these bars carried no name; they just had a standard weight. Their fineness was also an issue, which was later solved by a public authority placing its stamp on each bar as a guarantee of fineness. Davies³⁶ postulates that this was a practice in Cappadocia as early as between 2250 and 2150 BC: “...where the state guarantee, probably both of the weight and purity of her silver ingots, helped their acceptance as money.” Generally these bars were used for large payments. Smaller retail payments were generally made by other non-metallic commodities.

An obvious and logical step following bars of precious metals was coins of precious metals, and the history of precious metal coinage is a rich one. According to Morgan, the "...earliest coins were probably made by merchants, but the function of coinage was soon taken over by governments."³⁷ The coinage being taken over by government is significant indeed and it more or less coincided with another momentous step in the history of money: the *naming of coins*.

The naming of coins is a momentous event because it paved the way for the payment of debts by *count* (that is payment by counting a certain number of coins) as opposed to weight and, flowing from this, the debasement of coins by kings and princes (and others), which at times was not infrequent. The debasement of precious metal coins is equivalent to money creation. As we shall see, the enthusiastic activities of kings (etc) in this regard were accompanied by the inevitable – periods of inflation.

The first precious metal coins arose in Lydia in the seventh century BC.³⁸ Lydia (home of the mythical Midas) was much later to become part of the southern coast of Turkey. The precious metal, electrum, a natural amalgam of gold and silver, was panned from the rivers flowing from the mountains in the region. Initially the metal was made into "blobs or dumps" (as seen earlier). Over time the Lydian metallurgical skill improved and gold and silver were separated from electrum. Also, new separate sources of gold and silver were discovered. Thus separate gold and silver coins appeared. Even when separated into gold and silver "coins", they were initially³⁹ "...heavy, cumbersome, irregular in size and unstamped." Later they "...were then punch-marked on one side and rather lightly inscribed on the other. Such inscriptions were at first hardly more than scratches, and probably meant more as a guarantee of purity rather than of weight." This made the coins more acceptable but not entirely so in terms of the significant features of coin money: the guarantee of coins in terms of purity and weight, as well their naming – all the features that make them acceptable by *count*.

This came a short while later: "...as they became more regular in form and weight the official authentication was taken to guarantee both purity and weight..." The final step came sometime in the second half of the seventh century BC when "...they had undoubtedly become coins, rounded, stamped with fairly deep indentations on both sides, one of which would portray the lion's head, symbol of the ruling Mermnad dynasty of Lydia." The reigning king at the time was Croesus.

All the features that made precious metal coins acceptable in payments by *count* were in place: the coins were of a standard round size (meaning the weight of each coin was the same) and they were named. The naming and the fact that they were minted by the king meant that the purity was guaranteed. This practice soon spread to neighbour Greece and beyond, spurred on by trade.

It was the stamps / emblems on the coins that imparted names to them⁴⁰: the lion's head of Lydia, the winged horse of Corinth, the owl of Athens, and so on. Later on city emblems or representations of the gods were stamped on coins. Even later the images of rulers (departed and later alive) were placed on coins: for example, Alexander the Great and Julius Caesar.

The availability of standardised precious metal coin money, as it spread further, soon drove out the other types of money because it was superior to any previous money types. Davies, referring to Jevons, states: "Once it had become available, the increased preference for metallic money is easily appreciated, for... it possessed...to a higher degree that any other material, the essential qualities of good money, namely, cognizability, utility, portability, divisibility, indestructibility, stability of value, and homogeneity."⁴¹

Of these features of coins, cognizability is correctly placed first. Because coins could be easily recognised (which imparted some of the other qualities of coins – mainly weight and purity of the metal), they could simply be *counted* in the settlement of debts. Because of this feature, and since they were portable (etc), trade was enormously facilitated. It is quite evident that even though different countries had different coinage, exchange rates between them must have been negotiated.



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1.9 Money creation in the precious metal coin money age

1.9.1 Introduction

As stated earlier, the history of coinage (from now on meant to be standardised precious metal, and named, coins, used by count) has a long and rich history. As our main issue here is new money creation, we fast forward to later AD periods, and attempt to answer the questions: how did additional money enter circulation (which applies to the earlier periods) and how did new money creation “out of thin air” take place (which applies to later periods)? The phenomenon of money creation then had a number of forms (the obvious one, de-hoarding, is ignored here because the amounts are small):

- Pillage.
- Counterfeiting.
- New ore discoveries and mining.
- Clipping.
- Debasement.

Before we consider these forms of money creation, it is necessary to pronounce that gold was generally in short supply and highly valued relative to silver. Gold was therefore mainly used for large trade transactions and was later kept by banks and even later by central banks as reserves. International trade credits were settled by the physical transfer of gold. Silver became the principal coin money type.

Strong evidence of this fact is found in medieval Europe⁴². During the reign of Charlemagne (also known as Charles the Great and Charles I, c742–814), who had consolidated a large part of Europe under his rule (called the Carolingian Empire), the role of silver as the medium of exchange was entrenched. This move was started by his father Pepin and “...Charlemagne completed his father’s work and gave it its final form.” Scholars call the monetary system he created “silver monometallism”⁴³.

It was in this period that one of the world’s main currencies appeared: the pound. The long history of the pound and the fact that a significant episode of new money creation emerged in London in the seventeenth century are the reasons for this text’s focus on Britain from here on forward (except in certain cases, as in the following paragraph).

1.9.2 Pillage

As regards the money “creation” form of *pillage*, Morgan⁴⁴ provides a fine example. He informs us that there is reason to believe that as Alexander the Great spread his wings in Europe he took possession of large amounts of the treasure hoards of the rulers he subdued and that “...this sudden increase in the supply of money was associated with a violent rise in prices. If this were so, it would be a very early example of monetary inflation, but the evidence is too sparse to be conclusive.” He did not elaborate on the sparse evidence.

1.9.3 Counterfeiting

Counterfeiting was an issue over the ages, including in the coin era. However, we need not belabour this issue because the amounts counterfeited were probably not large enough to cause inflationary episodes. What is interesting about this limited form of money creation is the penalty associated with counterfeiting: according to Pirenne: "...the prospect of being boiled alive [did not] deter counterfeiters from the temptation of exploiting a state of affairs so favourable to them."⁴⁵

1.9.4 New ore discoveries and mining

New silver ore *discoveries* and the mining thereof added to the stock of coins, that is, new money was created. Silver deposit discoveries in Europe were rare, and most of the new silver came from elsewhere. The discovery of America yielded new silver. The Spanish conquerors relieved their new subjects of silver and gold, and in the sixteenth century they opened new mines in the New World which added a steady supply of silver. The Potosi mine (then in Peru, now in Bolivia) yielded the largest amount of silver.⁴⁶ As was to be expected, inflation came to pass. Morgan⁴⁷ tells us that the new Spanish silver metal "...spread over the whole of Europe and, everywhere, the increase in the supply of money was associated with rising prices."

1.9.5 Clipping

Clipping, a form of debasement, was related to the intrinsic value of the precious metal coins, and the fact that they were easily recognised and named. Clipping was the word for cutting small amounts from coins as well as filing metal from the edge of the coin, making it slightly smaller. The clippers relied on the fact that after clipping, that is reducing the intrinsic value of the silver coins, they would continue to be *recognised* and used for payments. They were quite right and the practice of clipping was widespread.

The practice of clipping was frowned upon but not stopped for many years. Good coins were clipped and put back into circulation leading to all in circulation becoming "bad", i.e. the currency falling well below the legal standard. An example of the legal standard was the reign of William the Conqueror. The main mint was established in the Tower of London (hence the name "the Tower pound" used at the time), and the state adopted for silver coins a standard fineness of 925 parts of pure silver in 1 000, and this came to be known as "sterling silver" and "the ancient and right standard of England".⁴⁸ Clipping was one of the reasons for the re-minting of coins and their debasement by the state.

Box 4: example of clipped coin



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What if you could build your future and create the future?

One generation's transformation is the next's status quo. In the near future, people may soon think it's strange that devices ever had to be "plugged in." To obtain that status, there needs to be "The Shift".

An advertisement for Alcatel-Lucent. The background is a cityscape at night with tall buildings and streetlights. A bright yellow glow emanates from the left side, with light rays extending across the scene. The Alcatel-Lucent logo is in the top right corner. The text "What if you could build your future and create the future?" is on the left. A quote is at the bottom. A hand cursor icon is in the bottom right corner.

 Click on the ad to read more

1.9.6 Debasement

Before we consider the principal method of money creation that took place in England in the coin money stage, *debasement of coinage*, we need to consider the origin of the pound and its parts. Under the Carolingian monetary system referred to earlier, the state had sole control of the mint. The basis of the coinage of this system was the *pound*, which replaced the Roman currency. An interesting fact here is that the pound became the unit of account, but it did not have a physical form. This is an important fact when one considers that bank deposit money also does not have a physical form.

Even though the pound did not then exist in physical form, it was declared by the state to be equivalent to a certain fixed number of the coins that did exist, called pence (half-pence also existed). The pence were minted of silver of a standard purity and were of a particular size and weight and stamped with images on both sides. Old duffer readers will recall financial accounts in *pounds, shillings and pence*. What was the shilling? It also did not exist initially; like the pound it corresponded to a certain number of pence.

The silver pence (called pennies) had a weight of 2 grams of silver, and half-pence a weight of 1 gram of silver. A shilling (as already noted it initially also did not exist in physical form) corresponded to 12 pence. The pound corresponded to 240 pence; therefore it had a weight of 480 grams of silver. Clearly, the pound was also equivalent to 20 shillings ($20 \times 12 \text{ pence} = 240 \text{ pence} \times 2 \text{ grams} = 480 \text{ grams}$), and to 480 half-pennies each of which weighed 1 gram.⁴⁹

Minted by the state, which granted to itself the sole right of coinage, the currency was declared legal tender; Pirenne informs: “Extremely severe penalties were promulgated against counterfeiters and those who refused to receive the legal deniers [= old name for pence] in payment were punished.”⁵⁰ From this expert opinion it is quite clear that counterfeiting was considered a far more severe crime (as indicated above, counterfeiters were boiled alive at one stage) than not accepting the currency. The latter punishment was probably unnecessary because the coins possessed all the qualities of ideal money as expounded by Jevons: cognizability, utility, portability, divisibility, indestructibility, stability of value, and homogeneity.

As noted earlier, the most significant feature of coin money that led to significant new money creation much later was “cognizability”, i.e. the fact that the coins were *recognisable* and *named*. The quality “stability of value” (remember the “store of value” role of money?) of the coins is related to its intrinsic value (= value of the precious metal); this is what was compromised in later times, i.e. the coins were *debased*.

This brings us to debasement of the coinage by the state. There is evidence of state attempts to maintain the standard of coins. For example, when the parts of the pound (pence) were first issued by Charles the Great "... he took the greatest pains to keep up the standard of weight and alloy of its coins."⁵¹ Similarly, Morgan informs that after William the Conqueror's reign (when a new standard for coinage was set as shown above), "[f]rom time to time kings departed from this standard, but such conduct was always viewed with disfavour, and pressure of public opinion forced a return to the standard which was regarded as 'ancient and right.'"⁵²

However, this was not to be the case for long. Newlyn⁵³ sets the scene: as soon as "...coins [are] accepted by count rather than by weight...the possibility emerges of a divergence between the bullion value of the coin and its purchasing power⁵⁴ as a unit of currency. This possibility opened up the opportunity of 'debasement of the coinage' – an opportunity of which, historically, kings have not been slow to take advantage."

After the break-up of the Carolingian Empire in the second half of the ninth century, which led to the formation of separate states, the Charlemagne pound was replaced by other currencies in some of the new territories.⁵⁵ The pound remained in others and as we know still remains as the currency of the UK. According to Pirenne, amid the confusion and anarchy after the break-up, the state (kings, feudal princes, and in some cases churches) "...were not slow to usurp the right of coinage...and...in the absence of any effective control, their weight and fineness became more and more debased."

How was the debasement of coinage effected? At times (sometimes frequently) the state would withdraw all coinage from circulation, and mint new coins with the same names, but they were smaller and of less weight (in some cases) but always debased with alloy (i.e. less silver and more base metal). There was a "profit" of course – in the form of *additional coins of the same name* – and these were for the account of (i.e. kept by) the state, to be spent later. The "profit" was given a name later: *seigniorage*⁵⁶, a word that applies today.

Serious debasement of coin money took place on a number of occasions in history. For example, by the end of the fifteenth century, 480 silver pennies were coined from a pound of silver instead of 240 pennies previously. Thus, the *weight* of the penny was reduced (from 2 grams to 1 gram).⁵⁷ During the reigns of Henry VIII and Edward VI debasement of the currency took place in the form of reducing the silver content of the coins (i.e. their fineness). From 1542 Henry VIII began reducing the fineness of the coins and this continued through the reign of Edward VI – from 915 parts per 1 000 to 250 parts per 1 000 of silver. This serious debasement of the coinage (= money creation) caused a period of high inflation. Morgan estimated that between 1540 and 1560 prices doubled.

The debasement of the coinage continued in the reign of Elizabeth I. Harrod⁵⁸ informs us that "...in the time of Queen Elizabeth 1 the pound [currency] contained only about 4 oz of silver."

It will by now be evident that this was possible because of the reality of money being accepted by *count* and not weight, which is associated with the naming of money (penny, shilling, etc) and the concept of legal tender. As we saw earlier when governments designate the *names* of coin money as legal tender only these may be used for the tender of payment, *irrespective of the intrinsic value of the coins*. This is why, today, the coins used for payments have almost zero intrinsic value.⁵⁹ They may be referred to as *token* coins (defined as coins of which the value of metal is less than their purchasing power).

The debasement of the coins was the early equivalent money creation “out of thin air” as occurs today. As we know, bank notes have zero intrinsic value, and yet they are used for payments with ease; they are also *token money*⁶⁰, to which we turn in the next section.

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