

International Money and Banking:

1. Money as a Medium of Exchange

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Part I

A Medium of Exchange

What Is Money? Where Did It Come From?

- Money is a “medium of exchange” – something you exchange to obtain goods and services and are willing to accept in exchange for your own goods or services.
- We are all so used to using coins and pieces of paper to acquire goods and services that it is hard to imagine a world without it.
- However, money did not always exist. In the past, many societies relied on non-monetary methods of allocating and exchanging goods.
- The first historical references to money relate to Mesopotamia in about 3000 BC and the use of money evolved only gradually over time. See the link to a timeline for the history of money on the website.
- As you can imagine, the absence of money as a medium of exchange had its downsides. The next few pages provide some quotes from William Stanley Jevons’s famous 1875 book *Money and the Mechanism of Exchange* including some anecdotes from his discussions of European tourists visiting Pacific islands that still practiced barter.

Jevons on the “Double Coincidence of Wants”

“The first difficulty in barter is to find two persons whose disposable possessions mutually suit each other’s wants. There may be many people wanting, and many possessing those things wanted; but to allow of an act of barter, there must be a double coincidence, which will rarely happen. A hunter having returned from a successful chase has plenty of game, and may want arms and ammunition to renew the chase. But those who have arms may happen to be well supplied with game, so that no direct exchange is possible. In civilized society the owner of a house may find it unsuitable, and may have his eye upon another house exactly fitted to his needs. But even if the owner of this second house wishes to part with it at all, it is exceedingly unlikely that he will exactly reciprocate the feelings of the first owner, and wish to barter houses. Sellers and purchasers can only be made to fit by the use of some commodity, some *marchandise banale*, as the French call it, which all are willing to receive for a time, so that what is obtained by sale in one case, may be used in purchase in another. This common commodity is called a *medium, of exchange*, because it forms a third or intermediate term in all acts of commerce.”

Jevons on Mademoiselle Zélie

“Some years since, Mademoiselle Zélie, a singer of the Théâtre Lyrique at Paris, made a professional tour round the world, and gave a concert in the Society Islands. In exchange for an air from Norma and a few other songs, she was to receive a third part of the receipts. When counted, her share was found to consist of three pigs, twenty-three turkeys, forty-four chickens, five thousand cocoa-nuts, besides considerable quantities of bananas, lemons, and oranges ... At the Halle in Paris, as the prima donna remarks in her lively letter, printed by M. Wolowski, this amount of live stock and vegetables might have brought four thousand francs, which would have been good remuneration for five songs. In the Society Islands, however, pieces of money were very scarce; and as Mademoiselle could not consume any considerable portion of the receipts herself, it became necessary in the mean time to feed the pigs and poultry with the fruit.”

Jevons on Mr. Wallace

“When Mr. Wallace was travelling in the Malay Archipelago, he seems to have suffered rather from the scarcity than the superabundance of provisions. In his most interesting account of his travels, he tells us that in some of the islands, where there was no proper currency, he could not procure supplies for dinner without a special bargain and much chaffering upon each occasion. If the vendor of fish or other coveted eatables did not meet with the sort of exchange desired, he would pass on, and Mr. Wallace and his party had to go without their dinner. It therefore became very desirable to keep on hand a supply of articles, such as knives, pieces of cloth, arrack, or sago cakes, to multiply the chance that one or other article would suit the itinerant merchant.”

Examples of Mediums of Exchange: The Island of Yap

- The webpage links to a short paper by a famous economist, Milton Friedman, about a Pacific island in in Micronesia called Yap.
- In 1903, an American anthropologist by the name of William Henry Furness III visited the island. He found the islanders used a currency that was “large, solid, thick, stone wheels, ranging in diameter from a foot to twelve feet, having in the centre a hole varying in size with the diameter of the stone, wherein a pole may be inserted sufficiently large and strong to bear the weight and facilitate transportation.”
- An interesting aspect of the stones was that they were “made from limestone found on an island some 400 miles distant. They were originally quarried and shaped on that island and brought to Yap by venturesome native navigators, in canoes and on raft.”
- Also interesting was that it was not necessary for owners to physically possess the stones. After concluding bargains that involved too many stones to be conveniently moved, its new owners were “quite content to accept the bare acknowledgment of ownership and without so much as a mark to indicate the exchange, the coin remains undisturbed on the former owner’s premises.”

The Island of Yap's Currency



A Rich Family on Yap

“My faithful old friend, Fatmna, assured me that there was in the village near-by a family whose wealth was unquestioned, – acknowledged by every one – and yet no one, not even the family itself, had ever laid eye or hand on this wealth; it consisted of an enormous stone whereof the size is known only by tradition; for the past two or three generations it had been, and at that very time it was lying at the bottom of the sea! Many years ago an ancestor of this family, on an expedition after secured this remarkably large and exceedingly valuable stone, which was placed on a raft to be towed homeward. A violent storm arose, and the party, to save their lives, were obliged to cut the raft adrift, and the stone sank out of sight. When they reached home, they all testified that the was of magnificent proportions and of extraordinary quality, and that it was lost through no fault of the owner. Thereupon it was universally conceded in their simple faith that the mere accident of its loss overboard was too trifling to mention, and that a few hundred feet of water off shore ought not to affect its marketable value, since it was all chipped out in proper form. The purchasing power of that stone remains, therefore, as valid as if it were leaning visibly against the side of the owner’s house.”

Yap and the Germans

“When the German Government assumed the ownership of The Caroline Islands, the highways were in bad condition, and the chiefs of the several districts were told that they must have them repaired and put in good order. The roughly dressed blocks of coral were, however, quite good enough for the bare feet of the natives; and many were the repetitions of the command, which still remained unheeded. At last it was decided to impose a fine for disobedience on the chiefs of the districts. In what shape was the fine to be levied? At last, by a happy thought, the fine was exacted by sending a man to every disobedient district, where he simply marked a certain number of the most valuable stones with a cross in black paint to show that the stones were claimed by the government. This instantly worked like a charm; the people, thus dolefully impoverished, turned to and repaired the highways to such good effect from one end of the island to the other, that they are now like park drives. Then the government dispatched its agents and erased the crosses. Presto! The fine was paid, the happy people of Yap resumed possession of their capital stock, and rolled in wealth.”

Cigarettes as a Currency in Prisoner of War Camps

- R.A. Radford was a British prisoner of war in a German camp during World War 2. His excellent article “The Economic Organisation of a P.O.W. Camp” describes the use of cigarettes as a currency in these camps.
- Radford describes how all prisoners would receive equal supplies of all rations including cigarettes. “Everyone receives a roughly equal share of essentials; it is by trade that individual preferences are given expression and comfort increased. All at some time, and most people regularly, make exchanges of one sort or another.”
- “Cigarettes rose from the status of a normal commodity to that of currency ... Although cigarettes as currency exhibited certain peculiarities, they performed all the functions of a metallic currency as a unit of account, as a measure of value and as a store of value, and shared most of its characteristics. They were homogeneous, reasonably durable, and of convenient size for the smallest or, in packets, for the largest transactions.”
- “While the Red Cross issue of 50 or 25 cigarettes per man per week came in regularly ... the cigarette currency suited its purpose admirably. But when the issue was interrupted, stocks soon ran out, prices fell, trading declined in volume and became increasingly a matter of barter.”

Precious Metals as Mediums of Exchange

- While large stones and cigarettes make entertaining examples of items that can be used as a medium of exchange, coins made of precious metals such as gold and silver have been the dominant format for money for most of its history.
- Precious metals were adopted as mediums of exchange because they contained many of the features that made such mediums work well.
 - 1 Coins made of precious metals were portable and easy to use.
 - 2 The precious metal content of coins could be standardised and checked.
 - 3 The metals generally had their own separate value for use as jewellery or ornaments, so the coins could still have a value even if they ceased to be accepted purely as a medium of exchange.
 - 4 The fact that metals were difficult to extract meant that the supply of such metals was usually stable. As we saw from Radford's POW example, large fluctuations in the supply of a medium of exchange will limit its usefulness.
- Despite these advantages, many different decisions had to be taken before precious metals could be used as a workable currency system.

Private Social Conventions or Government Money?

- We have described some cases in which because of the inefficiency of barter, mediums of exchange sometimes emerged as an evolutionary process in which people decided that the use of some agreed “token” to facilitate transactions would be an improvement.
- However, a number of questions have to be resolved before a monetary system can be put in place.
 - ① Who decides which tokens will be used as money?
 - ② Who controls the supply of money?
 - ③ Who prevents counterfeit of money?
- In practice, most of the monetary systems that have existed have been controlled by governments as opposed to emerging spontaneously from private markets.
- Charles Goodhart’s 1998 paper “Two Concepts of Money” provides evidence that “the relationship of the state, the governing body, to currency in all its roles has almost always been close and direct.” He explains the key roles governments have played in introducing money, in enforcing its use as legal tender and in generating demand for it via requiring payment of taxes in money.

Roles for Government in Money: Verification and Security

- Goodhart emphasises the complications in using precious metals as a currency. In particular, verifying that a coin does indeed have the quantity of precious metal that it is supposed to have can be difficult.
- He argues that “the identification problem was largely resolved by the technical innovation of a mint process, whereby the identification process could be drastically reduced by means a stamping a quality guarantee on a coin.”
- Goodhart notes that because governments are responsible for the legal system, they have generally been best placed to operate the minting process and to enforce the requirement the coins produced by the mint be accepted as legal tender.
- He points out that mints operated by the private sector would be under constant threat from criminals seeking to steal its contents. Since governments control law and order and the provision of security, this is another reason why they are the obvious entity to control the production of money.

Roles for Government in Money: Seigniorage Revenues

- As you might expect, the business of creating money has always been a profitable one.
- For example, obtaining a bunch of tokens with relatively low (possibly zero) intrinsic value and then being able to use them to purchase goods and services is a very nice trick to pull off if you can manage it.
- Governments through the ages have always struggled with how best to finance their operations and the revenue from coinage (known as *seigniorage*) was an attractive form of financing. Governments that wanted to keep this revenue for themselves could ban private money and write laws that make their own money the legal tender of the land. These laws usually require the currency to be accepted as a way of settling debts.
- A common pattern in pre-modern times was that governments would finance the expenditures associated with wars by producing large amounts of new coins, thus significantly increasing the supply of money.
- As we will discuss later, increases in the supply of money tend to produce inflation. For this reason, wars were generally associated with high inflation in pre-modern Europe.

Roles for Government in Money: Taxation

- The introduction of currency also made it much more convenient for governments to collect taxation.
- Kings traditionally required resources to fund their armies, justice systems, palaces and so on.
- Prior to the existence of currency, kings could request, for example, 10 percent of everyone's output and then use barter to exchange stuff they didn't need for stuff they did need.
- But this kind of system creates lots of complications. At what point in the year does the king collect his share and where does he store it all? How would the king collect ten percent of the output of a barber or a playwright?
- The introduction of currency thus made it much easier to finance government operations.
- Requiring that taxation be paid in the legal tender created an important source of demand for the currency and also restricted its supply: A government running a balanced budget would receive as much currency as it created so it was not increasing the total supply of currency.

Part II

A Very Brief History of Money

Medieval Currency Systems

- In medieval Europe, coins were produced by mints. By the late 13th century, all of the mints in Europe were under control of their sovereign government. (The mints themselves were often run by private businesses but they leased this right from the state which thus obtained almost all the profits from seigniorage.)
- These currency systems took a hybrid form. Coins often contained a substantial precious metal element to them but the market value of the metal component was generally less than the legal tender face value of the coins.
- Private individuals would bring silver or gold to the mint. In exchange, they would receive back a smaller quantity of silver and gold in the form of imprinted coins designed to a standardised specification.
- The stamped coins would have a value greater than the raw amount of silver and gold provided but the king also profited from this exchange because he retained a fraction of the silver and gold provided.
- This retained amount of silver and gold — the original seigniorage — could either be used to make new stamped coins for the kings to spend or to purchase items abroad exchanging the raw silver or gold for its market value.

The Great Debasement of Henry VIII

- A government that maintained a strict formula for the metal content of its coins would ultimately be restricted in how much currency it could create by the amount of silver or gold people bring to the mint. In practice, though, kings didn't always allow such arbitrary restrictions to limit their ability to create money.
- Henry VIII became king of England in 1509 and for the first 33 years of his reign, there was relatively little change to his coins.
- In the 1540s, however, Henry ran into financial difficulties due to costly wars. Between 1542 and 1551, Henry dramatically increased the face value of coins that could be produced from a set amount of gold or silver. One pound of silver went from generating coins worth £2.43 to generating coins worth £14.40.
- This allowed Henry to greatly raise the quantity of legal tender money in supply and this caused significant price inflation.
- Historical commentary on the “Great Debasement” tends to focus on the reduced silver content of coins as a problem in itself. But this was not the source of the inflation problem. As we will see later, inflation was due to the increase in the stock of legal tender money.

Bank Notes: Some History from the UK

- The first banknotes were not considered legal tender in themselves. Instead, they were a promise to pay the bearer of the note in coins.
- A person depositing ten pounds in coins with a bank could be issued with a ten-pound note which could be exchanged for goods and services with other people, who could ultimately bring the note to the bank and request coins.
- In the UK, the most popular notes were those issued by the Bank of England, a privately-owned bank that was set up in 1694 to raise money for William of Orange's war against France and became seen as "the government's bank".
- Until the late 1700s, the Bank's notes were in large denominations and most people never used them. A shortage of gold due to the Napoleonic wars meant the Bank could no longer exchange large notes for coins and instead it issued people with lower-denominated notes. This "restriction period" lasted from 1797 to 1821.
- Allowing private banks to issue notes caused great potential for fraud. So in the 1840s, the Bank of England became the monopoly supplier of banknotes. It ceased to act as a private bank, no longer taking deposits. Though not nationalised until 1946, the Bank's adopted a public ethos and focused on managing the supply of currency and maintaining financial stability.

The Gold Standard

- With people scandalised by the “restriction period”, the 1844 Bank Charter Act prevented the Bank of England from issuing new notes that were not matched by an increase in its gold reserve.
- This direct link with gold was copied by other countries and the period prior to the First World War saw an international monetary system known as the Gold Standard.
- For example, the US Gold Standard Act of 1900 declared “the dollar consisting of twenty-five and eight-tenths grains (1.67 g) of gold nine-tenths fine, as established by section thirty-five hundred and eleven of the Revised Statutes of the United States, shall be the standard unit of value, and all forms of money issued or coined by the United States shall be maintained at a parity of value with this standard...”
- Because the government had to be able to swap a dollar for 1.67g of gold, the government’s supply of gold determined the supply of money.
- The Gold Standard era saw large swings in the supply of money depending on the rate of discoveries of gold. Prices rose when there were significant gold discoveries while stable or falling prices were seen when the international supply of gold was stable.

The End of the Gold Standard

- The First World War saw all the major countries come off the Gold Standard. Attempts to restore it after the war were not very successful.
- As the world economy fell into depression, governments began to view the standard as too restrictive. The supply of money could only be increased in one country through running a trade surplus with the rest of the world, which allowed it to obtain more gold. But the global supply of money was a zero-sum game.
- With the world experiencing serious deflation, the only way to increase the supply of money and stabilise prices was to abandon the gold standard and gradually each of the world's largest economies took this step.
- Gold continued to play a role in the valuation of currencies after the second world war. The Bretton Woods system saw the dollar valued at $\frac{1}{35}$ th of an ounce and other countries setting fixed exchange rates against the dollar.
- This role for gold ended on August 15, 1971 when US President Richard Nixon ended the link between the dollar and gold.
- Today there is no formal link between the value of any of the world's currencies and a quantity of gold or any other metal.

Fiat versus Non-Fiat Currency Systems

- As you can see, history has recorded many different types of monetary systems. One distinction often made is between *fiat* money – in which governments impose the use of money by fiat (i.e. dictat) and *non-fiat* currency systems.
- In a non-fiat system, the currency is explicitly valued in terms of a particular *hard asset* such as gold (or cigarettes or large limestones).
- In truth, however, the fiat/non-fiat distinction isn't really so strong. Even supposedly gold-backed currency systems require someone to decide how much gold a unit of currency was worth. So even gold-backed currencies relied on somewhat arbitrary governmental decisions for their value.
- Today we live in a world of pure fiat currencies. These currencies only have value because of the demand for using them as a medium of exchange. Like all items, their value (the amount of goods and services they can acquire) depends on the balance between demand and supply.
- Be careful when Googling “fiat currency”. The internet is heavily populated by “gold bugs” who have a misplaced belief that a restoration of the Gold Standard would improve social welfare.

Could Alternative Currencies Replace Government Money?

- In recent years, there has been a huge increase in interest in alternative currencies, particularly Bitcoin, which has risen hugely in value.
- Proponents of these currencies argue that they contain many of the features that are required of a useful medium of exchange.
 - ▶ The total amount of Bitcoins can be publicly monitored and transactions are independently verified making it hard to counterfeit.
 - ▶ These “coins” are electronic so they can’t “degrade” over time.
 - ▶ Bitcoins are created via a “mining” process in which coins are awarded to people whose computers solve a specific kind of computer problem.
 - ▶ Importantly for Bitcoin advocates who worry about inflation eroding the value of the dollar or other fiat currencies, Bitcoin is designed to have a limited total supply.
- I’m sceptical about whether crypto-currencies will succeed as important mediums of exchange. They lack the crucial features that make government money dominant (legal tender requirements, use for paying taxes) and there are many different competing versions of these currencies so it’s hard to see why one particular crypto-currency should obtain widespread acceptance. See my blog posts on Bitcoin.

Recap: Key Points from Part 1

Things you need to understand from these notes:

- 1 Jevons on the “double coincidence of wants”
- 2 How Yap’s currency worked.
- 3 Radford’s PoW camp currency.
- 4 Why precious metals were used as money.
- 5 Goodhart’s two concepts of money.
- 6 Why money has generally been controlled by governments.
- 7 How medieval currency systems worked.
- 8 Henry VIII’s “Great Debasement”
- 9 How banknotes were introduced.
- 10 The Gold Standard.
- 11 Meaning of fiat and non-fiat currency.
- 12 Merits and de-merits of Bitcoin as a currency.