

# Understanding Money

Dr Diarmid Weir

[djgw@blueyonder.co.uk](mailto:djgw@blueyonder.co.uk)

22<sup>nd</sup> January 2010

## Introduction

Most of us have little idea of what money is and where it comes from. When we think of money, we think of bank-notes and coins. We know that most money is held in bank accounts, but even then we have an image (although most of us are probably aware that it isn't quite an accurate image) of these notes and coins being held for us by the bank or lent out by the bank to make money for them (and hopefully us, if the money is held in an interest-bearing account). In fact the reality is about as far away from this as it is possible to imagine.

Of the total amount of money (adding together bank-notes and coin held by the general public and the value of all bank accounts in the UK), the bank-notes and coin make up only around 3% ! The reality is that the vast majority of all money exists only as a record held in someone's name by some bank or other. How can this be? Where does this money come from? Where does it go? In this article I will attempt to answer these questions, and in doing so explain the benefits and the potential downside to our monetary system.

## How Money is Created

The reality is that money is not *something* that has value, like a gold bar or a tool or

even a qualified plumber! Money is really a *symbol of a relationship* between two individuals or social groups (such as firms) that have agreed on the supply of something valuable. One party is promising to provide the valuable thing and the other is accepting that promise. Quite commonly this valuable thing does not yet exist, but is going to be produced by a firm using work from people accepting a money wage. Since there are two parties to the relationship represented by the thing that we see as money (banknote, coin or computer entry) there are also two sides to money.

For those that have ever kept accounts, this should not be such a strange concept. The standard technique of financial accounting is known as *double-entry* book-keeping. As the term suggests, all transactions are entered twice, as a **credit** and again as a **debit**, indicating the source and the destination of any funds. The total debit and total credit entries must always match, and this provides an additional check on the accuracy of the accounts. Immediate debits are expenses; immediate credits, income. Debits due in the future are liabilities; credits paying out in the future, assets.

Using the double-entry system money is always simultaneously a *liability* for one party and an *asset* for another. It is a liability for someone who has promised something to whoever holds the money. For whoever does hold it, the money is an asset, because they are now the one to whom the promise applies. Since money represents a promise it is not really created, as is sometimes claimed, 'out of nothing'. Money is created out of a credible promise to provide something to someone else at some time in the future (sometimes a short time in the future, sometimes a longer time). This promise is then registered as a *transferable* record.

If you are alert you may have noticed that what we have described so far could just be transferable IOUs. But there is a vital difference between an IOU issued by an individual or firm and money. The acceptability and value of an IOU depends on the confidence the holder or recipient of an IOU has in its individual issuer and in the value of what has specifically been promised. This is not true of money. All money has the same acceptability and value. How does this come about? It happens because money can only be issued through organisations with a special status guaranteeing that the promises associated with money are actually kept. These organisations are called **banks**. An individual or firm makes a promise to produce something. (For the individual this may just be his own work.) If a bank believes that the promise is a credible one and that what is to be produced can be sold (in exchange for a wage in the case of work) and so allow the borrower to repay, then the bank creates a loan on the credit side of its own balance sheet. It's a credit because for the bank it's something due to the bank in the future. At the same time, it creates a money deposit on the debit side of the same balance sheet (it's a debit because for the bank it's something that the bank must transfer away or pay out on request). In exchange for the promise of the borrower to repay the bank the borrower has been relieved of the liability side of the issued money, which has now been taken on to the bank's own balance sheet (as shown in the box below).

## Bank Lending and the Creation of Money

Balance Sheet of Bank A			
Credit (Assets)		Debit (Liabilities)	
Loan to B	+£10	Deposit for B	-£10
Net worth of Bank A $+£10 - £10 = 0$			

**Table 1**

I'm assuming here that there is only one bank in existence, and that all transactions are carried out using bank deposits. I'm also ignoring banks' requirements to hold reserves and capital.

Bank A makes a loan, and at the same time creates a deposit in the name of the borrower. It puts both on its balance sheet, so addition to net worth of the bank is zero (**Table 1**). B promises to repay the loan in the future. In the mean-time labour or goods can be purchased from C by B using the deposit. This makes little difference to the bank who simply transfer the title of part or all of the deposit from B to C (see **Table 2**).

Balance Sheet of Bank A			
Credit (Assets)		Debit (Liabilities)	
Loan to B	+£10	Deposit for B	-£5
		Deposit for C	-£5
Net worth of Bank A $+£10 - £5 - £5 = 0$			

**Table 2**

For B to repay the loan requires him/her to exchange something for money. B starts off with nothing to exchange, so must create it. No new net value has been created for the bank, but a production process has been initiated.

The bank deposits held by B and C can be used to carry out further exchanges with D, E and so on. Each time, the asset and liability position of Bank A remains unchanged as the bank simply transfers title of the deposits.

If C or any other recipient of part of A's deposit liability wishes to withdraw it in the form of *cash* things become more complex. Bank A must acquire cash for C from the central bank (the Bank of England in the UK). If we think of cash as simply a *physical* rather than an electronic representation of a deposit (with a corresponding loan to the government) held this time on the balance sheet of the Bank of England, then we won't go far wrong. See the main text for a more detailed account of how the Bank of England and commercial banks such as Bank A interact.

Since the loan and deposit quantities must be equal, for the bank the credit and debit cancel out leaving its net asset and liability position *apparently* unchanged. When the loan is repaid, the bank's credit entry is erased and the equal debit entry from the borrower's deposit account is also erased. In this sense, it can be said that when a loan is repaid 'money is destroyed'.)

Why does the bank get out of doing what we have described? It does it because it expects to make a profit on the difference between the loan interest rate charged to the borrower and the deposit interest rate (if any) paid to deposit-owners.

Banks get their special loan-issuing and deposit-creating status in several ways.

Firstly, they deal with lots of borrowers and depositors, so that they develop expertise in assessing the likelihood of borrowers to repay their loans and can accept the risk of a certain number of un-repaid loans. Secondly, again because they deal with a large number of borrowers and depositors, and because the money they issue individually can be transferred to other bank deposits (I explain below how this is possible) bank deposits can be exchanged for many different types of goods and services, not just those that were promised specifically to create those deposits. Thirdly, and perhaps most importantly, banks in a modern economy have extensive support from the state. Repayment of bank loans is enforceable through the legal system. Moreover, the state **central bank** issues and guarantees its *own* money using essentially the same mechanism already described but with the government as the borrower. Holders of bank deposits can convert these into **state money** in the physical form of bank-notes and coin. State money (often referred to as *high-powered money*) also forms a common currency that allows the seamless exchange between banks of the deposits

they have individually issued. (To ensure that demands for cash and transfers to other banks can always be met, banks will at all times hold some state money **reserves**.) Ultimately, even if banks run short of cash or fail because they make too many loans that go bad, the government (up to a certain amount) guarantees bank deposits, making them a safe form of individual wealth.

### **What Are the Benefits of Money?**

Money has been an incredibly powerful agent of economic and technological development over the last few hundred years. It has achieved this in two ways. Firstly, it makes the exchange of goods and services much, much easier. Without money, we would be limited to just swapping things we already have with each other (what is known as **barter**), or relying on individually-issued IOUs (the drawbacks of which I described above). Barter needs two people or firms to match up in a special way. One of the two must want something the other has; while at the same time the second must want something the first has. This matching was called a **double co-incidence of wants** by the British Victorian economist William Jevons. In a modern economy, with the huge variety of goods available and the different tastes that we all have, the chances of two people meeting each with the right goods at the right time is going to be an incredibly rare occurrence. A double co-incidence of wants is almost never going to happen. The existence of money, as a form of place-holder for one side of a two-way exchange, means that one person or firm can exchange the good they *have* for money, and then travel or wait until the good they *want* is available. Moreover, the sort of money we have today uses little resources to produce, is easily portable (or often doesn't need to be transported at all) and doesn't decay or expire.

Note that the advantages of money I have just described relate to money that is *already in existence*. This is in contrast to the other major benefit of a money system, that relates to the advantages of being able to *create* money. I described how banks create money deposits as part of the representation of a credible promise of an individual or a firm to produce something in the future. I described how the banks can benefit from this if the loan and deposit interest rates are different, and I have just described the value of accepting and holding money for exchange. What, though, is the advantage for the original promise issuers? The advantage they gain is that it allows them to gain control of resources (including the work of others) so as to create something that they believe will have more value for them in the future (either directly, such as a house paid for with a mortgage; or indirectly as a monetary profit for a firm) than what they are now promising to provide to others. In this way money can assist human ingenuity in the making of more useful things out of less useful things. This might be, in the most simple case, just a matter of transporting some good from one group of people to another group that value it more; or in the more complex case, a cloth factory where workers spin cotton on machines. What these two different processes have in common is firstly, that they are creating new value. The pleasure the recipients of the transferred goods get from these goods did not previously exist. The cloth made in the factory is new. Secondly these processes take time. A ship takes time to transfer the existing goods; the factory takes time to make the cloth. These two facts together create a problem. Before the new value is created, there is nothing to exchange for it. The shipowner has nothing to exchange with the original owners of the goods he transports; the factory owner has nothing to exchange with his workers whose labour is necessary for the production of the cloth. But by accepting promises to produce something valuable in the future and representing them with bank deposits, a bank can convert them into *real* value that can boot-strap the *promised* value into

existence. The process is then self-accelerating, because the more such promises are accepted the more money is created and the more new value becomes available to purchase with it.

### **What Are the Drawbacks of Money?**

The problems associated with money and a monetary economy are the flip side of the advantages. The best understood problem with money relates to its flexibility in exchanges over time. This problem is recognised largely thanks to John Maynard Keynes's *General Theory of Employment, Interest and Money* of 1936. He pointed out that since the world is essentially unpredictable, and since money is durable and easy to store, there is a common tendency to accept it and then hold on to it even after the output promised in its issue has become available. The failure of this output to be sold means that the individual or firm that incurred a bank debt in issuing the money-creating promise becomes unable to repay its loan. This may result in bankruptcy of the individual or firm, with loss of jobs and further income. If a bank is responsible for a number of such failed loans, then that bank may find that the claims on its deposits exceed its capacity to pay out, and the bank too risks failure. The anxiety and uncertainty associated with such events tends to be self-reinforcing, with the result that only some form of external intervention (usually by the government) can prevent further widespread business failures and unemployment.

Problems are also caused by money's anonymity and generality of value. Little thought is given to the significance of what it actually represents, both as it is created and as it is used in exchanges. We give no thought to the *quality* of the real promises that are issued in its creation. We are relying on the borrower's and the bank's self-



interest to determine which promises are issued and which are not. Huge benefits or costs to other parts of society, to the environment or even to our future selves (so-called **externalities**) may play no part in their decisions. We can see the damage this has caused in the difficulties in tackling climate change, unhealthy life-styles and social problems.

Moreover, we fail to understand how money *quantities* relate to the real resources, goods and services for which they can be so easily exchanged. In fact, in the latter case, most of the time we make no distinction between money (a **claim** on real goods and services now and in the future) and those real goods and services (whether existing or to be produced) themselves. Both are lumped together as **wealth**. While it may be correct for the individual to include money as part of his total wealth, it is most emphatically *not* correct for society as a whole. The significance of money for society as a whole is purely in terms of **distribution**. If you have more money than me, you don't have more wealth than I do, but you do have a bigger claim on existing and future wealth than I do. This distinction is important because the pool of existing and future wealth is much more difficult to expand than is the quantity of money. Consider the following scenario. Your neighbour earns £40,000 per year. You earn £20,000. The quantity of money expands and you end up earning £30,000 and your neighbour £65,000. On the face of it, you and your neighbour are both better off. In fact, if the pool of real wealth is unchanged, your neighbour's claim on that pool started out as double yours and is now more than double. Your share of the pool has shrunk accordingly. Again, unless we examine the process that led to the expansion of the money supply, and unless we know whether the promises associated with it created real value for society as a whole, we don't know what these changing monetary quantities mean. Without this knowledge, the poor lose the power to

influence the rich, resulting in widening inequality of real wealth both between and within countries.

Keynes's insights into the time flexibility of money and how to tackle its consequences have (so far) helped to avoid a repeat of the Great Depression of the 1930s. Unfortunately we have up to now failed to address the other problems associated with money, so that environmental and social damage along with wealth inequality continue to increase unchecked.

© Diarmid J G Weir 2010