What is money?
Where does it come from?

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Critical Thinking, UPC
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Thomas Jefferson
3rd President of USA
(1743-1826)

“If the American people ever allow private banks to control the issue of their currency, first by inflation, then by deflation, the banks...will deprive the people of all property until their children wake-up homeless on the continent their fathers conquered.... The issuing power should be taken from the banks and restored to the people, to whom it properly belongs.”
Mayer Amschel Rothschild
Founder of the House of Rothschild
(1744-1812)

“Let me issue and control a nation’s money and I care not who writes the laws.”
Sir Josiah Stamp
President, Bank of England
(1880-1941)

“If you want to continue to be slaves of bankers and pay the cost of your own enslavement, then let the bankers continue to create money and control credit ... However, as long as governments will legalize such things, a man is foolish not to be a banker.”
Henry Ford
Founder Ford Motor Company
(1863-1947)

“\textit{It is well enough that people of the nation do not understand our banking and money system, for if they did, I believe there would be a revolution before tomorrow morning.}”
John Kenneth Galbraith  
economist  
(1908-2006)

“The study of money, above all other fields in economics, is one in which complexity is used to disguise truth or to evade truth, not to reveal it. The process by which banks create money is so simple the mind is repelled.”
Focus on money and banking

- Economic theory needed! Very poor performance of mainstream modelling:
  - No money
  - No banks
  - No debt
- Or, if present, banks seen just ad intermediaries:

\[
\text{Saving (Lenders, Depositors)} \rightarrow \text{Banks (‘Financial Intermediaries’)} = \text{‘indirect financing’} \rightarrow \text{Investment (Borrowers)}
\]

Purchase of newly issued Debt/Equity
= ‘direct financing’/disintermediation
Assets and Liabilities

Equity is calculated by subtracting liabilities from assets. A positive net equity indicates that a bank’s assets are worth more than its liabilities. On the other hand a negative equity shows that its liabilities are worth more than its assets - in other words, that the bank is insolvent.

\[
\text{ASSETS} - \text{LIABILITIES} = \text{EQUITY}
\]

\[
\text{ASSETS} > \text{LIABILITIES} \implies \text{BANK IS SOLVENT}
\]

\[
\text{ASSETS} < \text{LIABILITIES} \implies \text{BANK IS INSOLVENT}
\]
### Commercial Bank Balance Sheet

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>(What the bank owns +</td>
<td>(What the bank owes)</td>
</tr>
<tr>
<td>What is owed to the bank)</td>
<td></td>
</tr>
<tr>
<td>Cash, central bank reserves, bonds etc. (liquid assets)</td>
<td>Customer deposits</td>
</tr>
<tr>
<td>Loans the bank has made to its customers (illiquid assets)</td>
<td>Shareholder Equity</td>
</tr>
</tbody>
</table>

### Staying in business

For a bank, staying in business and making a profit essentially comes down to three rules: 1) stay solvent, 2) stay liquid, and 3) earn a positive margin. We’ll look at each of these in detail now.
A Bank makes a loan

Robert signs a loan contract promising to repay the £10,000, plus the interest, over the next three years, according to an agreed monthly schedule. This loan contract legally binds Robert to make repayments to the bank. As such, it has a value of £10,000 (plus the interest) to the bank. Upon signing, Barclays records it as an asset on its balance sheet (Figure 9):

Figure 9: Loan by Barclays Bank.

<table>
<thead>
<tr>
<th>BARCLAYS BANK BALANCE SHEET (Step 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assets</strong> (What the borrowers owe to bank + bank’s money)</td>
</tr>
<tr>
<td>Loan to Robert: £10,000</td>
</tr>
<tr>
<td><strong>Liabilities</strong> (What the bank owes to the depositors + bank’s net worth)</td>
</tr>
</tbody>
</table>
A Bank makes a loan

Of course, double entry bookkeeping (Box 5) requires an equal and opposite accounting entry, and besides, Robert now wishes to get access to the money. So Barclays creates a new bank account for him, and gives it a balance of £10,000. This account is a liability of the bank to Robert, so it is recorded on the liabilities side of Barclays' balance sheet (Figure 10):

**Figure 10: Bank simultaneously creates a loan (asset) and a deposit (liability).**

<table>
<thead>
<tr>
<th>BARCLAYS BANK BALANCE SHEET (Step 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assets</strong></td>
</tr>
<tr>
<td>(What the borrowers owe to bank + bank's money)</td>
</tr>
<tr>
<td>Loan to Robert: £10,000</td>
</tr>
</tbody>
</table>

Note that the bank has expanded its balance sheet and all it has done is added some numbers to a record in a computer database, recording that it has a liability to Robert and also an asset in the form of Robert's agreement to repay his loan. This is the process of extending credit or, more accurately, of creating credit. This credit authorises Robert to make payments of up to £10,000 from this account, using his debit card, cheque book, or bank transfer.
Banks Settlements

Bank of England

Nationwide Reserve account

HSBC Reserve account

Barclays Reserve account

Nationwide Customer accounts

HSBC Customer accounts

Barclays Customer accounts

Alex

Sarah

Juliet

Richard

Tony

Lydia

Ben

Stuart

James
Banks Settlements

Figure 13: Simplified diagram of intra-day clearing and overnight trading of central bank reserves between six commercial banks.

1. Intra-day clearing between banks and cash withdrawals

2. Overnight trading of central bank reserves
When a Bank goes insolvent

![Commercial Bank Balance Sheet](image)

**fig. 2.5 - An insolvent bank**

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<td>Customer deposits</td>
</tr>
<tr>
<td>Good loans</td>
<td>Shareholder Equity</td>
</tr>
<tr>
<td>Loans that will not be repaid</td>
<td></td>
</tr>
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Therefore, banks create money

- Every loan creates a deposit
- “By far the largest role in creating broad money is played by the banking sector. When banks make loans they create additional deposits for those that have borrowed.” (Bank of England, 2007)
CREATING MONEY = CREATING DEBT

Our current economic crisis was caused by banks creating too much money, and too much debt. Now over 97% of the money in our economy is based on debt.
“The essence of the contemporary monetary system is creation of money, out of nothing, by private banks’ often foolish lending.”

Martin Wolf, Financial Times, 9th November 2010

The financial crisis of 2007/08 occurred because we failed to constrain the private financial system’s creation of private credit and money.

Lord Adair Turner, former chairman of the Financial Services Authority, Speech to the South African Reserve Bank, 2nd November 2012
And most importantly, they allocate money in the economy.

Figure 19: Net lending by UK banks by sector, 1997-2010, sterling millions
(Source: Bank of England Statistics- Interactive database)
BANKING VS DEMOCRACY
how power shifted from parliament to the banking sector
Let's take a Quiz

Question 1

- Just like a household, the government has to finance its spending out of its income or through borrowing.

TRUE OR FALSE
Let's take a Quiz

Question 2

- The role of taxes is to provide finance for government spending.

TRUE OR FALSE
Let’s take a Quiz

**Question 3**

- The National Government borrows money from the private sector to finance the budget deficit.

TRUE OR FALSE
Let’s take a Quiz

Question 4

- By running budget surpluses the government takes pressure off interest rates because more funds are then available for private sector investment projects.

TRUE OR FALSE
Let’s take a Quiz

Question 5

- Persistent budget deficits will burden future generations with inflation and higher taxes.

TRUE OR FALSE
Let’s take a Quiz

Question 6

- Running budget surpluses now will help build up the funds necessary to cope with the ageing population in the future.

TRUE OR FALSE
All Are False!

St Louis Fed: "As the sole manufacturer of dollars, whose debt is denominated in dollars, the U.S. government can never become insolvent, i.e., unable to pay its bills. In this sense, the government is not dependent on credit markets to remain operational. Moreover, there will always be a market for U.S. government debt at home because the U.S. government has the only means of creating risk-free dollar-denominated assets."

Government can NEVER run out of Dollars; It can NEVER be forced to default; It can NEVER be forced to miss a payment; It is NEVER subject to whims of “bond vigilantes”.
"I think there is an element of truth in the superstition that the budget must be balanced at all times. Once it is debunked [that] takes away one of the bulwarks that every society must have against expenditure out of control.

There must be discipline in the allocation of resources or you will have anarchistic chaos and inefficiency. And one of the functions of old fashioned religion was to scare people by sometimes what might be regarded as myths into behaving in a way that the long-run civilized life requires.

We have taken away a belief in the intrinsic necessity of balancing the budget if not in every year, [then] in every short period of time.
Self-imposed constraints

- Budgeting, debt limits
- Operational constraints:
  - Treas writes checks on accts at CB
  - CB prohibited from buying Treas Debt new issues
  - Use of Special Depositories
  - Use of Tax and Loan accts
Principles of Functional Finance (Abba Lerner)

i. Govt *should* spend more if there is unemployment

ii. Govt *should* supply more money (reserves) if interest rates are too high

NB: Budgetary outcome, Debt outcome should never be primary consideration
Sovereign Countries

• Currency-issuing govt spends by crediting bank accts, taxes by debiting
• Can always “afford” to spend more
  – Issues: inflation, exchange rate effects, interest rate effects
• Sovereign currency gives more policy space
  – No default risk
  – Can control interest rates
  – Can use policy to achieve full employment
EURO: Non–Sovereign Currency

- Member states gave up own sovereign currencies
- Adopted a “foreign currency”, the Euro
- Much like a USA state: a user of the currency, not issuer
- Constrained in its spending: tax revenue, bond sales, willingness of ECB to lend
- Problem: no fiscal equivalent to Uncle Sam in Washington
What I did and did NOT say

• I did say: Sovereign govt faces no financial constraints; cannot become insolvent in its own nonconvertible currency
  – But it can only buy what is for sale
• I did NOT say that govt ought to buy everything for sale
  – Size of govt is a political decision with economic effects
• I did NOT say that deficits cannot be inflationary:
  – Deficits that are too big can cause inflation
• I did NOT say that deficits cannot affect exchange rates:
  – Sovereign govts let currency float; float means currency can go up and down
1. Banks should not be allowed to create money

History has shown that when banks have the power to create money, they create too much in the good times, causing financial crises, and then create too little money in the bad times, making recessions and unemployment even worse. They put most of the money that they create into house price bubbles and speculation on financial markets, and only put a small amount into businesses outside the financial sector. We simply don’t think that banks, with all their incentives and need to maximise their profits, can be trusted with something as powerful as the ability to create money. And it’s not enough to regulate them, because regulators have already failed to keep them under control, and there’s no reason why they should get it right this time around. We need to stop banks being able to create money.
2. Money should only be created through a democratic and transparent body working in the public interest.

We’d like to see the power to create money transferred to a democratic, accountable and transparent process, where everyone knows who has the power to create money, how much money they create, and how that money will be used. However this process is set up - whether it’s the Bank of England or a new committee that decides whether to create money, it must be accountable to Parliament and protected from abuse by vested interests. We also want to see safeguards that ensure that the right amount of money is created - not too much (causing bubbles and a financial crisis) and not too little (causing a recession).
3. Money should come into the real (non-financial) economy before it reaches financial markets and property bubbles

Any newly-created money should be used to fund public spending, reduce taxes, pay down the national debt or even just distributed to citizens. This means that the money will start its life in the real (non-financial) economy instead of getting trapped in financial and property markets, as happens at the moment.

This will help the economy grow, creating jobs in the process, whereas much of the money that banks create today simply makes life more expensive and unstable for people.
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Currently, banks create money when they make loans, which means that for every pound in your bank account, someone somewhere else will be a pound in debt. It means that almost all the money in the economy is effectively ‘on loan’ from the banking sector, and interest must be paid nearly every pound that exists. If we try to reduce our debts, money disappears from the economy, making it harder for others to repay their own debts. But if money was created by the state, in the public interest, and spent into the economy through government spending instead of being lent into the economy by banks, then that money would stimulate the real economy, create jobs, and make it possible for ordinary people to start reducing their own debts.
What could we do?: Money as electricity

A Study of Money Flows in the USA, Morris Copelan, 1952
What could we do?: Stock and Flow models

Money and Macroeconomic Dynamics

- Accounting System Dynamics Approach-

(New Version 1.0)

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April 11, 2013
What could we do?: Stock and Flow models

Figure 8.1: Macroeconomic System Overview
What could we do?: Stock and Flow models
What could we do?: Stock and Flow models
What could we do?: Stock and Flow models

Figure 4.8: A Goodwin Growth Cycle Model
What could we do?: Stock and Flow models

Figure 4.11: Business Cycle
What could we do?: Stock and Flow models

4.6. A MONETARY GOODWIN MODEL

elasticity of desired wage rate increases from $e = 0.2$ to $0.4, 1, 1.8$ and $2.4$.

Figure 4.13: Phase Diagram of Labor-Employment Ratio and Workers’ Share
What do we need?
What do we need?

A new discipline
What do we need?

A new discipline

Economical Engineering!