

Economics 100B: Macroeconomics

Money, Banking and the Macroeconomy – Part II

October 21 & 23, 2020

Reading:

- M. McLeay, A. Radia, and R. Thomas, “Money creation in the modern economy,” *Bank of England Quarterly Bulletin*, Q1, (2014).

Division of Responsibilities:

- ① The central bank is the lender of last resort to the banking system (e.g. bank runs and deposit insurance).
- ② The government is responsible for the solvency of the banking system (e.g. bailouts).
- ③ The central bank is the lender of last resort to the government.
- ④ The central bank and government need to work well together.

Banks are in the business of selling credit. Like any other firm, the amount of goods and services they can sell depends on the demand for their product. Money is created as a by-product of new loans granted by depository institutions.

– Basil J. Moore (1989).

Overview:

- In a modern economy, most money takes the form of *bank deposits*.
- Whenever a bank makes a loan, it simultaneously creates a matching deposit in the borrower's bank account, *thereby creating new money*.

Overview:

Although commercial banks create money through lending *there are limits*:

- ① Banks need to be profitable in a competitive banking system.
- ② Prudential regulation constrains bank activities in order to maintain the resilience of the financial system.
- ③ Users of money can annihilate it by paying off existing debts.

Overview:

Monetary policy is an ultimate limit on money creation:

- ① Central banks control the interest rate on
 - reserves.
 - short-term *reverse-repo lending* to commercial banks,
 - short-to-intermediate-term lending to commercial banks (*advances*).
- ② Central banks can also create new money via assets purchased from non-bank financial companies; a process known as *quantitative easing (QE)*.

Overview:

The money-creation process:

- ① Banks decide how much to lend. A function of
 - available profitable lending opportunities. (consumers & investors)
 - the interest rate. (central bank)
- ② Bank lending decisions determine how many bank deposits are created.
- ③ The amount of bank deposits influences the amount banks hold in reserves.

Lending creates deposits.

Two common forms of money are:

- *bank deposits*: IOUs from commercial banks to households & companies.
- *currency*: mostly IOUs from the central bank.

In a modern economy bank deposits:

- make up the vast majority of the money in circulation.
- *are mostly created by commercial banks themselves.*

Lending creates money (deposits).

*When a bank makes a loan it credits the borrower's bank account with a bank deposit of the size of the loan. **At that moment new money is created.***

- Bank deposits are a record of what the bank owes its customers; *a bank liability*.
- Note: reserves can only be lent between banks, not to customers (because they don't have central bank accounts).

Money Creation and Annihilation

Repayment of bank loans annihilates money (deposits).

Money creation and annihilation:

- A consumer spends money (i.e., exchanges bank deposits for goods) at a supermarket using a credit card.
- The consumer has increased the outstanding loans on their balance sheet; *new money is created*.
- The consumer pays the credit card bill in full at month end.
- The bank reduces the amount of deposits in the consumer's account by the amount of the credit-card bill, thus annihilating all of the newly created money.

Repayment of bank loans annihilates money (deposits).

- Banks making loans and consumers repaying them are the most significant ways in which bank deposits are created and annihilated in the modern economy.
- Deposit creation or annihilation will also occur any time the banking sector (including the central bank) buys or sells existing assets from or to consumers, or, more often, from companies or the government.

Repayment of bank loans annihilates money (deposits).

- Banks buying and selling government bonds is one particularly important way in which the purchase or sale of existing assets by banks creates and annihilates money.
- Money can also be annihilated through the issuance of long-term debt and equity instruments by banks.
- Deposits to overseas residents do not annihilate money *per se*, but overseas residents' deposits and foreign currency deposits are not always counted as part of a country's money supply.

Three main sets of constraints on money creation:

- 1 Operational constraints.
- 2 Customer constraints.
- 3 Central bank constraints.

(1) Operational constraints:

- Market forces constrain lending because *individual banks have to be able to lend profitably* in a competitive market.
- Lending is also constrained because banks have to take steps to mitigate the *risks associated with making additional loans*.
- Regulatory policy acts as a constraint on banks' activities in order to mitigate a build-up of *risks that could pose a threat to the stability of the financial system*.

(2) Customer constraints:

Households and companies who receive the newly created money might respond by undertaking transactions that immediately annihilate it, for example by repaying outstanding loans.

(3) Central bank constraints:

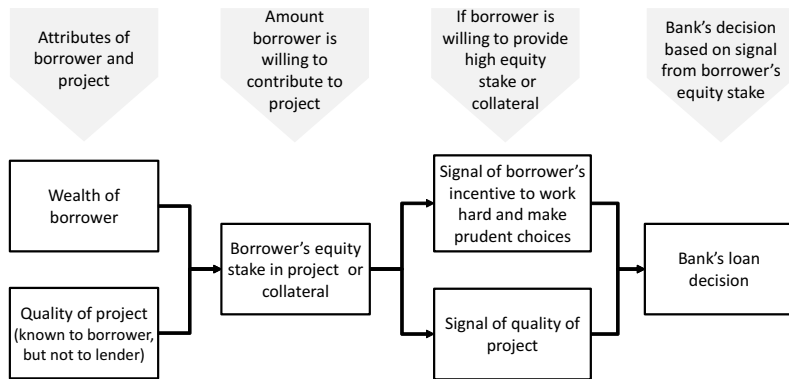
By influencing the level of interest rates in the economy, monetary policy affects how much households and companies want to borrow.

- *directly*, through influencing the loan rates charged by banks.
- *indirectly*, through the overall effect of monetary policy on economic activity in the economy.

Banking and Credit

Capital, Character, Capacity.

Source: Carlin & Soskice, Figure 5.7



Banking and Credit

A typical pre-crisis balance sheet

Source: Carlin & Soskice, Figure 5.9

Assets	% of balance sheet	Liabilities	% of balance sheet
1. Cash and reserve balances at the central bank	2	1. Deposits	50
2. Government bonds, which can be used as collateral for repo borrowing	10	2. Wholesale repo borrowing secured with collateral	30
3. Asset-backed securities, which can be used as collateral for repo borrowing	20	3. Unsecured borrowing	16
4. Wholesale reverse repo lending	11		
5. Loans (e.g. mortgages)	55		
6. Fixed assets (e.g. buildings, equipment)	2		
Total Assets	100	Total liabilities	96
		Net worth	
		Equity	4

Memorandum item: Leverage (Total Assets/Net worth)	100/4 = 25
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Banking and Credit

Barclays PLC in 2006 (GBP millions).

Source: Carlin & Soskice, Figure 5.9

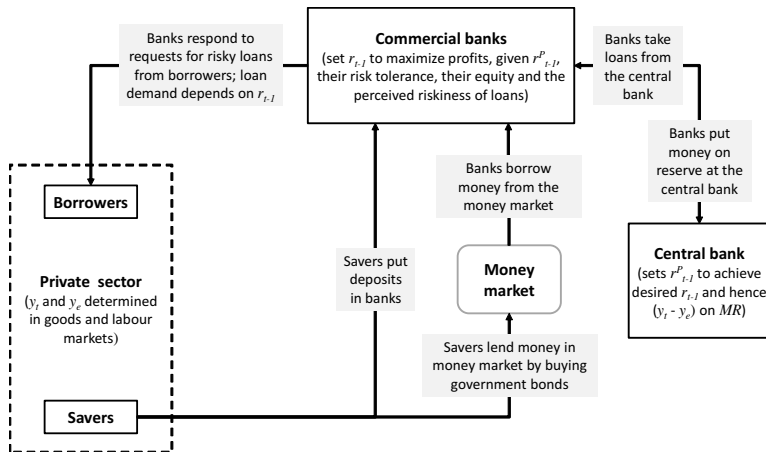
Assets		Liabilities	
1. Cash and reserve balances at the central bank	7,345	1. Deposits	336,316
2. Wholesale reverse repo lending	174,090	2. Wholesale repo borrowing secured with collateral	136,956
3. Loans (e.g. mortgages)	313,226	3. Unsecured borrowing	111,137
4. Fixed assets (e.g. buildings, equipment)	2,492	4. <i>Trading portfolio liabilities</i>	71,874
5. <i>Trading portfolio assets</i>	177,867	5. <i>Derivative financial instruments</i>	140,697
6. <i>Derivative financial instruments</i>	138,353	6. <i>Other liabilities</i>	172,417
7. <i>Other assets</i>	183,414		
Total Assets	996,787	Total liabilities	969,397
		Net worth	
		Equity	27,390

Memorandum item: Leverage (Total Assets/Net Worth)	$996,787/27,390 = 36.4$
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Banking and Credit

Flow of funds.

Source: Carlin & Soskice, Figure 5.12



From the Policy Rate to the Lending Rate

A transmission-channel breakdown.

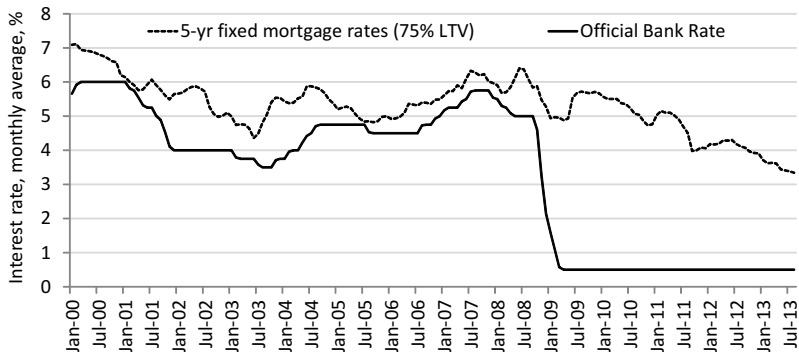
Source: Carlin & Soskice, Figure 5.3

The model		The UK in 2006 (annual average rates)	
The lending rate	r	Rate on 5 year fixed rate mortgages	5.25
Money market rate	Short- and medium-term interbank lending rates r^P	Sterling 6 month mean interbank lending rate	4.87
		Sterling 2 week mean interbank lending rate	4.71
	Short- and medium-term government bond yields r^P	5 year government bond yield	4.63
The policy rate	r^P	Official Bank Rate	4.64

From the Policy Rate to the Lending Rate

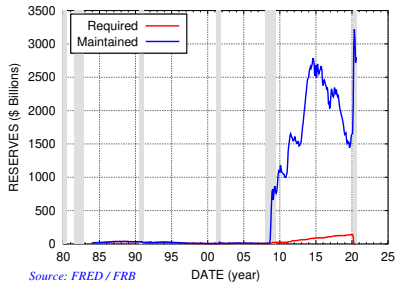
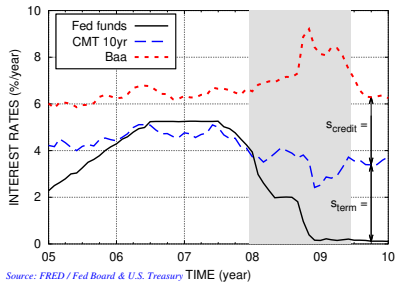
A transmission-channel breakdown.

Source: Carlin & Soskice, Figure 5.4



From the Policy Rate to the Lending Rate.

A transmission-channel breakdown.



Money Creation: Quantitative Easing (QE)

The conceptual basis of QE

- Commercial banks might create too little money to be consistent with the economy meeting the inflation target.
- Once short-term interest rates reach the effective lower bound, it is not possible for the central bank to provide further stimulus to the economy by lowering the rate.
- In QE the central bank buys assets (bonds) mainly from non-bank financial companies, such as pension funds or insurance companies.

The conceptual basis of QE

- The sellers of the assets will:
 - hold newly created deposits.
 - likely be holding more money than they want.
 - want to buy higher-yielding assets such as bonds and shares issued by companies.
- This will raise the value of those assets and lower the cost to companies of raising funds in these markets.
- *That, in turn, should lead to higher spending in the economy.*

Money Creation: Quantitative Easing (QE)

The conceptual basis of QE

- The sellers of the assets do not have a central-bank account.
- The central bank credits the seller's commercial-bank account.
- *This is not “free money” for commercial banks.* The commercial bank is simply an intermediary.
- *A key assumption is that the institutions selling assets see “cash drag” as being worse than “asset-price risk.”*