

1 Essence of central banking

1.1 Learning outcomes

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

1. Describe the main reason for the existence of central banks.
2. Elucidate the milieu of the central bank: the financial system.
3. Explain the context of monetary policy: financial stability.
4. Describe the components of the balance sheet of a central bank.
5. Explain the simplicity of money creation.
6. List the categories of central bank functions.

1.2 Introduction

To state that the central bank plays a significant role in the financial system and the real economy is a striking understatement. Because the public generally regards bank deposits (BD) as the *means of payments / medium of exchange* [notes and coins (N&C) are small in comparison and will soon disappear], BD is *money*. It follows that because BD is money, banks are able to create BD simply by making loans [marketable debt (MD) and non-marketable debt (NMD)]. This arrangement, while liberating (in terms of there not being a shortage) when compared with the days when money was made of precious metals (and therefore in short supply), is associated with a few problems:

- The supply of bank loans (which creates money, BD) is limited only by the demand for loans and the creditworthiness / project viability of the borrower (individuals, companies, government).
- Banks are in competition with one another for this business, and tend to be lax in terms of the latter, making them inherently unstable. They therefore require robust regulation and supervision.
- Because the supply of loans is (theoretically) unlimited, inflation and hyperinflation are risks which still exist.
- Because the supply of loans is (theoretically) unlimited (see Figure 1), price discovery in money does not exist. Therefore, intervention of an entity is required.

This entity is the central bank. Unsurprisingly, central banks were born in unstable times. The central bank is required in the main:

- To manage short-term interest rates, particularly the lending rates of banks, and therefore influence the demand for loans / money creation, called monetary policy.
- To regulate and supervise the unstable banking (and financial) system.

These are the core functions of the central bank. There are many allied functions of the central bank. We present this extremely interesting entity in the following sections:

- Essence of central banking.
- Banker and advisor to government.
- Management of the money and banking system.
- Formulation and implementation of monetary policy.

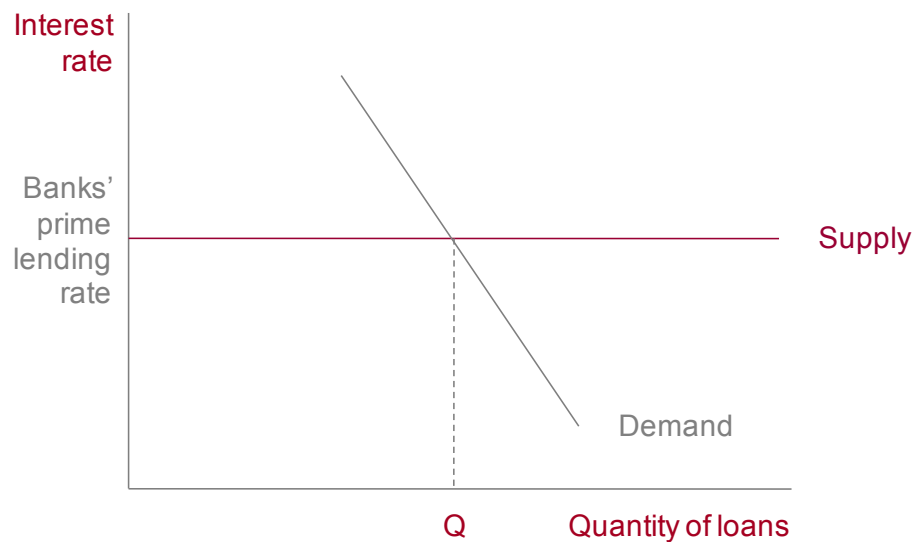


Figure 1: supply of & demand of bank loans

This section, on the essence of central banking, is arranged as follows:

- Milieu of the central bank: the financial system.
- Context of central banking: financial stability.
- Balance sheet of a central bank.
- Money creation
- Functions of central banks.

1.3 Milieu of the central bank: the financial system

It may be useful to introduce the subject of central banking by briefly describing the financial system, thus contextualising banking. The financial system may be depicted simply as in Figure 2. It is essentially concerned with borrowing and lending and has six parts or elements (not all of which are visible in Figure 2):

- First: *lenders* (surplus economic units) and *borrowers* (deficit economic units), i.e. the non-financial-intermediary economic units that undertake lending and borrowing. They may also be called the *ultimate* lenders and borrowers (to differentiate them from the financial intermediaries who do both). Lenders try and earn the maximum on their surplus money and borrowers try and pay the minimum for money borrowed.
- Second: *financial intermediaries*, which intermediate the lending and borrowing process; they interpose themselves between the ultimate lenders and borrowers and endeavour to maximise profits from the differential between what they pay for liabilities (borrowings) and earn on assets (overwhelmingly loans). In the case of the banks this is called the *bank margin*. Obviously, they endeavour to pay the least on deposits and earn the most on loans. (This is why you must be on your guard when they make you an offer for your money or when they want to lend to you.)
- Third: *financial instruments*, which are created to satisfy the financial requirements of the various participants. These instruments may be marketable (e.g. treasury bills) or non-marketable (e.g. a utilised bank overdraft facility).
- Fourth: the *creation of money* when demanded. As you know banks (collectively) have the unique ability to create their own deposits (= money) because we the public generally accept their deposits as a means of payment.
- Fifth: *financial markets*, i.e. the institutional arrangements and conventions that exist for the issue and trading (dealing) of the financial instruments.
- Sixth: *price discovery*, i.e. the price of shares and the price of debt (the *rate of interest*) are “discovered”, i.e. made and determined, in the financial markets. Prices have an allocation of funds function.

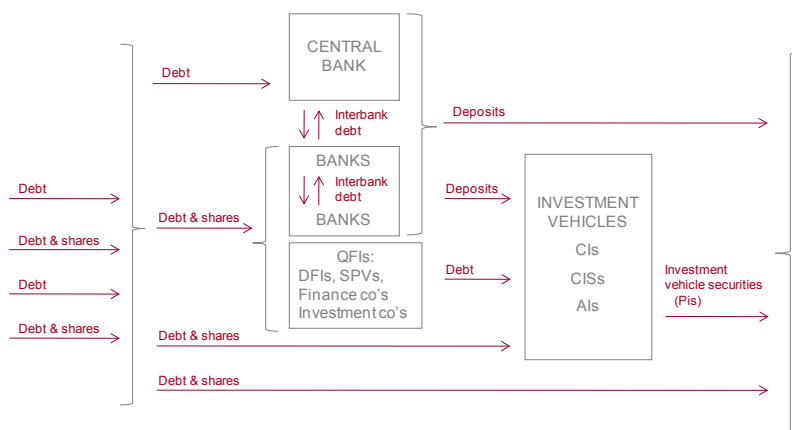


Figure 2: banks on the financial system

There are a number of allied participants in the financial system, i.e. participants other than the *principals* (those which have financial liabilities or assets or both). The principals are: *lenders*, *borrowers* and *financial intermediaries*. The allied participants play a major role in terms of *facilitating* the lending and borrowing process (the primary market) and the secondary markets. So do the fund managers, who are actively involved in sophisticated financial analysis research and therefore play a major role in asset allocation and price discovery, the regulators of the financial markets and institutions, and the rating agencies. Thus, the allied *non-principal* participants in the financial system are:

- Financial exchanges and broker-dealers.
- Fund managers.
- Regulators.
- Rating agencies.

Figure 3 is an attempt to depict most of the elements of the financial system and the allied participants.

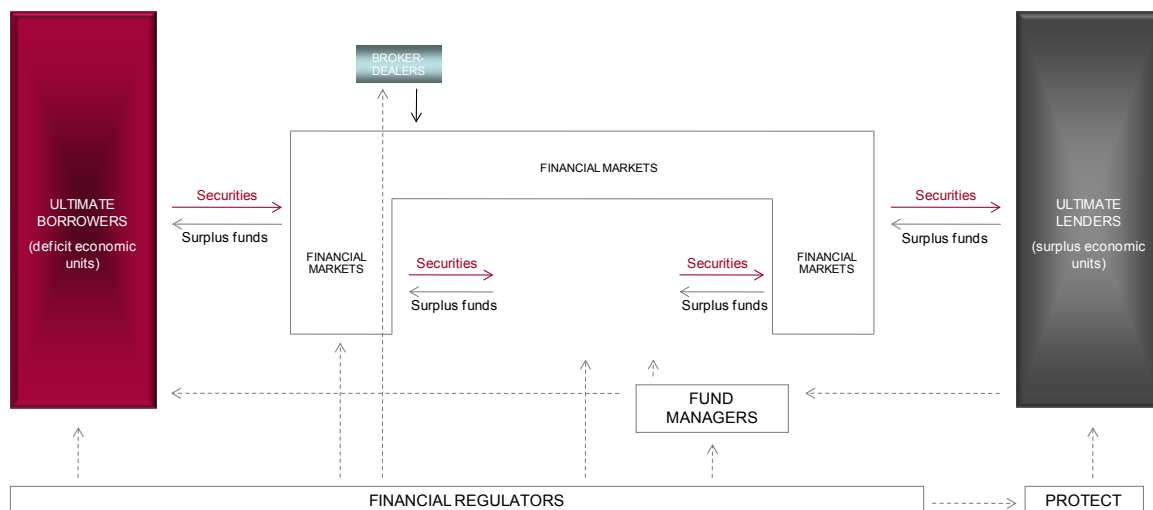


Figure 3: (most) elements of the financial system

In which elements is the central bank (from here on CB) involved? The answer is all, some directly and some indirectly. Figure 2 shows that the CB holds debt securities and issues deposits, and it is involved in the interbank market. What it cannot illustrate is the CB's activities in the financial markets as buyer and seller of certain securities (called open market operations – OMO), and its major role in price discovery and money creation. Neither does Figure 2 indicate its overall objectives. We will discuss all these critical issues; we begin with the overall objectives of the CB.

1.4 Context of central banking: financial stability

1.4.1 Introduction

We present this discussion in the following sections:

- Objective of financial stability.
- Why financial stability?
- How is financial stability achieved domestically?
- Worldwide focus.

1.4.2 Objective of financial stability

Financial stability has two legs:

- Price stability.
- Stable conditions in the financial system.

Price stability is low and stable (non-volatile) changes in the general price level, generally referred to as the inflation rate. History has shown that when inflation is low, it tends to be non-volatile. What is low inflation? The majority of the world tends to subscribe to 2–3% pa. Why 2–3% pa and not 0% pa? The jury is out on this one, but present economic lore holds that 0% pa is too close to deflation (falling prices, which has a major negative impact on spending and investment), and that 2–3% pa is tolerable and keeps deflation at bay.

An obvious question is why is 2–3% *tolerable*? The answer is that at this level inflation has no material impact on the decision making process of economic units.

By this is meant that the attention of business is devoted to production and not diverted to endeavours to hedge the loss of purchasing power. The impact of high inflation on GDP growth is well known; in the last few years of the first decade of this century, an African country recorded the highest hyperinflation ever: approximately 7 000 000 000 000 000 000; gross domestic expenditure (GDP) shrunk by close on 50% and unemployment rose to 90%. What is the lesson? The rate of inflation should ideally be so low that it would not be an important factor in economic decision-making.

Stable conditions in the financial system are accomplished when there is a high degree of confidence that the financial intermediaries and markets are stable, i.e. are able to meet obligations without disruption. This does not mean that individual financial institutions cannot be allowed to fail. The financial system is unstable only when systemic failure is highly probable.

These two elements of financial stability are interrelated. A central bank¹ elucidates:

“The two elements of financial stability, ie price stability and the stability of the financial sector, are closely related. Failure to maintain one of these elements provides an uncertain operating environment for the other, with causality running in both directions. For example, high inflation could lead to tighter monetary policy, higher interest rates, an increase in the non-performing loans of banks and a fall in asset and collateral values, which could precipitate bank and other failures in the financial sector. Conversely, disruptions in the financial system will make the transmission of monetary policy less effective and could materially affect changes in the general price level.”

1.4.3 Why financial stability?

Financial stability is regarded as essential to the achievement of sustainable high growth and employment. Financial stability is fundamental to the creation of an economic environment that is conducive to the conduct of business, i.e. to both sides of GDP (demand and supply respectively):

- Consumption (C) and investment (I) = gross domestic expenditure (GDE) + exports (X) less imports (M) = GDP (expenditure on). $C + I = \text{domestic demand}$; $X - M = \text{trade account balance (TAB) also called net external demand}$. Summary: $C + I = \text{GDE}$; $\text{GDE} + \text{TAB} = \text{GDP (expenditure on)}$.
- Production of goods and services (GDP).

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Stable production, consumption and investment (internal and external) are fundamental to economic growth and the creation of employment. Central banks are at the centre of efforts to achieve and maintain financial stability.

1.4.4 How is financial stability achieved domestically?

As noted, there are two elements to price stability, i.e. *stable conditions in the financial sector* and *price stability*. The former is achieved by the CB putting in place measures and facilities that allows it to:

- Ensure the availability of notes and coin in circulation in convenient denominations to serve as a means to effect financial transactions.
- Create an efficient national payments and interbank settlement system.
- Support the development of efficient money, bond and foreign exchange markets.
- Supervise the financial risks of banks.
- Support the development of an efficient banking system.
- Provide accommodation (liquidity) to solvent banks in extraordinary circumstances in order to safeguard the financial system, known better as the *lender of last resort* function (not to be confused with bank liquidity manipulation as an ingredient of monetary policy).

The other leg of financial stability, *price stability*, is achieved through the implementation of sound monetary policies in order to protect the value of the currency. This is a primary objective of the central bank.

It may be useful to present the view of a central bank² on its contribution to financial stability and its integration with price stability:

“The Federal Reserve’s roles in conducting monetary policy, supervising banks, and providing payment services to depository institutions help it maintain the stability of the financial system.

“Using the monetary policy tools at its disposal, the Federal Reserve can promote an environment of price stability and reasonably damped fluctuations in overall economic activity that helps foster the health and stability of financial institutions and markets. The Federal Reserve also helps foster financial stability through the supervision and regulation of several types of banking organizations to ensure their safety and soundness. In addition, the Federal Reserve operates certain key payment mechanisms and oversees the operation of the payment system more generally, with the goal of strengthening and stabilizing the payment system.”

It will also be useful to present a view of the importance of the lender of last resort function in financial stability. The Bank of England articulates³:

“Where a threat to the stability of the financial system is perceived to be present, the Bank may intervene to stand between an intermediary and the market place in order to facilitate payments and settlements, which might otherwise not be completed. In extreme cases, emergency financial support by the Bank might be provided, the so-called ‘lender of last resort’ (LOLR) function, but this is only done where the failure of one institution could bring down other, otherwise viable, institutions. This function may involve the Bank lending money to the failing institution to prevent its failure and hence to stop repercussions of its collapse from spreading through the financial system. This safety net exists to protect the stability of the financial system as a whole and not to protect individual institutions or their managers and shareholders.

“The use of the Bank’s LOLR function must be carefully justified in terms of the damage that would result to the financial system and the wider economy if intervention did not take place. This is because the LOLR role requires the use of public money and can also encourage excessive risk-taking (and hence financial fragility) if institutions believe that they will be bailed out whenever they experience difficulties. These risks mean the Bank and the FSA need to co-operate closely when a problem emerges, and inform the Treasury.”

The last point made by the Bank of England is significant: the achievement of financial stability is not the sole responsibility of the central bank; this responsibility is shared between three agencies of government: Treasury, the central bank and the financial regulators [the central bank (bank supervision) and the financial services authority (non-banks)].

1.4.5 Worldwide focus

Financial stability has a worldwide focus, the backdrop being the interrelatedness of the world’s financial systems: the problem of cross-border contagion. More recently this focus has been spurred on by a number of developments, such as:

- A number of monetary crises toward the end of the 20th century and the early part of the 21st century.
- Financial innovations, driven by increasing competition.
- Technological advancement.
- Growing interdependence of the world’s economies.

These developments have led to a number of international financial-stability proposals. One example is the initiative to adopt key standards for sound financial systems [by the IMF, the World Bank, the G20 countries and the Basel Committee (comprised mainly of the G20)]; the areas covered are:

- Monetary and financial policy transparency.
- Fiscal policy transparency.
- Data dissemination.
- Insolvency issues.
- Corporate governance.
- Accounting and auditing.
- Payment and settlement.
- Market integrity.
- Banking supervision.
- Securities regulation.
- Insurance supervision.
- Public debt management.

In conclusion, it is useful to quote from the keynote speech of a President and CEO of the Federal Reserve Bank of New York (delivered at an International Conference of Banking Supervisors, Basel, Switzerland). He said:

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“In a world of instantaneous communication, interconnected markets, and more complex instruments and risks, effective supervision is more important than ever to maintaining financial stability, both locally and globally. To remain effective and relevant, supervisors must understand how and to what extent the ‘wired’ economy and other technologies are changing banking and finance...we must take care that our efforts to ensure the safe and sound operation of the financial markets do not stifle the innovation and creative energy that is changing banking and finance – indeed the world – for the better.”

1.5 Balance sheet of a central bank

1.5.1 Introduction

The balance sheet of a CB is comprised of, on the one side, equity and liabilities, and on the other, assets, such that:

$$\text{Equity} + \text{liabilities} = \text{assets}.$$

We present the balance sheet items of the generic CB, ignoring equity (capital and reserves) and “other” liabilities (other creditors, revaluation adjustments, certain other reserves, etc.) and assets (accounts receivable in transit, etc) because these are unimportant in the broad canvas of central banking (see Balance Sheet 1). We also present the generic collective balance sheet of the private banking sector to indicate the central bank’s close relationship with the banks (see Balance Sheet 2).

BALANCE SHEET 1: CENTRAL BANK (LCC BILLIONS)			
Assets		Liabilities	
E. Foreign assets	1 000	A. Notes and coins	1 000
F. Loans to government	1 100	B. Deposits	
G. Loans to banks (BR) @ KIR	400	1. Government	900
		2. Banks’ reserves (TR)	500
		Required reserves (RR) (500)	
		Excess reserves (ER) (0)	
		C. Foreign loans	50
		D. Central bank securities	50
Total	2 500	Total	2 500

BALANCE SHEET 2: BANKS (LCC BILLIONS)			
Assets		Liabilities	
C. Notes and coins	100	A. Deposits of NBPS	5 000
D. Reserves with CB (TR)	500	B. Loans from CB (BR)	400
Required reserves (RR) (500)			
Excess reserves (ER) (0)			
F. Loans to government	1 000		
G. Loans to NBPS	3 800		
Total	5 400	Total	5 400

Note that the counterparts in the two balances sheets have been highlighted. Note also that the monetary unit is the “corona” and the country is fictitious Local Country (LC). The currency code is LCC (like USD, GBP, EUR, JPY, ZAR, etc.).

1.5.2 Liabilities

1.5.2.1 Notes and coins

Most countries have a bank note manufacturing company and a mint (coin manufacturing company), and usually they are subsidiaries of the CB. The amount against this item reflects the total of all notes and coins (N&C) issued by the CB, in this example LCC 1 000 billion. This is not the amount printed / minted, but the total amount that has been issued to the banks and public via the banks. When banks buy N&C they are paid for and settled via the interbank settlements system (by a debit to the banks’ reserves as we shall see later).

In the vast majority of countries the CB is the sole issuer of N&C, a role taken over from the banks in distant history (in the case of the Bank of England⁴ in 1694). As is generally known, in distant history coins were money, followed by N&C, and then bank deposits (BD) joined the fraternity of assets that became the *generally accepted means of payments / medium of exchange* (= the definition of money⁵).

Thus, the stock of money (which we call M3, i.e. including all BD) is the N&C + BD held by the domestic non-bank private sector (NBPS). In terms of Balance Sheets 1–2, the N&C held by the NBPS = LCC 1 000 [issued by the CB (item A)] less LCC 100 [held by the banks in tills and ATMs (item C)] = LCC 900. From Balance Sheet 2 we know that BD held by the NBPS = LCC 5 000 (item A). Thus:

$$\begin{aligned} M3 &= \text{N\&C} + \text{BD held by the NBPS} \\ &= \text{LCC } 900 + \text{LCC } 5\,000 \\ &= \text{LCC } 5\,900. \end{aligned}$$

The principle is illustrated in Figure 4.

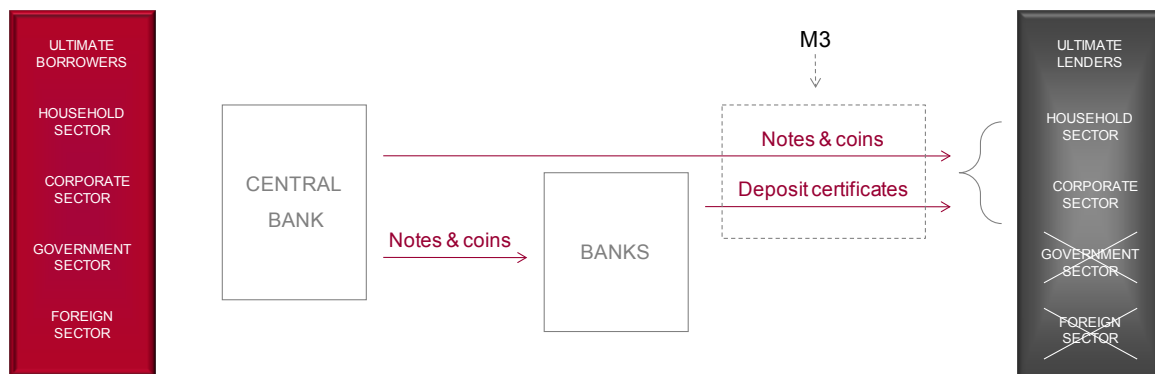


Figure 4: what is money?

1.5.2.2 Deposits: government

Being the banker to government is one of the enduring functions of the CB and reflects the need for a custodian of the funds of central government. The government usually has two CB accounts: called the Exchequer account and the Paymaster General account in many countries.

In some countries, the central government also banks with the large private sector banks in accounts called Tax and Loan Accounts (TLAs). The main motivation for this is to avoid the disruptive effect on the money market of large shifts of tax payments to government / expenditures of government at certain times (and the consequent need of the CB to accommodate the banks).

In some countries where TLAs exist, the shifting of government deposits between the banks and the CB is used as a powerful tool to influence bank liquidity – for monetary policy purposes.

1.5.2.3 Deposits: banks

Banks have two accounts with the central bank: a reserve account and a settlement account over which interbank settlement takes place. In some countries the banks only have one account in which reserves are held and over which settlement takes place. We assume the latter.

What are reserves? In most countries banks have a reserve requirement, i.e. are obliged to hold required reserves (RR) equal to the total of deposits⁶ times the reserve requirement ratio (r):

$$RR = BD \times r.$$

A glance at Balance Sheets 1–2 will show that the banks are holding deposits of LCC 5 000 billion. If we assume that the $r = 10\%$, we have:

$$\begin{aligned} RR &= LCC\ 5\ 000 \times 0.1 \\ &= LCC\ 500. \end{aligned}$$

The balance sheets also show that the banks comply exactly with the reserve requirement: the amount in the reserve account of the banks (collectively) (TR) = LCC 500. This makes economic sense because the CB does not pay interest on bank balances with itself. So banks keep this balance to a minimum). However, banks are in the business of loans provision and this creates deposits; therefore, their RR increase continually. Thus, as bank deposits increase, their RR *increase* is given by:

$$\Delta RR = \Delta BD \times r$$

For example, if bank deposits increase from LCC 5 000 to LCC 6 000, the banks collectively are obliged to increase their RR balance by LCC 100:

$$\begin{aligned}\Delta RR &= \Delta BD \times r \\ &= \text{LCC } 1\,000 \times 0.1 \\ &= \text{LCC } 100.\end{aligned}$$

How do they do this? *They cannot do so on their own.* This is *at the heart of monetary policy* in most countries. *Banks cannot create central bank money (CBM)*; only the CB can manipulate its own balance sheet.

In Balance Sheets 1–2 we know that $TR = RR$. Do banks hold excess reserves (ER), given by $TR - RR = ER$? The answer is not if they can help it – because they earn no interest on any part of TR. However, there are exceptional circumstances when they do (such as during the quantitative easing (QE) phases in the USA in 2010 (and later this applied also in the UK and elsewhere). In these circumstances, interest rates are low – as part of expansionary monetary policy (see more later on).



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As said, interbank settlement / clearing takes place over the banks' accounts at the CB. How does this work? Bank clients move deposits around the system every day. At the end of the day (banks close off their books every day), the amounts are settled via the reserve accounts. However, if Bank A loses a net LCC 100 million and Bank B gains a net LCC 100 million, their balance sheets change as indicated on Balance Sheets 3–5.

BALANCE SHEET 3: CENTRAL BANK (LCC MILLIONS)			
Assets		Liabilities	
		Reserve accounts:	
		Bank A	-100
		Bank B	+100
Total	0	Total	0

BALANCE SHEET 4: BANK A (LCC MILLIONS)			
Assets		Liabilities	
Reserve account at CB	-100	Deposits (Company A)	-100
Total	-100	Total	-100

BALANCE SHEET 5: BANK B (LCC MILLIONS)			
Assets		Liabilities	
Reserve account at CB	+100	Deposits (Company A)	+100
Total	+100	Total	+100

Assuming banks have no ER or borrowed reserves (BR), the final IBM takes place: Bank A will borrow LCC 100 million from Bank B at the interbank rate, and Bank B will instruct the CB to make the transfer, as indicated in Balance Sheets 6–8.

BALANCE SHEET 6: CENTRAL BANK (LCC MILLIONS)			
Assets		Liabilities	
		Reserve accounts:	
		Bank A (before interbank)	-100
		Bank A (after interbank)	+100
		Bank B (before interbank)	+100
		Bank B (after interbank)	-100
Total	0	Total	0

BALANCE SHEET 7: BANK A (LCC MILLIONS)			
Assets		Liabilities	
Reserve account at CB	-100	Deposits (Company A)	-100
Reserve account at CB	+100	Loan from Bank B	+100
Total	0	Total	0

BALANCE SHEET 8: BANK B (LCC MILLIONS)			
Assets		Liabilities	
Reserve account at CB	+100	Deposits (Company A)	+100
Reserve account at CB	-100		
Loan to Bank A	+100		
Total	+100	Total	+100

As we will see later, when banks transact amongst one another, bank reserves do not change (except when money is created = BD+). However, when the CB does a transaction, reserves do change, and BR is affected.

1.5.2.4 Foreign loans

In exceptional circumstances, central banks do undertake foreign loans – usually when they experience balance of payments problems.

1.5.2.5 Central bank securities

Central bank securities are called by many names in different countries: debentures in South Africa, certificates in Botswana, bills in Malawi, and so on. They are short-term securities (have a maturity of less than a year) and are issued solely for monetary policy purposes. An issue drains liquidity.

1.5.3 Assets

1.5.3.1 Foreign assets

BALANCE SHEET 9: CENTRAL BANK (LCC BILLIONS)			
Assets		Liabilities	
E. Foreign assets	1 000	A. Notes and coins	1 000
F. Loans to government	1 100	B. Deposits	
G. Loans to banks (BR) @ KIR	400	1. Government	
		2. Banks' reserves (TR)	900
		Required reserves (RR) (500)	500
		Excess reserves (ER) (0)	
		C. Foreign loans	50
		D. Central bank securities	50
Total	2 500	Total	2 500

As seen in Balance Sheet 1 (repeated in Balance Sheet 9 for the sake of convenience), the central bank usually has three asset items. Foreign assets (item E) are usually comprised of gold bullion holdings and foreign investments in foreign investments, e.g. USD bank deposits, GBP treasury bills, EUR (German) bonds. These are the foreign exchange (forex) reserves of countries and this item E reflects the role of custodian of the forex reserves of the country. Some countries place these investments in a separate fund and call it *sovereign fund*.

Many central banks make use of forex swaps to influence bank liquidity. These are similar to repurchase agreements (repos).

1.5.3.2 Loans to government

Item F, *loans to government*, is usually comprised of treasury bills and government bonds, which are MD. They are used in OMO transactions, i.e. in bank liquidity management.

1.5.3.3 Loans to banks

Item G, *loans to banks*, is at the heart of monetary policy. In normal times, most central banks compel the banks to borrow reserves from them (BR) at their key interest rate (KIR) at all times. KIR has many names, such as discount rate, repo rate, bank rate, base rate. In our example the amount borrowed at KIR is LCC 400 billion, meaning, essentially, that the banks are complying with the RR largely as a result of their BR.

BALANCE SHEET 10: BANKS (LCC BILLIONS)			
Assets		Liabilities	
C. Notes and coins	100	A. Deposits of NBPS	5 000
D. Reserves with CB (TR) Required reserves (RR) (500) Excess reserves (ER) (0)	500		
F. Loans to government	1 000	B. Loans from CB (BR)	400
G. Loans to NBPS	3 800		
Total	5 400	Total	5 400

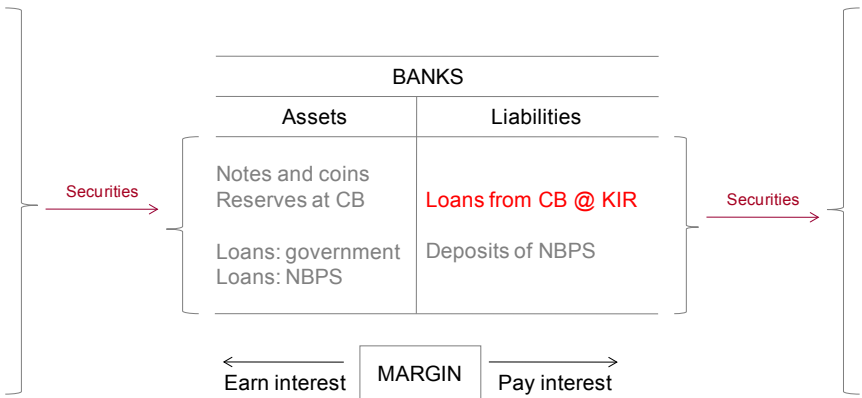


Figure 5: bank margin

The policy becomes clear when one views the banks' collective balance sheet (repeated here in Balance Sheet 10) and Figure 5. A summary follows (because the detail follows later):

- The CB compels the banks to borrow from it (BR) at the KIR.
- Although the BR makes up a small proportion of liabilities, the KIR exerts a powerful influence on bank deposit rates. Because the banks compete aggressively amongst one another for deposits in order to repay the CB, their wholesale deposit rates rise to just below the KIR. The wholesale rates affect the retail rates.
- Banks are profit-maximising entities. They endeavour to earn a steady margin between what they pay for deposits and earn on assets.
- Therefore, when the cost of liabilities changes, so do the rates they charge for loans (their largest asset). The benchmark rate for loans is prime rate (PR), and all loan rates are linked to PR.
- The level of PR (especially in real terms) has a major impact on the demand for loans.
- The demand for loans is the counterpart of money creation.
- New loan / money creation (underlying which is new $C + I = GDE = \text{domestic demand}$) at too high a level in relation to the economy's ability to *supply* the goods demanded, leads to inflation.
- A high level of inflation affects economic decision making and therefore GDP growth.

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The above was presented to introduce the reader to the functions of the central bank. As seen, the main function is monetary policy. But there are many others. Before we get to them, we need to cement that fact that money creation is a surprisingly simple affair.

1.6 Money creation

Bank assets and liabilities are not static. They increase mainly as a result of new bank loans / money creation. This will be discussed in detail later; here we present a simple example. A reminder: broad money, M3, is made up of bank notes and coins (N&C) + bank deposits (BD) (held by the domestic non-bank private sector – NBPS):

$$M3 = N\&C + BD.$$

Of these BD is the largest (+/- 95%). BD increase when banks make new loans = buy NMD and MD.

BALANCE SHEET 11: COMPANY A (LCC MILLIONS)			
Assets		Equity and liabilities	
Goods	-10		
Bank deposits	+10		
Total	0	Total	0

BALANCE SHEET 12: COMPANY B (LCC MILLIONS)			
Assets		Equity and liabilities	
Goods	+10	Bank loan (overdraft)	+10
Total	+10	Total	+10

BALANCE SHEET 13: BANK A (LCC MILLIONS)			
Assets		Equity and liabilities	
Loan to Company B	+10	Deposit of Company A	+10
Total	+10	Total	+10

Company A is a producer of goods required by Company B. Company B requires finance of LCC 10 million in order to purchase the goods, and approaches Bank A for a loan. After a credit check, the bank grants Company B an overdraft facility.

Company B draws a cheque for LCC 10 million on its overdraft facility and presents the cheque to Company A and takes delivery of the goods. Company A is thrilled to the back teeth with the sale and deposits the cheque with bank A. The cheque is put through the interbank clearing system, and the balance sheets of the respective parties end up as shown in Balance Sheets 11–13. This transaction has implications for the RR and therefore BR, which will be introduced later on.

It will be evident that the deposit of Company A amounts to an increase in M3 (BD held by the NBPS), and that its source was the increase in the overdraft granted to Company B and utilised by it (the *real source* of course was the *demand for loans* ($\Delta = \text{change}$):

$$\Delta M3 = \Delta BD = \Delta \text{bank loans.}$$

Questions immediately arise: can banks really do this in the real world? Surely there must be a brake on the system? The answer is yes, the banks do this every day; in fact the system is designed to allow this to happen. The *brake on the system*, i.e. the mechanism that prevents the increase in money creation escalating out of hand, as we have seen, is *monetary policy*, and it operates via changes in interest rates, assuming the KIR is made effective by the banks borrowing from the CB (i.e. having BR).

1.7 Functions of central banks

The functions of central banks are usually outlined as follows:

- Issuer of bank notes and coins.
- Banker to government.
- Advisor to government.
- Custodian of banks' cash reserves.
- Central clearance and settlement of interbank claims.
- Custodian of the gold and other foreign reserves of the country.
- Management of the money and banking system.
- Lender of last resort.
- Public debt management.
- Formulation and execution of monetary policy.
- Open market operations.
- Collection and interpretation of economic statistics.
- Supervisor of banks.
- Administration of exchange controls (where applicable).

This, however, is a scatter approach, and not especially useful. Many of the functions of the central bank can be grouped into a more logical framework. For example, the functions *banker to government*, *advisor to government* and *public debt management*, belong together. Similarly, *lender of last resort*, *custodian of banks' cash reserves* and *management of the money and banking system* belong together.

A more logical framework of the functions of central banks is shown in Table 1.7

Formulation and implementation of monetary policy (aimed at achieving and maintaining price stability)
Formulation of monetary policy framework
Influence on level of interest rates (through bank liquidity management)
Open market operations
Banker and advisor to government
Banker to government
Public debt management
Administration of exchange controls
Management of the money and banking system
Lender of last resort (note: not a monetary policy function)
Currency management (notes and coins)
Banker to private sector banks
Settlement of interbank claims
Bank supervision
Supervision of payments system
Management of gold and foreign exchange reserves
Development of debt market
Provision of economic and statistical services
Provision of internal corporate support services and systems

Table 1: Functions of central banks

It should be evident that many of these functions are all interrelated. The latter two functions do not require much elaboration; thus we will cover them first. The function *provision of internal corporate support services and systems* is an obvious one: any organisation requires an infrastructure in order to carry out its functions / business.

The function *provision of economic and statistical services*, while significant, is also an obvious one. Suffice it to say here that all central banks have Economics Departments that provide detailed statistics to the CB, government and the public through the publication of its:

- Quarterly Bulletins and Annual Reports.
- Monthly Statements of Assets and Liabilities and Releases of Selected Data.
- Statements and Reports of the Monetary Policy Committee (MPC).

Of these publications its Quarterly Bulletin is the most detailed. Apart from a comprehensive Quarterly Economic Review, and articles of interest, the Bank provides detailed statistics on:

- Money and banking.
- Capital market.
- National financial account.
- Public finance.
- International economic relations.
- National accounts.
- General economic indicators.
- Key information (mainly key selected data).

These data are an essential source of information for policy-makers (the CB itself), government, analysts, and academics.



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With these two functions covered, we are left with three; we discuss them in the following order:

- Banker and advisor to government.
- Management of the money and banking system.
- Formulation and implementation of monetary policy (aimed at achieving and maintaining price stability).

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