1 Essence of banking

1.1 Learning outcomes

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

1. Describe the context of banking: the financial system.
2. Explain the principles of banking.
3. Elucidate the broad functions of banks.
4. Analyse and explain the basic raison d'être for banks.
5. Describe the components of the balance sheets of banks.
6. Elucidate the liability and asset portfolio management "problem" of banks.

1.2 Introduction

Private sector banks play a significant role in the financial system and the real economy. They intermediate between all sectors of the economy and other financial intermediaries and institutions, and some of them provide the payments system, which most of us use every day.

Banks are unique in that their liabilities, bank notes and coins (N&C – central bank) and deposits (BD – private sector banks) are regarded as the *means of payments* / *medium of exchange,* which is the definition of money. So, put simply M3[1] = N&C + BD (held by the domestic non-bank private sector (NBPS). Because of this, banks are able to create additional money when required by individuals, businesses and government (with the assistance of the central bank). This unique feature, plus their balance sheet structure, places banks in a unique position in another way: they are inherently unstable, and therefore require robust regulation and supervision.

Banks are innovative, largely a function of intense competition, and they are therefore at the forefront of new developments, not only in banking but also in the wider financial markets. This makes regulation and supervision complex.

In essence, banks are straightforward institutions: they take existing deposits (and loans to a small degree) and loan these funds, and, at the same time, make new loans and create new deposits (new money). However, while their basic function may be simple, the risks they assume are not, and this makes them complex. This text aims to cover banking in a comprehensible manner, and the following are the sections:

- Essence of banking.
- Money creation.
- Risks in banking.
- Bank models & prudential requirements.

This section serves as introduction to banking and offers the following sections:

- The financial system.
- Principles of banking.
- The balance sheet of a bank.

1.3 The financial system

1.3.1 Introduction

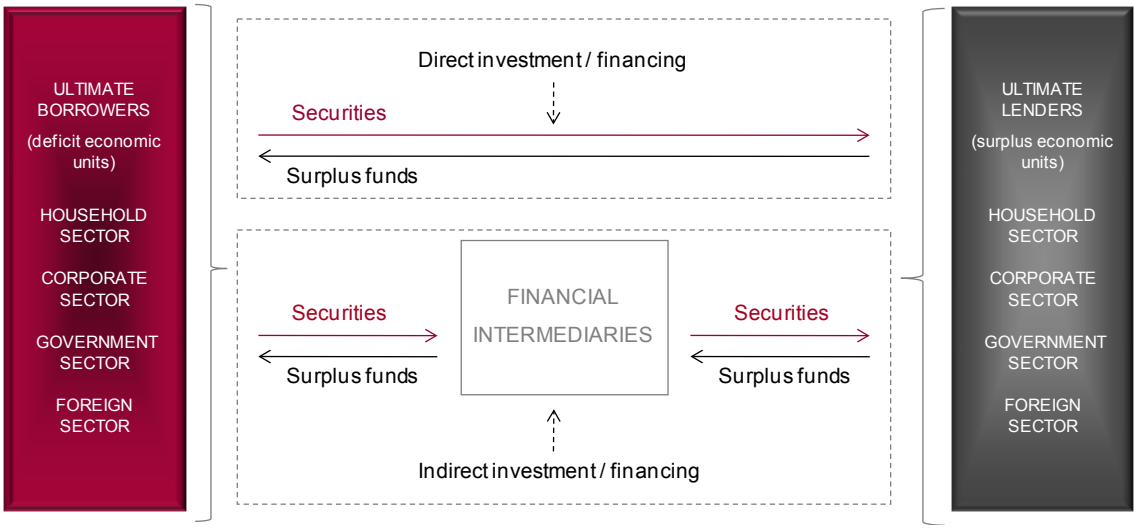


Figure 1: simplified financial system

It may be useful to introduce the subject of private sector banking by briefly describing the financial system, thus contextualising banking. The financial system may be depicted simply as in Figure 1. It is essentially concerned with borrowing and lending and has six parts or elements (not all of which are visible in Figure 1):

- 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.

We need to present you with a little more information on these six elements.

1.3.2 Lenders and borrowers

The first element is lenders and borrowers. As seen in Figure 1, they can be categorised into the four groups or "sectors" of the economy:

- *Household* sector (= individuals).
- *Corporate* sector (= companies – private and government owned).
- *Government* sector = all levels of government – local, provincial, central).
- *Foreign* sector (= any foreign entity – corporate sector, financial intermediaries such as retirement funds).

The members of these sectors may be either lenders or borrowers or both at the same time. For example, a member of the household sector may have a mortgage bond (= borrower by the issue of a non-marketable debt instrument) and at the same time hold a balance on your accounts at the bank (= a lender; a holder of money).

1.3.3 Financial intermediaries

The second element is financial intermediaries. As seen in Figure 1, lending and borrowing takes place either *directly* between ultimate lenders and borrowers [e.g. when an individual buys a share (also called equity or stock) issued by a company], or *indirectly* via financial intermediaries. Financial intermediaries essentially solve the differences (or conflicts) that exist between ultimate lenders and borrowers in terms of their requirements: size, risk, return, term of loan, etc.

An example: your friend Johnny (a member of household sector) has LCC[2] 10 000 he would like to lend out (= invest) for 30 days at low risk. You (a member of household sector) would like to borrow LCC 20 000 for 365 days to buy a car. You don't mind who you borrow from, because you represent the risk, not the lender. Your and Johnny's requirements don't match at all; direct financing won't work. He places his LCC 10 000 on deposit with a prime bank for 30 days and you borrow LCC 20 000 from the bank for 365 days. You and Johnny are both in high spirits; the bank satisfied your different requirements.

Financial intermediaries exist not only because of the divergence of requirements of lenders and borrowers, but for the specialised services they provide, such as insurance policies (insurance companies), retirement fund products (retirement funds), investment products (securities unit trusts, exchange traded funds), overdraft and deposit facilities (banks), and so on. The banks also provide a payments system, the system we don't see but rely much on. The central bank provides an interbank settlement system (as we will see later).

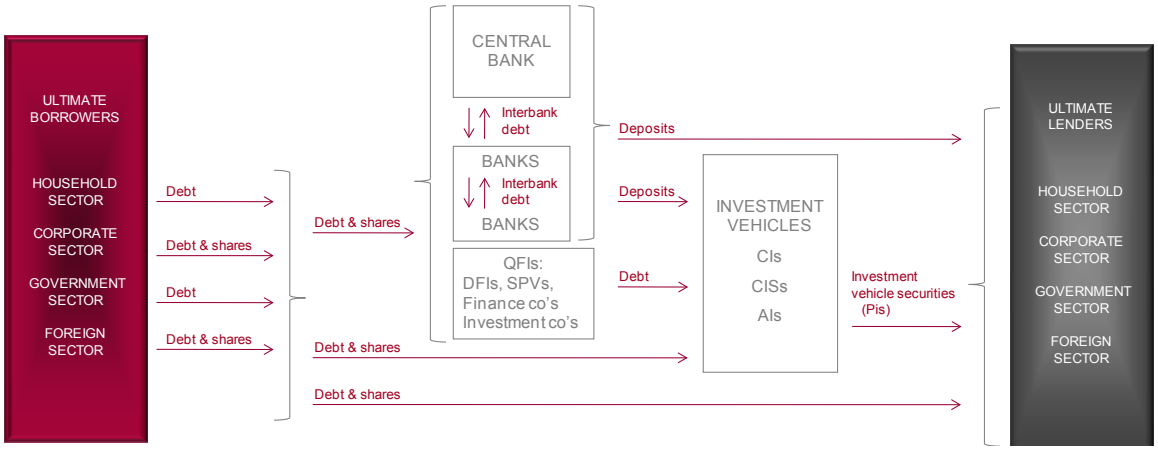


Figure 2: financial intermediaries

The main financial intermediaries that exist in most countries and their relationships with one another are presented in Figure 2. A useful of classification of them is presented in Box 1. Note that the non-deposit intermediaries may also be seen as *investment vehicles*. Their products (= their liabilities), which can be called participation interests (PIs), are designed as investments for the household sector (and in some cases other financial intermediaries).

1.3.4 Financial instruments

The third element is financial instruments. They are also called *securities*; borrowers issue securities. They are therefore *evidences of debt or shares*. They also represent *claims on* the issuers / borrowers.

Ultimate lenders exchange money (deposits) for securities and ultimate borrowers exchange (issue new) securities for money. Financial intermediaries issue their own securities (e.g. deposits) and hold the securities of the ultimate borrowers (e.g. treasury bills). As you know, the banks have a special and unique role in this market for money in that they are able to create money (bank deposits) by making new loans (buying new securities).

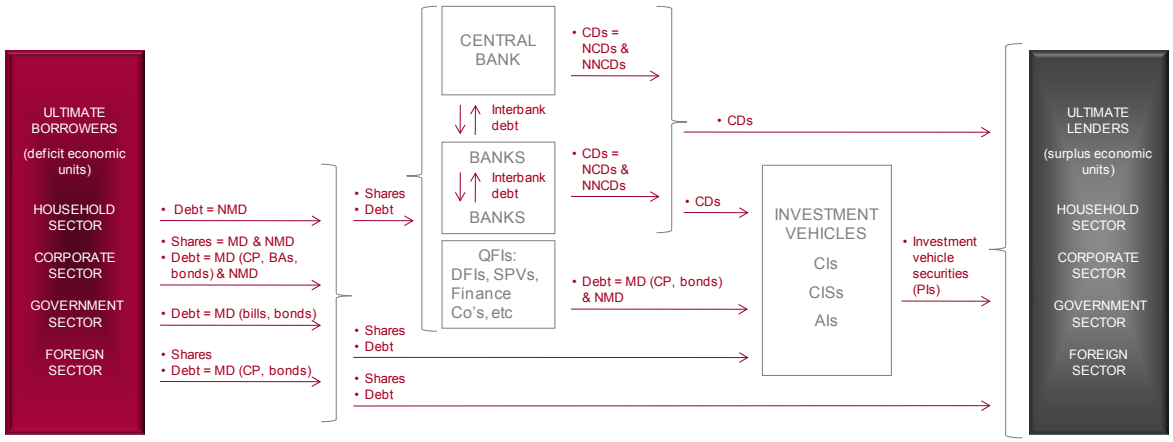
Securities offer a return that is fixed (fixed-interest debt) or variable (variable-rate debt and share dividends). The capital amount of shares and debt is paid back after a period (bonds and preference shares) or not ever (perpetual bonds and shares). Securities are also either marketable of non-marketable. This is discussed in more detail in the next section.

Box 1: financial intermediaries

MAINSTREAM FINANCIAL INTERMEDIARIES
- DEPOSIT INTERMEDIARIES
  - Central bank (CB)
  - Private sector banks
- NON-DEPOSIT INTERMEDIARIES (INVESTMENT VEHICLES)
- **Contractual intermediaries (CIs)**
  - Insurers
  - Retirement funds (pension funds, provident funds, retirement annuities)
- **Collective investment schemes (CISs)**
  - Securities unit trusts (SUTs)
  - Property unit trusts (PUTs)
  - Exchange traded funds (ETFs)
- **Alternative investments (AIs)**
  - Hedge funds (HFs)
  - Private equity funds (PEF's)

QUASI-FINANCIAL INTERMEDIARIES (QFIs)
- Development finance institutions (DFIs)
- Special purpose vehicles (SPVs)
- Finance companies
- Investment trusts / companies
- Micro lenders

The instruments of the financial system are shown in Figure 3 and outlined below.



MD = marketable debt; NMD = non-marketable debt; CP = commercial paper; BAs= bankers' acceptances; CDs = certificates of deposit (= deposits); NCDs = negotiable certificates of deposit; NNCDs = non-negotiable certificates of deposit; foreign sector issues foreign shares and foreign MD (foreign CP & foreign bonds); PI = participation interest (units)

Figure 3: financial intermediaries & instruments / securities

There are two categories of financial instruments:

- Debt (and deposits).
- Shares.

The instruments of debt and shares and their issuers are as follows:

The *household sector* issues:

- Non-marketable debt (NMD) securities
  - Examples: overdraft loan from a bank; mortgage loan from a bank.

The *corporate sector* issues:

- Share securities (marketable = listed & non-marketable = non-listed)
  - Ordinary shares (aka common shares).
  - Preference shares (aka preferred shares).

- Debt securities
  - Non-marketable debt (NMD).
  - Marketable debt (MD)
    - Examples: corporate bonds, commercial paper (CP), bankers' acceptances (BAs), promissory notes (PNs).

The *government sector* issues:

- Marketable debt (MD) securities
  - Treasury bills (aka TBs and T-bills).
  - Bonds (aka T-bonds).

The *foreign sector* issues (into the local markets):

- Foreign share securities (inward listings).
- Foreign debt securities (inward listings).

The *deposit financial intermediaries (central and private sector banks)* issue:

- Deposit securities
  - Central bank
    - Non-negotiable certificates of deposit (NNCDs).
    - Notes and coins.
    - Central bank securities[3].

  - Private sector banks
    - Non-negotiable certificates of deposit (NNCDs).
    - Negotiable certificates of deposit (NCDs).
    - Loans (mainly from the central bank).

The *quasi-financial intermediaries* issue:

- Debt securities
  - Non-marketable debt (NMD)
    - Example: utilised overdraft facility.
  - Marketable debt (MD)
    - Examples: bonds, commercial paper (CP)

The above may be summarized as in Table 2.

As we have indicated, it is rare that the individual invests in these financial instruments (the exceptions are bank deposits in the form of NNCDs and shares). Rather, they invest in these ultimate financial instruments via the *investment vehicles*, by buying their PIs.

	Debt & deposits		Shares		
	Non-marketable debt & deposits	Marketable debt & deposits	Non-marketable	Marketable	
			Non-listed ordinary shares*	Listed ordinary shares	Listed preference shares
ULTIMATE BORROWERS					
Household sector	OD & mortgage loans from banks	-	-	-	-
Corporate sector	OD & mortgage loans from banks	Corp bonds, CP, BAs, PNs	YES	YES	YES
Government sector	OD loans from banks	Govt bonds, TBs	-	-	-
Foreign sector	-	Foreign bonds	-	YES (inward listing)	YES (inward listing)
FINANCIAL INTERMEDIARIES					
Central bank	NNCDs	NCDs**, notes & coins	-	-	-
Private sector banks	NNCDs	NCDs	-	-	-
Quasi-financial intermediaries	OD loans from banks	Corp bonds, CP	-	-	-
Investment vehicles	Participation interests (PIs)	-	-	-	-

OD = overdraft); CP = commercial paper; BAs = bankers' acceptances; PNs = promissory notes; Corp = corporate; NNCDs = non-negotiable certificates of deposit; NCDs = negotiable certificates of deposit.
* Non-listed preference shares do exist but are rare. ** Central bank (CB) securities, which are akin to NCDs.

Table 2: financial instruments / securities

1.3.5 Financial markets

The fourth element of the financial system is financial markets. Financial markets are categorised according to the securities issued by ultimate borrowers and financial intermediaries. It was noted above that financial securities are either marketable or non-marketable. Examples are non-negotiable certificates of deposit (NNCDs) (= an ordinary deposit receipt) and negotiable certificates of deposit (NCDs) issued by the private sector banks.

There are two market types or forms (see Figure 4): primary market and secondary market. All securities are issued in their primary markets and the marketable ones are traded in the secondary markets. In the primary market the *issuer* receives the money paid by the *lender / buyer*. In the secondary market the *seller* receives the money paid by the *buyer*.

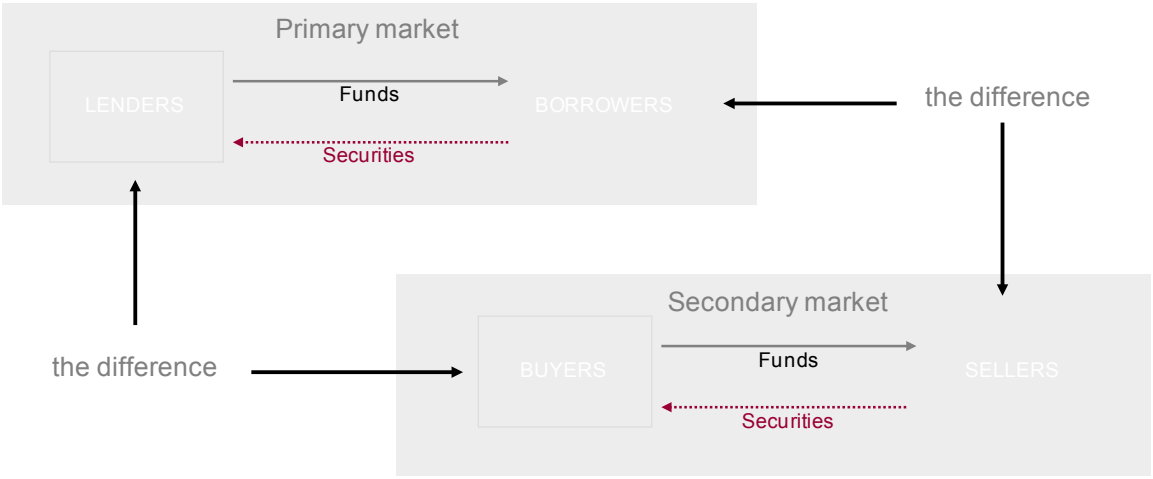


Figure 4: primary & secondary markets

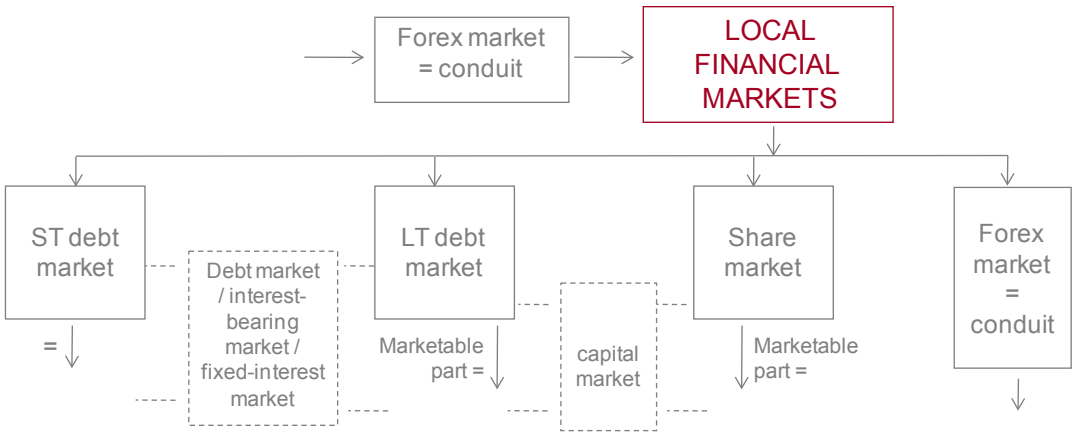


Figure 5: financial markets

There are a number of markets for financial instruments: the market for life policies (a primary market only), the market for PIs (also called units) of securities unit trusts (a primary market and a partial secondary market: the units are saleable to the issuer), the market for PIs in retirement funds (strictly a primary market), the deposit market (primary market for NNCDs and a secondary market for NCDs), the bond market (secondary market), and so on.

The financial markets are depicted in Figure 5. As we will show later, the money market should be defined as the short-term debt market (STDM = marketable and non-marketable debt), while the bond market is the marketable arm of the long-term debt market (LTDM).

The money market (STDM) and the LTDM together make up the debt market (also known as the interest-bearing market and the fixed-interest market). The terms *interest-bearing* and *fixed-interest* oppose the debt market from the share market because the returns on shares are dividends and dividends are not fixed – they depend on the performance of companies. The LTDM and the share market is called the capital market.

The foreign exchange market is not a financial market, because lending and borrowing do not take place in this market. Rather, it is a conduit for foreign investors into local financial markets and for local investors into foreign financial markets.

In addition to these *cash* or *spot* markets [where the settlement of deals takes place a few days after transaction date (T+0)] we have the so-called derivative markets. They are comprised of instruments (forwards, futures, swaps, options and "others" such as weather derivatives) that are *derived* from and get their value from the spot financial markets. Whereas cash markets settle as soon as possible, derivative markets settle at some stage in the future.

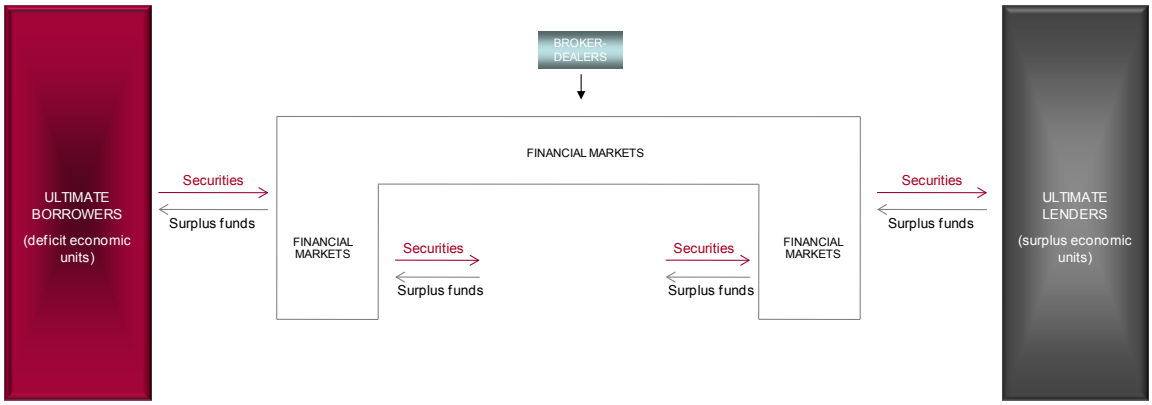


Figure 6: financial markets

Secondary markets are either over-the-counter (OTC), also called "informal markets" (such as the foreign exchange and the money markets) because there is no exchange involved, or exchange-driven (or formal) markets, such as the share (or stock) exchange. The place of the financial markets in the financial system may be depicted as in Figure 6.

The financial markets do not intermediate the financial lending and borrowing process as do financial intermediaries such as banks; they merely facilitate the primary and secondary markets.

1.3.6 Money creation

The fifth element is creation of money. As this is covered in detail later, we will not give it much attention here. Here follows a brief summary: when banks make new loans / provide new credit (= buy NMD, MD and shares), they create NBPS deposits (= money).

The referee in this game is the central bank which *controls* the growth rate in money creation (= new bank deposits resulting from new bank loans) by means that differ from country to country (which are elucidated later). The principal method is the interest rate on banks' loans (= bank assets) via the central bank's KIR interest rate, which influences the cost of bank liabilities (i.e. via the bank margin).

1.3.7 Price discovery

The sixth element is price discovery. Primary and secondary markets are important for a number of reasons, the most important of which is *price discovery*, i.e. the establishment of interest rates for various terms and the prices of shares. Interest rates, as we will see, have an important role to play in the pricing of all assets. The central bank plays a significant role in the establishment of interest rates. These significant issues are addressed later.

1.3.8 Allied participants on the financial system

From the above discussion it will be evident that there are a number of allied participants on the financial system. By this we mean participants other than the *principals* (those who have financial liabilities or assets or both). As we now know, the principals are:

- Lenders.
- Borrowers.
- Financial intermediaries.

The allied participants, who play a major role in terms of facilitating the lending and borrowing process (the primary market) and the secondary markets are the financial exchanges and their members. Also we need to mention the fund managers, who are actively involved in sophisticated financial market research and therefore play a major role price discovery, and the regulators of the financial markets. Thus the allied non-principal participants in the financial markets are:

- Financial exchanges.
- Broker-dealers.
- Fund managers.
- Regulators.

1.4 Principles of banking

1.4.1 Introduction

The previous section presented the banking sector in the context of the financial system. This section goes a little further and covers:

- Fundamental issues in banking.
- Basic raison d'être for banks: information costs and liquidity.
- Broad functions of banks.

1.4.2 Fundamental issues in banking

Banks are unique financial intermediaries.[4] They are the only intermediaries that intermediate between all ultimate lenders and borrowers and all other non-bank financial intermediaries. In this way they perform crucial functions, including providing the means of payments. In fact, they are such significant intermediaries that their very survival (particularly the large banks) is in the interests of the country; there exist social costs to their failure.

For this reason, banks are the most regulated intermediaries. In most countries the central bank regulates and supervises the banks, and they are obliged to have large departments and skilled persons to carry out this function. The banks are innovative and create new products continually, because of the competitive nature of banking, making the task of the supervisor challenging.

The hardware and software systems requirements of banks are sophisticated, not only because of the complex deals they undertake, but to cater for the strict and diverse reporting requirements of banks. This and the high capital resource requirements create substantial barriers to entry.

Banks exist because of the information costs they carry and because of the demand for liquidity by deposit clients. Banks earn their keep by the management of financial risks, and this is what differentiates them from other companies. Essentially, they are risk managers. According to Heffernan[5], the "organisation of risk management within a bank is as important as the development of risk management techniques and instruments to facilitate risk management…. There is no such thing as a generic banking strategy. But banks need to be planning how, in the future, existing competitive advantage is going to be sustained and extended. The outlook for banks is optimistic, provided they can create, maintain, and sustain a competitive advantage in the products and services (old and new) they offer."

The main threat to banking is the securities markets. Many large, highly rated companies do not require the intermediation of banks to satisfy their borrowing requirements. Cognisant of this threat, many banks have are involved in the creation of marketable debt instruments, and hold many of these in portfolio.

The most unique function of banks is their money creating ability, under the guidance of the central bank, and the central bank uses the profit-maximising behaviour of banks to execute monetary policy. This is where interest rates have their genesis.

In summary:

- Banks are the only intermediaries that intermediate between all ultimate lenders and borrowers and all other financial intermediaries.
- They perform vital functions, including providing the means of payments.
- They are such significant intermediaries that their very survival (particularly the large banks) is in the interests of the country; there exist social costs to their failure.
- Banks are the most regulated and supervised financial intermediaries.
- The banks are innovative and create new products continually, because of the competitive nature of banking, making the task of the regulator / supervisor challenging.
- There exist substantial barriers to entry into banking – systems and capital.
- Banks earn their keep by offering liabilities which suit clients' financial requirements, and holding assets which represent the satisfied financial requirements of ultimate borrowers.
- Because the requirements of lenders / depositors and borrowers are so diverse, banks are exposed to diverse financial and other risks. The management of risk is at the core of banking, and this is what differentiates them from other companies.
- There is no such thing as a generic banking strategy.
- The main threat to banking is the securities markets.
- The most unique function of banks is their money creating ability; by extending new loans they create new deposits (= money). The central bank plays the role of referee in this respect.
- Interest rates have their genesis in the relationship between the private sector banks and the central bank.

1.4.3 Basic raison d'être for banks: information costs and liquidity

1.4.3.1 Introduction

The question needs to be asked: "why cannot borrowers and lenders come together without the intermediation of a profit-maximising company offering this function?" The answer is that they do, but this happens on a limited scale. Examples are:

- A father lending to his son, enabling his son to repay his bond. If we assume the bank home loan rate bond is 12% and the deposit rate is 8%, they will probably do the deal at 10%. Both score on the deal and they cut out the banking sector (called bank *disintermediation*).
- A member of the household sector holding a portfolio of shares (here we regard share finance as "infinite borrowing" where the lender gets a share of the profits).
- A corporate entity holding a treasury bill for LCC 5 million.

It will be recalled that these are examples of *direct financing*. However, we need to look at the likely facts:

- The lenders are probably wealthy.
- In the first example the mortgage bond is probably an "access bond", i.e. a bond where the outstanding amount can be flexible (up to a maximum), i.e. the son can access the bond when the father needs the money. This means that the term to maturity of the bond is flexible. If the term of the bond was 20 years and the outstanding amount was not flexible, the father would probably not have done the deal.
- The father is fully aware of the creditworthiness of his son.
- In the case of the corporate entity and the wealthy member of the household sector, the securities are marketable, meaning that they lenders have access to their funds – by selling the securities in the secondary markets.

What are we saying? We are saying that there are two critical considerations that make banks useful intermediaries:

- *Information costs*. The dad lends money to his son because he has the knowledge that his son will repay the loan. Banks lend funds to borrowers that are not known to the depositors, and they incur costs in gathering in information on the borrowers. Here we have one reason for the existence of banks – *information costs*.
- *Asymmetry in liquidity preference*. Only few dads lend to their sons, because most dads do not have the surplus funds to do so. In general, the many dads, moms, companies, etc find it convenient to get interest from the bank while the money is available, which is probably for only a portion of the month. The banks lend to borrowers for long periods, for example 25 years in the case of government bonds. Here we have the second reason for the existence of banks: *lenders and borrowers have different liquidity preferences*. It is true that securities markets do provide liquidity for the lender; however, these markets are only accessible to high net worth individuals and companies.

Following is a discussion on these two main reasons for the existence of banks.

1.4.3.2 Information costs

Four main types of information costs can be identified:

- Search costs.
- Verification costs.
- Monitoring costs.
- Enforcement costs.

Search costs are incurred whenever a transaction between two parties is done. The borrower is not concerned with the quality of the lender, but the lender is concerned with the quality of the borrower. Search costs include negotiation and the gathering of information, which take place during meetings that usually take some time.

Verification costs are incurred because the bank is obliged to verify the information gathered. Banks are concerned with the well-known problem of *asymmetric information* (a gap in knowledge between lender and borrower), which can give rise to the problems of *adverse selection* (poor selection prior to the loan) and *moral hazard* (financially-immoral behaviour by the borrower after the loan is made).

It is interesting to note that a higher rate charged to compensate for a risky client can be negatively self-fulfilling, i.e. it can make the project for which the money is borrowed unviable. A high rate is of course perfectly acceptable to the borrower who knows s/he is going to default.

Monitoring costs are incurred by the bank because once the money is lent the bank has an incentive to monitor the client (this will be discussed in more detail later under the risks of banks).

Enforcement costs are incurred when borrowers do not adhere to the terms of the contract, i.e. the terms of the loan. When conditions are breached, the bank (the injured party) has to take action, and "action" could mean expensive "legal action".

The individual lender (surplus economic unit) does not have the time or the inclination or the skill to gather information, verify the information, monitor client behaviour or enforce legal contracts, and *delegates* this function to the bank – which is skilled in this area. It may be said that banks have "informational economies of scope"; they focus on this function and consequently the cost per transaction is lower than in the case where an individual lender assesses a few borrowers.

1.4.3.3 Asymmetry in liquidity preference

Lenders and borrowers have different requirements in terms of liquidity, which essentially means *term to maturity* of the loan or deposit. Borrowers usually borrow for projects that have long lives and consequently long-term repayment schedules, whereas lenders usually require deposits that are *liquid*, i.e. deposits that are available immediately or in the short-term. Banks satisfy both parties; they essentially *transmute illiquid assets into liquid liabilities*.

Depositors earn a rate of interest and have liquidity, and they accept a low rate of interest compared with the loan rate for this convenience. The large banks have little risk of losing funds (liquidity risk) because withdrawals of liquid deposits do not deplete the system of funds; these funds remain in the system and flow back to the deficit banks via the interbank market.

The borrowers are prepared to pay a higher rate of interest than that available to the lenders because of the convenience, i.e. availability of the funds for the required period, which would most likely not be the case if the ultimate lender loaned the funds.

1.4.3.4 OTC versus securities markets

It should be evident that banks mainly operate in the informal (over-the-counter – OTC) financial market: taking of deposits from and making loans to individuals and smaller companies in the main. The alternative to the informal market is the formalised market, i.e. the financial (share and bond) exchange/s, where *informational and liquidity problems are overcome* by:

- The borrowers (issuers of securities) being the large creditworthy borrowers (which are usually rated by credit rating agencies).
- The existence of standardised contracts.
- The ability to dispose of investments when the need arises.

1.4.4 Broad functions of banks

1.4.4.1 Introduction

In the previous section we discussed the basic underlying raison d'être of banks: *information costs* and *asymmetry in liquidity preference*. These may also be seen as the main functions of banks. Allied to these functions are a number of other functions, for example payments services (which are closely related with the taking of deposits). The longer list of the functions of banks is as follows:

- Facilitation of flow of funds (this is the obvious one).
- Efficient allocation of funds.
- Assistance in price discovery.
- Money creation.
- Enhanced liquidity.
- Price risk lessened for the ultimate lender.
- Improved diversification.
- Economies of scale.
- Payment system.
- Monetary policy function.

1.4.4.2 Facilitation of flow of funds

In essence, financial intermediaries facilitate the flow of funds from surplus economic units to deficit economic units. Without sound financial intermediaries, much of the savings of the ultimate lenders will not be available to the ultimate borrowers. There are numerous examples in underdeveloped countries where individuals keep their savings in the form of notes and coins as opposed to deposits with unsound banks.

1.4.4.3 Efficient allocation of funds

Banks (not all though) have the expertise to ensure that the flow of funds is allocated in the most efficient manner. As noted, they are aware of the existence of *asymmetric information* and its two by-products, the problems of *adverse selection* and *moral hazard*.[6] Asymmetric information means that the potential borrower has more information than the bank does about his/her business.

As we have seen, the presence of *asymmetric information* leads to *adverse selection* and *moral hazard* problems. *Adverse selection* means that bad risk borrowers are more likely to want loans than good risk borrowers. *Moral hazard* purports that once a loan is granted the borrower may be inclined to take risks with the money that are not disclosed to the bank in the application. These are two of the many real-life risks faced by banks. They are keenly aware of them, and this ensures that available funds are allocated to borrowers that will utilise the funds prudently, which in turn will lead to an increase in economic activity.

1.4.4.4 Assistance in price discovery

Closely allied with efficient allocation of funds is price discovery. The banks are the professionals / experts in the financial system (after all, they also make up a large part of the system), and are therefore keenly involved in price discovery. They are actively involved in the pricing of financial services and securities.

It is notable, however, that the cue for interest rates, especially at the short end of the yield curve, emanates from the central bank. This is elucidated in the separate section on money creation.

1.4.4.5 Money creation

Also closely allied with the efficient allocation of funds is money creation. This function may also be termed the credit of loan function. Not only are existing funds allocated efficiently, but new money is also allocated efficiently by the banking sector. They have the unique ability to create money (their own deposits) by making new loans, i.e. literally by accounting entries. But, this takes place under the guidance of the central bank.

The banks may thus also be seen as the intermediaries that ease the constraint of income on expenditure, thereby enabling the consumer to spend in anticipation of income and the entrepreneur to acquire physical capital. These are of benefit to the overall welfare of the country. Money creation is covered more fully below.

1.4.4.6 Enhanced liquidity

As we discussed earlier, enhanced liquidity is created for the depositor with a bank. If an individual purchases the securities of the ultimate lenders (such as making a loan to a company), liquidity is low or almost zero. Banks are in the business of purchasing less (or non-) marketable primary securities, and offering liquid investments to the ultimate lenders.

1.4.4.7 Price risk lessened for the ultimate lender

Flowing from the above is that banks take on price risk and offer products that have little or zero *price* risk. Banks have a diverse portfolio of non-marketable loans, bonds and share investments that carry price risk (also called market risk), and offer products that have zero price risk, such as fixed deposits.

1.4.4.8 Improved diversification

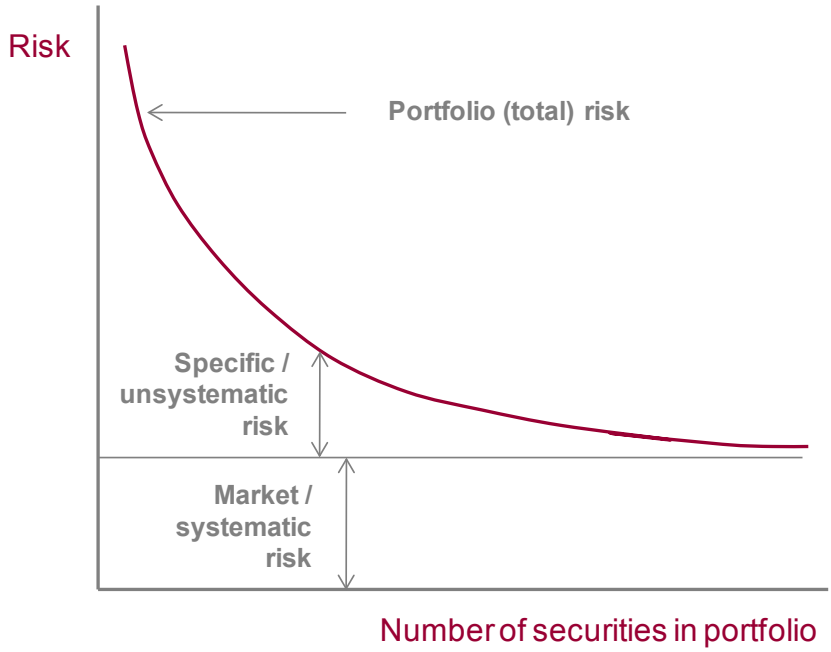


Figure 7: risk & diversification

One of the central doctrines of portfolio theory (and practice) is that risk (defined as variability of return around the mean return) is reduced as the number of securities in a portfolio is increased, provided that the returns are not perfectly positively correlated. It may be said that part of the investment risk is "diversified away" as one increases the number of securities (assets) in a portfolio.[7] This concept is illustrated as in Figure 7.

With investments, members of the household and (small and medium) corporate sectors can only achieve limited diversification compared to a bank which aggregates small amounts of deposits for investments in the securities (mainly NMD) of the ultimate borrowers. Thus, an investment with a bank is an indirect investment in a wide variety of assets (mainly NMD), achieving diversification and lessening risk. Earlier, we used the example of a father lending to his son. This is highly risky, because there is a fair probability of him receiving zero return and losing 100% of his investment. He lessens risk by lending to a number of individuals and companies via a bank deposit.

1.4.4.9 Economies of scale

This was touched upon earlier; however, there is no harm in elaborating. Because of the sheer scale of banks, a number of economies are achieved. The two main economies that are realised are: *transactions costs and research (search) costs.*

Transactions costs

The largest benefit of financial intermediation is the reduction in transactions costs; in fact some intermediaries have been formed specifically because of transactions costs [e.g. securities unit trusts (SUTs) and exchange traded funds (ETFs). The obvious example is that the (transaction) cost involved in purchasing a small number of shares in a company via a broker-dealer is similar to the cost of purchasing many more shares. More important is payments system costs. The banking system, through the use of sophisticated technology, provides an efficient payments service (cheque clearing and electronic payments) that is relatively inexpensive. Individual participants in the financial system cannot achieve this reduction in transactions costs.

Research (search) costs

An example is the purchase by an ultimate lender of shares and bonds as opposed to holding bank deposits. S/he now has the task of monitoring the performance of each company, which involves economic analysis, industry analysis, ratio analysis, etc. Financial intermediaries have the resources to carry out research, which essentially benefits the holders of its products (deposits).

1.4.4.10 Payments system

The banking sector provides the mechanism for the making of payments for anything that is purchased (goods, services, securities). Certain financial assets serve as a means of payments, and there are instruments of transfer, and purchases / payments are settled efficiently, assuming an efficient payments system (clearing and settlement). The financial assets / instruments of transfer that are accepted as payment include:

- Financial assets (money):
  - Bank notes and coin (issued by the central bank in most cases).
  - Bank deposits.

- Instruments of transfer:
  - Cheques.
  - Credit, debit and smart cards.
  - Electronic funds transfer (EFTs) facilities (such as internet banking facilities).

1.4.4.11 Monetary policy function

The banks are both the instruments of money creation and the mechanism for the implementation of monetary policy. The monetary authorities are able, through various means, to exert a powerful influence on the interest rates of banks, and, in turn, to influence consumption (C) and investment (I) spending. C + I = GDE (gross domestic expenditure), and GDE contributes over 60% to GDP (gross domestic product[8]) (and as high as 80% in some countries). GDP growth is a major input in the other objectives of policy: stable employment, balance of payments equilibrium and low inflation.

1.5 The balance sheet of a bank

1.5.1 Introduction

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

Equity and liabilities = assets.

Liabilities are made up of deposits (overwhelmingly) and short-term loans (loans from the central bank, and repurchase agreements). Thus, the essence of banking is straightforward. The banks finance themselves with own capital and reserves (equity), deposits and short-term loans, and they provide loans (NMD and MD). They also provide other services, such as indemnities, guarantees and broking services that are off-balance sheet.

The banks' income derives from interest earnings on their loans (NMD and MD), the fees charged for services, as well as opportunistic profits from financial market dealing. Their costs are comprised of interest payments on deposits and short-term loans, and the costs associated with running the bank.

We repeat a previous illustration which shows the unique position of banks in the financial system: Figure 8. It will be seen that banks also buy shares; however, this is a minuscule part of the business and holdings are usually associated with opportunistic positions / dealing in shares.

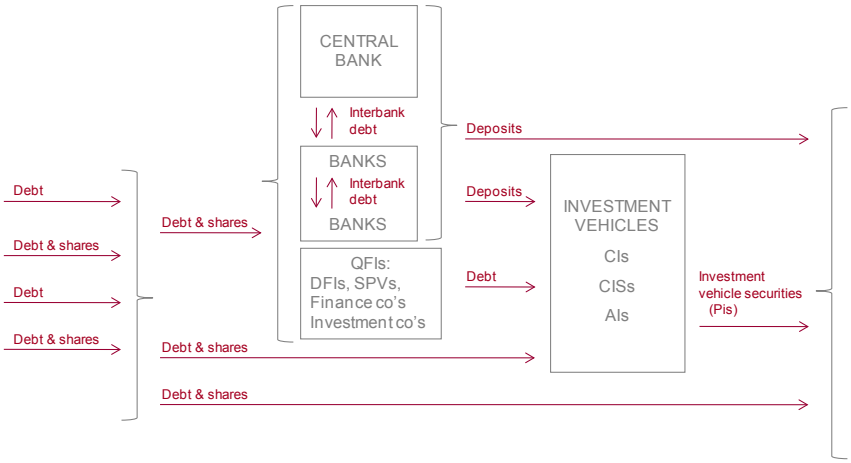


Figure 8: banks in the financial system

The purpose of this section is to provide a brief introduction to the business of banking, with a sub-purpose of attempting to build a framework for this unique industry. The details are then presented in later texts.

The broad carcass of banking may be seen in basic terms as in Figure 9.

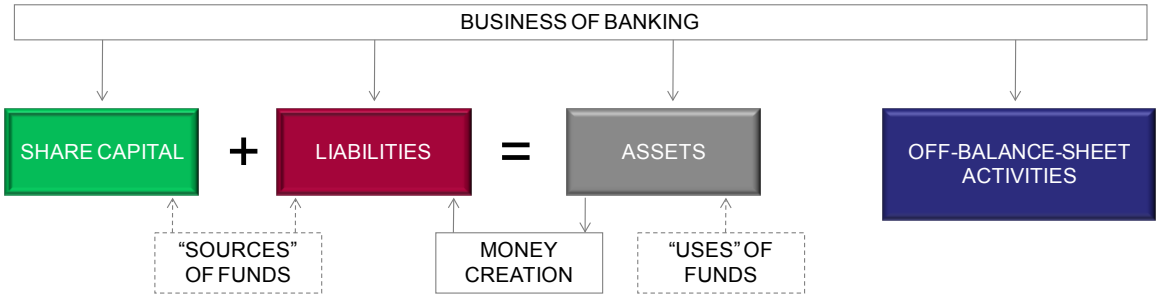


Figure 9: the basic business of banking

Each of these areas of banking is presented in summary form below (keep in mind that the purpose of this section is to create a broad outline the private banking sector).

1.5.2 Share capital (equity)

The share capital and unimpaired reserves (= equity) required to be held by a bank is the principal prudential requirement of banking legislation, and it is ultimately applied to protect the bank's deposit clients as well as the banking system from failure (systemic failure). The other prudential requirements are the cash reserve, liquid asset and large exposure requirements. The capital and reserves of the banks amount to around 8–10% of total capital and liabilities / assets.

1.5.3 Liabilities

1.5.3.1 Introduction

Apart from equity, the other sources of funds of banks are:

- Deposits.
- Loans:
  - Loans from the central bank.
  - Interbank loans.
  - Repurchase agreements (repos).

1.5.3.2 Deposits

Deposits are the primary source of the funding for a bank; there are two broad categories:

- Non-negotiable certificates of deposit (NNCDs).
- Negotiable certificates of deposit (NCDs).

The proportions of the two categories vary from country to country, but the former is usually the higher one, because most deposits are small. The NNCD category includes many types: call money accounts, cash managed accounts, transmission accounts, cheque accounts, savings accounts, fixed deposit accounts, notice of withdrawal accounts (NOW accounts in the US), and so on.

The term of deposits ranges from a day to a number of years, although the overwhelming term is short.

As indicated in Figure 8, deposits are taken from all the other financial intermediaries, as well as the four sectors of the economy: household, corporate, government and foreign. Deposits are denominated in LCC, and banks also offer foreign currency-denominated accounts to certain depositors.

1.5.3.3 Loans

Loans are short-term in nature and there are three categories: loans from the central bank, interbank loans and repurchase agreements (repos).

Loans from the central bank are related to monetary policy and are provided at the central bank's key interest rate (KIR – called by many names such as base rate, bank rate, repo rate, discount rate).

Interbank loans are loans from banks to banks and are provided at the interbank rate. As we will see later, there are actually three interbank markets, but this one, the bank-to-bank interbank market (b2b IBM), is the only one where a price is discovered (which is closely related to the KIR).

A repurchase agreement (repo) is a legal agreement in terms of which a security, or a parcel of securities, is sold for a portion of the life of the securities. For example, a bank may wish to take a short-term position (for 30 days) in 5-year government bonds (because it expects bond rates to fall in the 30-day period). At the same time the bank may have a wholesale deposit client needing an investment for 30 days at a rate that is higher than the deposit rate for 30 days. The bank buys the bonds outright (with the purpose of selling them outright after 30 days) and would then sell them to the client under repurchase agreement (repo), i.e. under an agreement to repurchase the same securities 30 days after the deal is struck.

It will be evident that if a bank sells a security, it leaves the balance sheet of the bank. In *reality* it does (the security is in fact delivered to the client), but for purposes of the prudential requirements, banks are required to show the security as an asset and the funds advanced to the bank as a loan (received under repurchase agreement).

The repo is the preferred instrument for some central banks in the conduct of monetary policy (for legal reasons). Most central banks (except in exceptional circumstances) bring about a liquidity shortage (LS) and accommodate the banking system by means of outright overnight loans (see above) or by loans via purchasing repos from the banks for specified short-term periods. The rate charged by the central bank for this accommodation is usually called the repo rate (as noted, it is another name for the KIR).

Figure 10 is presented as a summary of the sources of funding of banks.

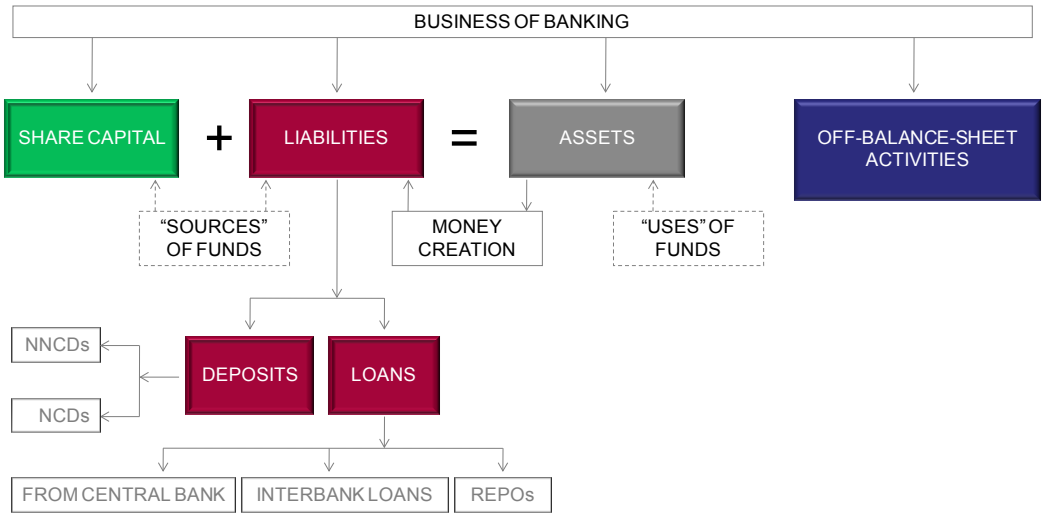


Figure 10: the business of banking: liabilities

1.5.4 Assets

1.5.4.1 Introduction

The assets of banks are categorised into two broad groups, with a few sub-groups as follows (we ignore "other assets"[9]):

- Central bank money:
  - Notes and coins.
  - Deposits (required and excess reserves).
- Loans:
  - Non-marketable debt (NMD):
    - Loans to non-banks.
    - Interbank loans.
  - Marketable debt (MD), i.e. investments.[10]

1.5.4.2 Central bank money

Central bank money is the banks' holding of bank notes and coin (which are the central bank's liabilities), and deposits with the central bank. The latter is comprised of two accounts in some countries (*current* or *settlement account* and *reserve account*) and just one in others (called *settlement* or *reserve* account). The amounts held on this account/s are (1) the statutory required reserves (RR) of the banks, which are determined as a proportion of bank deposits (or liabilities), and (2) excess reserves (which may be held from time to time). Usually, interest is not paid on this account/s, meaning that the banks keep the minimum required reserves in these accounts

Ignoring the RR for a moment, the central bank account/s of the banks are also the *clearing* accounts, i.e. the interbank clearing takes place via these accounts.

Central bank money is only about 2–5% of total assets, and yet these accounts are at the very centre of the banking system and monetary policy. The central bank operates via these accounts to keep the banks short of reserves (usually), and accommodates them at the KIR. The latter is the "foundation" rate in the interest rate structure.

1.5.4.3 Loans

Bank loans are also called *advances* and *credit*. This portion of the banks' balance sheets makes up the vast majority of their assets. As we have seen, the following are the categories:

- Non-marketable debt (NMD):
  - Loans to non-banks.
  - Interbank loans.
- Marketable debt (MD), i.e. investments.

The vast majority of bank loans are *NMD*, i.e. small loans, to *non-banks*, and there are many types, for example:

- Instalment sale credit (old name: hire-purchase credit).
- Suspensive sales agreements.
- Leasing finance.
- Credit card debtors.
- Foreign currency loans.
- Mortgage loans.
- Overdraft loans

Of these NMD, the last two are in the majority.

Interbank loans are the counterpart of the interbank loans that appear on the liability side of the balance sheet.

Marketable debt (MD) refers to the holdings of the banks of investments such as treasury bills, bonds, promissory notes, bankers' acceptances and commercial paper. As noted, banks also hold shares (ordinary / common shares and redeemable preference shares), but this is unusual. In most cases, MD makes up a small proportion of assets.

Figure 11 is presented as a summary of the assets ("uses" of funds) of banks (as well as the liabilities). This brings us to one of the unique features of banks: the ability to create new deposits (= money) by making new loans.

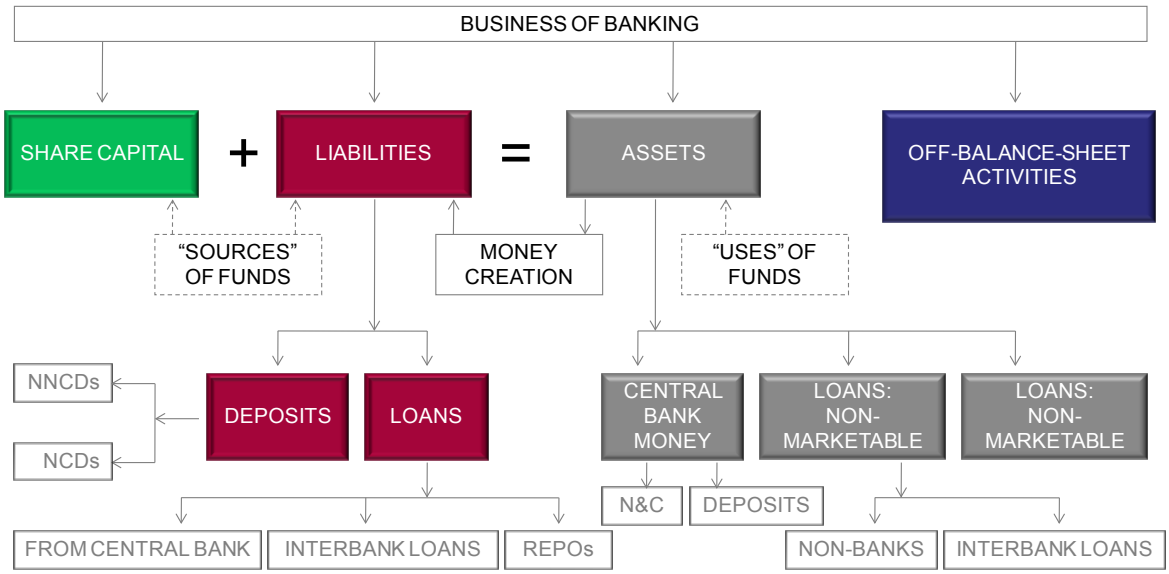


Figure 10: the business of banking: full picture

1.5.5 Liability and asset portfolio management

Asset and liability portfolio management is the essence of banking, and every bank has an active asset and liability committee (ALCO) that meets frequently. In a nutshell, banks endeavour to balance liabilities and assets in such a way that the maximum profit is generated, given an acceptable risk profile.

The ultimate balance of liabilities and assets sought by banks is to have assets that generate the highest floating interest rate possible, and no credit risk, and liabilities that carry the lowest floating rate possible. To the extent that there is a term and rate (fixed versus floating) mismatch, the ideal portfolio construct depends on the interest rate view of the bank. If there is certainty in respect of interest rate movements, then in a falling rate environment (ideally with a positively sloped yield curve) assets should have the longest term possible and liabilities should be as short as possible. Conversely, in a rising rate environment, assets should have a short-term maturity and liabilities a long maturity. But, term mismatches are risky.

The reality is vastly different. Other banks are competing for business, clients of the bank require deposits and investments and accommodation that differ from the bank's ideal portfolio construct, interest rate movements can be volatile and unpredictable (and subject to shocks), and there are many risks that banks face.

Banks are in the business of lending funds. Thus, they have a disposition to grow their asset "books" to the extent dictated by the capital requirement, and to generate profits that can be added to capital resources (retained funds) in order to grow the book even faster. In the past history of banking, locally and internationally, a number of banks have "gone for growth at all costs", and in many cases the cost has been failure. For this reason the focus of the regulatory authorities is on risk management.

It is easy for a bank to grow its asset book, but with this comes risk in many forms. Thus banks have to balance the search for business with strict risk management. This is discussed at some length later.

1.5.6 Money creation

Bank assets and liabilities are not static. They increase mainly as a result of money creation. Thus will be discussed in detail later; here we present a simple example. Keep in mind that 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 1: COMPANY A (LCC MILLIONS)			
Assets		**Equity and liabilities**	
Goods Bank deposits	-10 +10		
Total	**0**	**Total**	**0**

BALANCE SHEET 2: COMPANY B (LCC MILLIONS)			
Assets		**Equity and liabilities**	
Goods	+10	Bank loan (overdraft)	+10
Total	**+10**	**Total**	**+10**

BALANCE SHEET 3: 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 1–3.

It will be evident that the deposit of Company A amounts to an increase in M3 (bank deposits 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* (Δ = 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, is *monetary policy*.

1.5.7 Off-balance sheet activities

1.5.7.1 Introduction

The off-balance sheet activities of banks may be split into two categories as follows:

- Off-balance-sheet activities that carry risk.
- Off-balance-sheet activities and services that carry no or little risk.

1.5.7.2 Off-balance-sheet activities that carry risk

The off-balance sheet activities of banks that carry risk are many and include the following:

- Indemnities.
- Guarantees.
- Irrevocable letters of credit.
- Underwriting.
- Effective net open position in foreign currencies.
- Portfolios managed by others on behalf of the bank.
- Securities / commodities broking.

1.5.7.3 Off-balance-sheet activities that carry no or little risk

The off-balance sheet activities of banks that carry little or no risk are multi-faceted and include:

- Corporate finance (mergers, acquisitions, company listings).
- Debt origination (companies and government).
- Project finance.
- Bookkeeping services.
- Economic advice to corporate and individual clients.
- Advice on importing and exporting.
- General investment advising.
- Trust and estate services.

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