

WHAT ARE BANKS AND WHAT DO THEY DO?



1.1. Introduction¹

The term “banking” can be applied to a large range of financial institutions, from savings and loans organisations to the large money-centre commercial banks in the USA, or from the smallest mutually owned building society to the “big four” shareholder owned banks in the UK. Many European countries have large regional/cooperative banks in addition to three to five *universal* banks. In Japan, the bank with the largest retail network is Sumitomo Mitsui Banking Corporation,² but its main rival for savings deposits is the Post Office.

The objective of this chapter is to provide an overview of banking and the role played by banks in an increasingly complex financial world. It begins with a review of the meaning of banking, identifying the features of banks that distinguish them from other financial institutions. The most common forms of organisational structure for banks in the developed world are reviewed in section 1.3. Section 1.4 considers the relationship between the central banks and commercial banks, including key debates on the functions and independence of a central bank. The chapter ends with a brief summary of the major theoretical contributions to the banking literature, followed by conclusions.

1.2. The Meaning of Banking

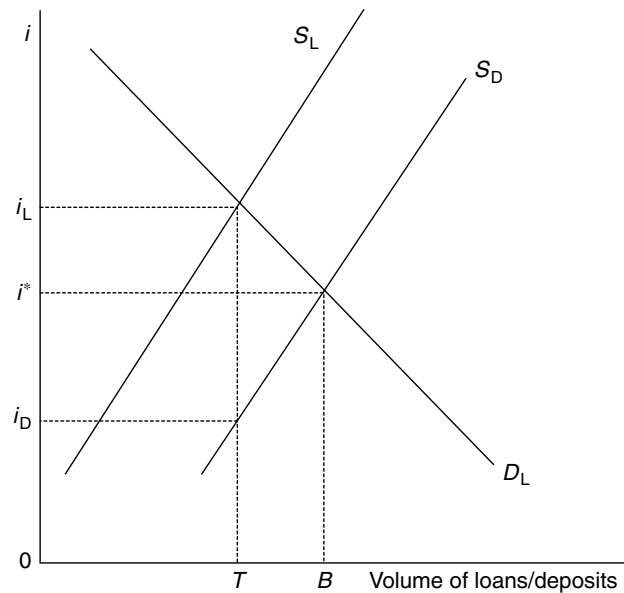
The provision of deposit and loan products normally distinguishes banks from other types of financial firms. Deposit products pay out money on demand or after some notice. Deposits are *liabilities* for banks, which must be managed if the bank is to maximise profit. Likewise, they manage the *assets* created by lending. Thus, the core activity is to act as *intermediaries* between depositors and borrowers. Other financial institutions, such as stockbrokers, are also intermediaries between buyers and sellers of shares, but it is the taking of deposits and the granting of loans that singles out a bank, though many offer other financial services.

To illustrate the traditional intermediary function of a bank, consider Figure 1.1, a simple model of the deposit and credit markets. On the vertical axis is the rate of interest (i);

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² This banking giant is the result of a merger between Sakura and Sumitomo Mitsui Banks in April 2001.

Figure 1.1 The Banking Firm–Intermediary.



$i_L - i_D$: bank interest differential between the loan rate (i_L) and the deposit rate (i_D) which covers the cost of the bank's intermediation

S_D : supply of deposits curve

S_L : supply of loans curve

D_L : demand for loans curve

OT : volume of loans supplied by customers

i^* : market interest rate in the absence of intermediation costs

the volume of deposits/loans appears on the horizontal axis. Assume the interest rate is exogenously given. In this case, the bank faces an upward-sloping supply of deposits curve (S_D). There is also the bank's supply of loans curve (S_L), showing that the bank will offer more loans as interest rates rise.

In Figure 1.1, D_L is the demand for loans, which falls as interest rates increase. In Figure 1.1, i^* is the market clearing interest rate, that is, the interest rate that would prevail in a perfectly competitive market with no intermediation costs associated with bringing borrower and lender together. The volume of business is shown as OB . However, there are intermediation costs, including *search*, *verification*, *monitoring* and *enforcement* costs, incurred by banks looking to establish the creditworthiness of potential borrowers. The lender has to estimate the riskiness of the borrower and charge a premium plus the cost of

the risk assessment. Thus, in equilibrium, the bank pays a deposit rate of i_D and charges a loan rate of i_L . The volume of deposits is OT and OT loans are supplied. The interest margin is equal to $i_L - i_D$ and covers the institution's intermediation costs, the cost of capital, the risk premium charged on loans, tax payments and the institution's profits. *Market structure* is also important: the greater the competition for loans and deposits, the more narrow the interest margin.

Intermediation costs will also include the cost of administration and other transactions costs related to the savings and loans products offered by the bank. Unlike individual agents, where the cost of finding a potential lender or borrower is very high, a bank may be able to achieve *scale economies* in these transactions costs; that is, given the large number of savings and deposit products offered, the related transactions costs are either constant or falling.

Unlike the individual lender, the bank enjoys *information economies of scope* in lending decisions because of access to privileged information on current and potential borrowers with accounts at the bank. It is normally not possible to bundle up and sell this information, so banks use it internally to increase the size of their loan portfolio. Thus, compared to depositors trying to lend funds directly, banks can pool a portfolio of assets with less risk of default, for a given expected return.

Provided a bank can act as intermediary at the lowest possible cost, there will be a demand for its services. For example, some banks have lost out on lending to highly rated corporations because these firms find they can raise funds more cheaply by issuing bonds. Nonetheless, even the most highly rated corporations use bank loans as part of their external financing, because a loan agreement acts as a *signal* to financial markets and suppliers that the borrower is creditworthy (Stiglitz and Weiss, 1988).

The second core activity of banks is to offer *liquidity* to their customers. Depositors, borrowers and lenders have different liquidity preferences. Customers expect to be able to withdraw deposits from current accounts at any time. Typically, firms in the business sector want to borrow funds and repay them in line with the expected returns of an investment project, which may not be realised for several years after the investment. By lending funds, savers are actually agreeing to forgo present consumption in favour of consumption at some date in the future.

Perhaps more important, the liquidity preferences may *change over time* because of unexpected events. If customers make term deposits with a fixed term of maturity (e.g., 3 or 6 months), they expect to be able to withdraw them on demand, in exchange for paying an interest penalty. Likewise, borrowers anticipate being allowed to repay a loan early, or subject to a satisfactory credit screen, rolling over a loan. If banks are able to pool a large number of borrowers and savers, the liquidity demands of both parties will be met. *Liquidity* is therefore an important service that a bank offers its customers. Again, it differentiates banks from other financial firms offering near-bank and non-bank financial products, such as unit trusts, insurance and real estate services. It also explains why banks are singled out for prudential regulation; the claims on a bank function as money, hence there is a "public good" element to the services banks offer.

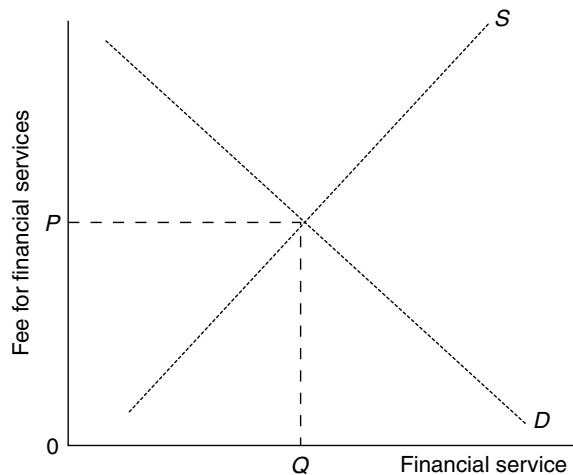
By pooling assets and liabilities, banks are said to be engaging in **asset transformation**, i.e., transforming the value of the assets and liabilities. This activity is not unique to banks. Insurance firms also pool assets. Likewise, mutual funds or unit trusts pool together a large

number of assets, allowing investors to benefit from the effects of diversification they could not enjoy if they undertook to invest in the same portfolio of assets. There is, however, one aspect of asset transformation that is unique to banks. They offer savings products with a short maturity (even instant notice), and enter into a loan agreement with borrowers, to be repaid at some future date. Loans are a type of finance not available on organised markets.

Many banking services have non-price features associated with them. A current account may pay some interest on the deposit, and offer the client a direct debit card and cheque book. The bank could charge for each of these services, but many recoup the cost of these “non-price” features by reducing the deposit rate paid.³ On the other hand, in exchange for a customer taking out a term deposit (leaving the deposit in the bank for an agreed period of time, such as 60 days or one year), the customer is paid a higher deposit rate. If the customer withdraws the money before then, an interest penalty is imposed. Likewise, if customers repay their mortgages early, they may be charged for the early redemption.

Figure 1.1 does not allow for the other activities most modern banks undertake, such as off-balance sheet and fee for service business. However, the same principle applies. Figure 1.2 shows the demand and supply curve for a fee-based product, which can be anything from

Figure 1.2 The Banking Firm – Fee Based Financial Products.



(For example, arranging a syndicated loan; deposit box facilities)

P: price for fee based services

Q: quantity demanded and supplied in equilibrium

³ In some countries, banks charge for each item, such as statements, cheques, etc., or offer customers a package of current account services (monthly statements, a fixed number of “free” cheques per month, etc.) for a monthly fee. In the UK, banks do not normally charge personal customers for writing cheques, statements, etc.

deposit box facilities to arranging a syndicated loan. The demand and supply curves are like any other product, and the market clearing price, P , is determined by the intersection of the demand and supply curves. Again, market structure will determine how competitive the price is. Banks will operate in other “non-banking” financial markets provided they can create and sustain a competitive advantage in each of them.

Banks do not necessarily charge a direct price for their services, as suggested by Figure 1.2. Many modern banks offer stockbroking services to their customers, and “make markets” in certain equities. In this case, some or all of the “fee” may be reflected in the difference between the *bid* and *offer* price, that is, the price the bank pays to purchase a given stock and the price the customer pays. The difference between the two is the spread, which is normally positive, since the bid price will always be lower than the offer price, so the bank, acting as a market maker, can recoup related administrative costs and make a profit. Again, the amount of competition and volume of business in the market will determine how big the spread is. When the bank acts as a stockbroker, it will charge commission for the service. Suppose a bank sells unit trusts or mutual funds.⁴ Then the price of the fund often consists of an initial charge, an annual fee, and money earned through the difference between the bid and offer price of the unit trust or mutual fund.

This discussion illustrates how complicated the pricing structure of banks’ products/services can be. Non-price features can affect the size of the interest margin or the bid–offer differential. Hence, assessing the pricing behaviour of banks is often a more complex task compared to firms in some other sectors of the economy.

1.3. Organisational Structures

The intermediary and payments functions explain why banks exist, but another question to be addressed is why a bank exhibits the organisational structure it does. Profit-maximising banks have the same objective as any other firm; so this question is best answered by drawing on traditional models. Coase (1937), in his classic analysis, argued that the firm acted as an alternative to market transactions, as a way of organising economic activity, because some procedures are more efficiently organised by “command” (e.g., assigning tasks to workers and coordinating the work) rather than depending on a market price. In these situations, it is more profitable to use a firm structure than to rely on market forces.

The existence of the “traditional” bank, which intermediates between borrower and lender, and offers a payments service to its customers, fits in well with the Coase theory. The core functions of a bank are more efficiently carried out by a command organisational structure, because loans and deposits are internal to a bank. Such a structure is also efficient if banks are participating in organised markets. These ideas were developed and extended by Alchian and Demsetz (1972), who emphasised the monitoring role of the firm and its creation of incentive structures. Williamson (1981) argued that under conditions of uncertainty, a firm could economise on the costs of outside contracts.

⁴ Mutual funds (USA) or unit trusts (UK) offer the investor a package of shares, bonds, or a combination of both. The investor purchases units in the fund, as do many other investors. It is managed by the bank or investment firm offering the fund.

1.3.1. Banks and the Principal Agent Problem

The nature of banking is such that it suffers from *agency* problems. The *principal agent* theory can be applied to explain the nature of contracts between:

- the shareholders of a bank (principal) and its management (agent);
- the bank (principal) and its officers (agent);
- the bank (principal) and its debtors (agent); and
- the depositors (principal) and the bank (agent).⁵

Incentive problems arise because the principal cannot observe and/or have perfect information about the agent's actions. For example, bank shareholders cannot oversee every management decision; nor can depositors be expected to monitor the activities of the bank. Bank management can plead bad luck when outcomes are poor.

Asymmetric information, or differences in information held by principal and agent, is the reason why banks face the problem of *adverse selection* because the bank, the principal, normally has less information about the probability of default on a loan than the firm or individual, the agent. Though not shown in Figure 1.1, the presence of adverse selection may mean the supply of loans curve is discontinuous at some point. *Adverse selection* is the reason why the supply curve is discontinuous or even backward-bending (with respect to certain borrowers), and shows that bankers are more reluctant to supply loans at very high rates because as interest rates rise, a greater proportion of riskier borrowers apply for loans. The problem of *adverse incentives* (higher interest rates encouraging borrowers to undertake riskier activities) is another reason why banks will reduce the size of a loan or even refuse loans to some individuals or firms.

Box 1.1 Example of Adverse Selection: Robert Maxwell

In the 1980s, most of the major American and British banks in the City of London had dealings with Robert Maxwell. At the time of his death in 1991, Mr Maxwell owed £2.8 billion to a large group of banks. Little, if any, of it was recovered. The Department of Trade and Industry had censured Robert Maxwell for his business practices in 1954. In 1971, they declared him unfit to run a public company. Despite Maxwell's background, and secrecy about the links of over 400 firms within the publicly owned Maxwell Communication Corporation, banks were attracted to Maxwell because he was prepared to pay high fees and comparatively high rates of interest on his loans, a classic example of *adverse selection*. *Herd instinct* was also evident. Goldman Sachs, the prestigious investment bank, accepted Mr Maxwell's custom in the late 1980s, originally to buy/sell MCC shares; the loans, options and forex dealings came later. The bank was well known for a high moral tone, which included refusing to take on clients with even a hint of bad reputation, but the New York Committee overruled the misgivings expressed by the London office, possibly because the business was confined to the sale and purchase of MCC shares. For many banks, Goldman Sachs' acceptance of Maxwell as a client was a signal that he was financially sound, and they agreed to lend to him.⁶

Moral hazard is another problem if the principal, a customer, deposits money in the agent, a bank. Moral hazard arises whenever, as a result of entering into a contract, the

⁵ For a more theoretical treatment, see Bhattacharya and Pfleiderer (1985), Diamond (1984) and Rees (1985).

⁶ For more detail, see the Goldman Sachs case (Chapter 10).

incentives of the two parties change, such that the riskiness of the contract is altered. Depositors may not monitor bank activities closely enough for several reasons. First, a depositor's cost of monitoring the bank becomes very small, the larger and more diversified is the portfolio of loans. Though there will always be loan losses, the pooling of loans will mean that the variability of losses approaches zero. Second, deposit insurance schemes⁷ reduce depositors' incentives to monitor the bank. If a bank can be reasonably certain that a depositor either cannot or chooses not to monitor the bank's activities once the deposit is made, then the nature of the contract is altered and the bank may undertake to invest in more risky assets than it would in the presence of close monitoring.

Shareholders do have an incentive to monitor the bank's behaviour, to ensure an acceptable rate of return on the investment. Depositors may benefit from this monitoring. However, even shareholders face agency problems if managers maximise their own utility functions, causing managerial behaviour to be at odds with shareholder interest. There are many cases of bank managers boosting lending to increase bank size (measured by assets) because of the positive correlation between firm size and executive compensation. These actions are not in the interests of shareholders if growth is at the expense of profitability.

1.3.2. Relationship Banking

Relationship banking can help to minimise principal agent and adverse selection problems. Lender and borrower are said to have a **relational contract** if there is an understanding between both parties that it is likely to be some time before certain characteristics related to the contract can be observed. Over an extended period of time, the customer relies on the bank to supply financial services. The bank depends on long-standing borrowers to repay their loans and to purchase related financial services. A relational contract improves information flows between the parties and allows lenders to gain specific knowledge about the borrower. It also allows for flexibility of response should there be any unforeseen events. However, there is more scope for borrower opportunism in a relational contract because of the information advantage the borrower normally has.

The Jürgen Schneider/Deutsche Bank case is a good example of how relationship banking can go wrong. Mr Schneider, a property developer, was a long-standing corporate client of Deutsche Bank. Both parties profited from an excellent relationship over a long period of time. However, when the business empire began to get into trouble, Schneider was able to disguise ever-increasing large debts in his corporation because of the good record and long relationship he had with the bank. Schneider forged loan applications and other documents to dupe Deutsche and other banks into agreeing additional loans. In 1995, he fled Germany just as the bank discovered the large-scale fraud to cover up what was

⁷ Deposit insurance means that in the event of the bank going out of business, the depositor is guaranteed a certain percentage of the deposit back, up to some maximum. Normally banks pay a risk premium to a deposit insurance fund, usually administered by bank supervisors.

essentially a bankrupt corporation. After nearly 3 years in a Florida prison, Mr Schneider gave up the fight against extradition and was returned to Germany to face the biggest corporate fraud trial since the end of the Second World War. In 1998, he was convicted of fraud/forgery and given a prison term of 6 years, 9 months. The judge criticised German banks for reckless lending. Outstanding loans amounted to \$137 million. Deutsche Bank apologised for improper credit assessment, especially its failure to follow proper procedures for loan verification.

1.3.3. Transactional or Contract Banking

An arms-length *transactional* or *classical contract* is at the other extreme and gives rise to *transactional banking* – where many banks compete for the customer’s business and the customer shops around between several banks to find the best deal. Little in the way of a relationship exists between the two parties – both sides stick to the terms of the contract. A transactional contract deters opportunistic behaviour and because each contract is negotiated, both parties can bargain over terms. On the other hand, information flows will be significantly curtailed and the detailed nature of the contract reduces the scope for flexibility.

It is important to treat the definitions given above as two extremes, at either end of a spectrum. In reality, most banks will offer a version of relationship banking to some customers or apply it to some products, while contract-like banking is more appropriate for other clients and/or services. For example, virtually all customers who enter into a loan agreement with a bank will sign a legally binding contract, but if the customer has a good relationship with the manager and a good credit history, the manager is likely to allow a certain degree of flexibility when it comes to enforcing the terms of the contract. For new clients, the manager will be more rigid.

Relationship banking is most evident in countries such as Japan and Germany, where there are cross-shareholdings between banks and non-financial corporations. In other countries, including the USA and the UK, classical contracts are the norm. In Japan and Germany, the close bank–corporate relationships were, in the 1970s and 1980s, praised as one of the key reasons for the success of these economies. However, in the 1990s, relationship banking declined because of global reforms, which increased the methods for raising corporate finance and the number of players in the market.

Furthermore, the serious problems in the Japanese financial sector that began in 1990 have undermined *keiretsu*, the close relationship enjoyed by groups of firms, including a bank. The bank plays a pivotal role in the group because it provides long-term credit to the main firm and its network of suppliers, as well as being a major shareholder. The bank also gives the keiretsu advice and assistance in overseas ventures. With the steady rise in the number of key banks facing bankruptcy, primarily as a result of problem loan portfolios, and a drastic reduction in the market value of banks’ equity portfolios due to the prolonged decline in the stock market, the relationships between banks and corporations have been seriously undermined.⁸

⁸ See Chapter 8 for more detail.

1.3.4. Payment Systems: A Byproduct of the Intermediary Process

One theme of this chapter is that banks differ from other financial firms because they act as intermediaries and provide liquidity. Banks require a system for processing the debits and credits arising from these banking transactions. The payment system is a byproduct of intermediation, and facilitates the transfer of ownership claims in the financial sector. Credits and debits are transferred between the relevant parties. In the UK alone, there were over 28 billion cash payments in 2001, but they are expected to decline to 24 billion by 2010. £113 billion was withdrawn from the 34 300 Automatic Teller Machines (ATMs) in 2000.⁹ In the same year, there were 3 billion plastic card transactions with UK merchants.

However, there are two key risks associated with any payment. Banks must manage the following.

- *Liquidity risk*: The settlement is not made at the expected time so that assets/liabilities cannot be transferred from one agent to another via the system.
- *Operational risk*: Arising from the threat of operational breakdowns, preventing timely settlement. For example, the hardware or software supporting the system may fail. System breakdowns can create liquidity risk. Given the open-ended nature of the term, it is difficult to provide a precise definition, which makes measurement problematic.

The international payments system is described in the section on international banking in Chapter 2. In the UK, payments are organised through the following.

- **APACS** (Association for Payments Clearing Services): An umbrella organisation formed in late 1984, and made up of BACS, CCCL and CHAPS. It was supposed to allow relatively easy entry of banks into the UK payments system. Membership is offered to all participants with at least 5% of total UK clearing. Financial firms that do not qualify for membership but offer products requiring clearing and payments are made associate members.
- **BACS Limited**: An automated clearing house for non-paper-based bulk clearing, that is, standing orders, direct debits and direct credits. Fourteen direct members sponsor about 60 000 other institutions to use the system. As can be seen from Table 1.1, BACS clearing volumes stood at 3.7 billion in 2002.
- **CCCL** (Cheque and Credit Clearing Company Limited): Responsible for paper-based clearing, i.e., cheques. In 2002, there were 2.4 billion cheque transactions (see Table 1.1), which is forecast to fall to 800 million by 2012.¹⁰
- **CHAPS**: Provides Real Time Gross Settlement (RTGS) for high value payments, and is the second most active in the world. In 1998, the average value of transactions processed was £2.3 million, compared to £552 for BACS. In 2000, there were some 25 million

⁹ Source: APACS (2003).

¹⁰ Source: APACS (2003).

Table 1.1 UK: total transactions by volume (millions)

	1990	1995	2000	2003
Cash payments	28 023	26 270	27 910	25 859
Cheques	3 975	3 203	2 699	2 251
ATM withdrawals	1 045	1 471	2 027	2 373
Number of ATM cards	47	55	73	88
Plastic cards*	1 741	2 413	3 914	5 317
BACs clearing	1 820**	2 476	3 527	4 060
CHAPS clearing	9**	13	25	33
Cheque & credit	2 513**	2 314	1 981	1 660

* Includes debit, credit, charge and store cards.

** 1992 figures.

Source: APACS (2003), "Payments: Facts and Figures", www.apacs.org.uk

transactions worth £49.1 billion; transactions had risen to 31 million by 2002. CHAPS Euro was formally launched in January 2001, to process euro payments between members, with monthly volumes of 280 000, valued at 3600 million euros.¹¹ It also provides the UK link to TARGET (see below). The real time nature of the settlement eliminates settlement/liquidity risk, unlike BACS, which settles payments in bulk.

- **CLS:** Created to reduce risks associated with payments involving another currency. It will gradually replace the standard foreign exchange settlement method, where a correspondent bank is used. In 2002, CLS introduced real time payment for foreign exchange transactions.
- **CREST:** Settlement of Securities. Central bank-related transactions moved to real time in 2001, and the idea is to introduce it for all money market instruments – payments are still made at the end of the day on a net settlement basis. The London Clearing House (LCH) acts as a central counterparty for transactions on the financial exchanges, and for some over the counter markets. At the end of 2003, LCH merged with its Paris counterpart Clearnet, creating Europe's largest central counterparty clearing house. It will go some way to creating a pan-European clearing house, reducing the cost of cross-border trading in Europe.

1.3.5. Use of Cards and ATMs

In the mid to late 1990s, there was a continued rapid growth in the use of cards instead of cheques. This point is illustrated in Table 1.1. This table also illustrates that cash payments over the decade and into the new century are fairly stable, and ATM withdrawals have more than doubled. Cash payments remain the dominant payment method, making up three-quarters of all payments, and their dominance will continue, though there might be a slight decline once social security benefits are paid directly into accounts. The use of cheques as a form of payment has fallen dramatically, as households and businesses switch

¹¹ The source for all figures cited for CCCL and CHAPS is APACS (2003).

to the use of plastic cards or direct debit/credit. About 3% of card transactions were via the internet in 2002, and by 2012, APACs is forecasting this to grow to 10%.¹² The ATM network in the UK is run by LINK, which is jointly owned by the banks and building societies. Via LINK, customers have access to over 34 000 ATMs. There are two credit card schemes: Mastercard, owned by Europay, and Visa, part of Visa International. There are also two debit card schemes: Switch and VisaDebit.

Cruikshank (2000) reports that the payment schemes (APACS, Visa, etc.) and ATM network are dominated by the “big four” banks¹³ because the size of shareholdings is normally determined by the volume of transactions in a given scheme. Cruikshank criticised the consequences of this control, which was to take advantage of their monopoly position. Other users of the network were being charged excessive amounts, which had to be passed on to their customers or absorbed in their costs. For example, internet banks had to pay twice as much for access to the system as the big four, and retail outlets were charged excessive prices to offer a direct debit/credit card service to their customers. Cruikshank reported that the fee charged bore no relation to the cost of the investment undertaken by the big four. The big four banks paid the lowest prices to use the system, and, for a brief period, account holders faced charges if they used a rival’s machine, though a vociferous public campaign forced banks to largely abandon this practice.

Cruikshank recommended the establishment of an independent regulator for the payment systems: Paycom. Access would be via a licence, the price of which would reflect the cost of use by a given bank. It could also ensure entrants were financially sound, to minimise settlement and liquidity risk. For example, with the exception of CHAPS, the systems are not based on real time gross settlement,¹⁴ so any bank that failed while it was still using the payments system could strain the liquidity of the system. The British government accepted the need for reform, and referred the matter to the Office of Fair Trading. It has announced the introduction of PaySys, a rule-based system to regulate the payments industry (the Treasury will draft the relevant details), which does not go as far as the “public utility” approach represented by Paycom. An alternative is the “competing network” model,¹⁵ whereby there are several large networks that compete for banks to join them.

The clearing system in the United States is quite different. The Federal Reserve Bank operates a number of cheque clearing centres, which are responsible for about 35% of US cheque clearing, which amounted to \$13.4 billion in 1998.¹⁶ Private centre arrangements made between banks account for another 35%, and about 30% is cleared by individual banks. In 1998, \$16 billion worth of electronic payments were processed through one of 33

¹² The source of these projections is APAC (2003).

¹³ At the time, National Westminster Bank, Hong Kong and Shanghai Banking Corporation (HSBC), Barclays and LloydsTSB. NatWest was taken over by the Royal Bank of Scotland in 2000, and Lloyds dropped to fifth position after the merger between Halifax and the Bank of Scotland (to form HBOS) in 2001. It is no surprise that the largest banks control the network. Only very large banks are able to finance the associated costly technology.

¹⁴ It normally takes 3 to 5 working days for a transaction to be completed. For example, if a customer withdraws money from an ATM, it may not be debited from the account for 2 days; in the case of debit cards used at retailers, or a transfer of funds from one account to another, it can take up to 5 working days.

¹⁵ These terms are from Anderson and Rivard (1998).

¹⁶ Source: BIS (2000), tables 8 and 9 (pp. 95–96). All 1998 figures for ACHs, CHIPS and Fedwire are from the same tables.

automatic clearing houses (ACHs) run by the Federal Reserve or one of the private ACHs. International interbank transactions are handled by CHIPS, the Clearing House Interbank Payments System. It is run by the privately owned New York Clearing House Association. CHIPS uses *multilateral netting*. Until 2001, all net obligations were cleared at the end of the day, but a new bilateral and multilateral algorithm means most payments will be settled promptly through a given day, thereby reducing settlement risk. In 1998, there were roughly 60 million settlements, with a total value of about \$350 trillion.

Fedwire is operated by the Federal Reserve and allows banks (that keep deposits or have a clearing facility with the Federal Reserve) to send and receive payments. With more than 11 000 users (1998) there were over 98.1 million transactions worth \$328.7 trillion. Fedwire has offered net settlement facilities since 1999, which has reduced members' exposure to settlement risk.

In Europe, TARGET (Trans-European Automated Real Time Gross Settlement Express Transfer System) was set up in response to the European Monetary Union. It means central banks can transfer money within each EU state. It consists of 15 national RTGS systems, the European Central Bank Payment Mechanism (EPM) and SWIFT,¹⁷ which interconnects these systems. Since the settlement is immediate, in real time, it eliminates settlement risk, because the payments are deducted from and credited to the relevant accounts immediately.

TARGET is viewed as a harmonised system, and greater harmonisation is expected in the future. According to BIS (2003f), TARGET processes over 211 000 payments each day, valued at €1.3 trillion. Though TARGET eliminates settlement risk, operational risk is considerable. For example, in 1999, a system error at one of the very large banks meant it was unable to process payment orders for foreign exchange, money market transactions, securities settlement and customer payment. The backup system also broke down because it relied on the same software. Manual systems could not cope, so that many large value payment and securities orders were not settled until the next day – this operational breakdown effectively recreated settlement risk.

Apart from the TARGET arrangement for central banks, the situation in Europe looks bleak. With the introduction of the euro in 2002, there is a need for a payments system that allows for quick settlement within Euroland. Instead, there is a plethora of bilateral agreements between different banks. Eurogiro was set up in 1992 by 14 countries' giro clearing organisations, and a similar system, Eufiserv, operates among the European savings banks. Some moves have been made to link CHAPS with its equivalent in France (SIT), Switzerland (SIS) and Germany (EAF), but no formal agreement has been reached. The large number of independent arrangements (that do not include all banks) will hamper cross-border settlement even if banks are all using one currency, the euro. The cost of cross-state settlement in Europe is estimated to be substantially higher than in the United States.

Increasingly, the responsibility for payments and securities clearing is being unbundled from the traditional bank functions, and given to a third entity, which is not necessarily

¹⁷ SWIFT (Society for World-wide Interbank Financial Telecommunications): Established in Belgium in 1973, it is a cooperative company, owned by over 2000 financial firms, including banks, stockbrokers, securities exchanges and clearing organisations. SWIFT is a messaging system, for banking, foreign exchange and securities transactions, payment orders and securities deliveries. The network is available 24 hours a day, every day of the year.

another bank. These firms are providing a service to banks: processing settlements and securities for a large number of banks, reducing banks' back office operations. In other words, back office functions are becoming the sole activity of certain firms, which the banks pay, rather than having their own back office operations. According to BIS (2001, p. 310), in the USA, the top five non-bank service providers make up 20% of the outsourcing market.

1.3.6. An International Comparison of Payments Technology

Figures 1.3–1.6 illustrate how the pace and form of payments-related technological innovation has varied widely among the different industrialised countries. Figure 1.3 shows that ATMs are more plentiful in Japan and North America than in Western Europe. In Europe, Denmark has the fewest ATMs relative to population, followed by the UK and the Netherlands. The other European countries are roughly the same. The change in the UK is surprising because, in the 1980s, it was one of the leading ATM countries in Europe. It is consistent with the large number of branch closures in the UK, and ATMs have not spread in sufficient numbers to other sites, such as supermarkets, rail and petrol stations.

Turning to Figure 1.4, Germany stands out as having relatively few Electronic Funds Transfer at Point of Sale (EFTPOS) machines, followed by Italy, the USA and Portugal. However, while the ratio of population to EFTPOS is 466 in Germany, it is half that in the USA. Countries with relatively more machines include Spain, Switzerland, Canada and France.

Switzerland, Japan and the USA have relatively high paperless credit transfers (Figure 1.5), while some of the continental European countries rank at the bottom – France, Portugal, Italy and Belgium. Figure 1.6 shows the USA, Canada and the UK have the highest value of payments by credit and debit cards, with some of the continental countries lagging

Figure 1.3 Average population per ATM.

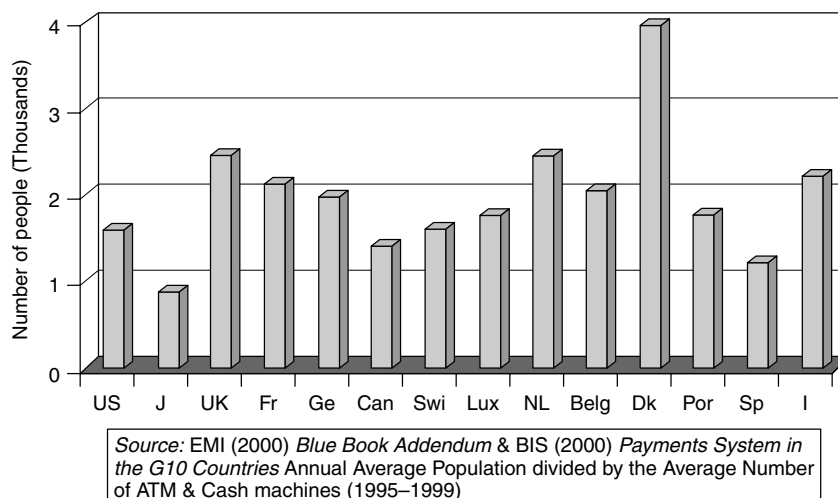


Figure 1.4 Average population per EFTPOS machine.

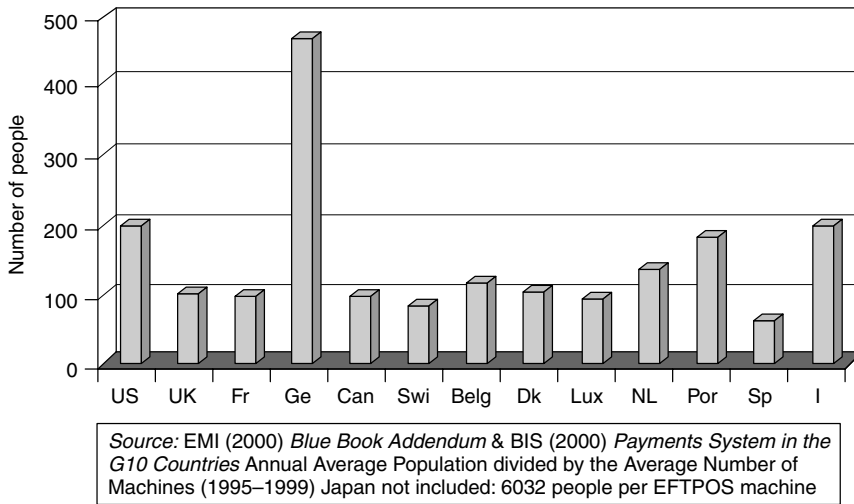
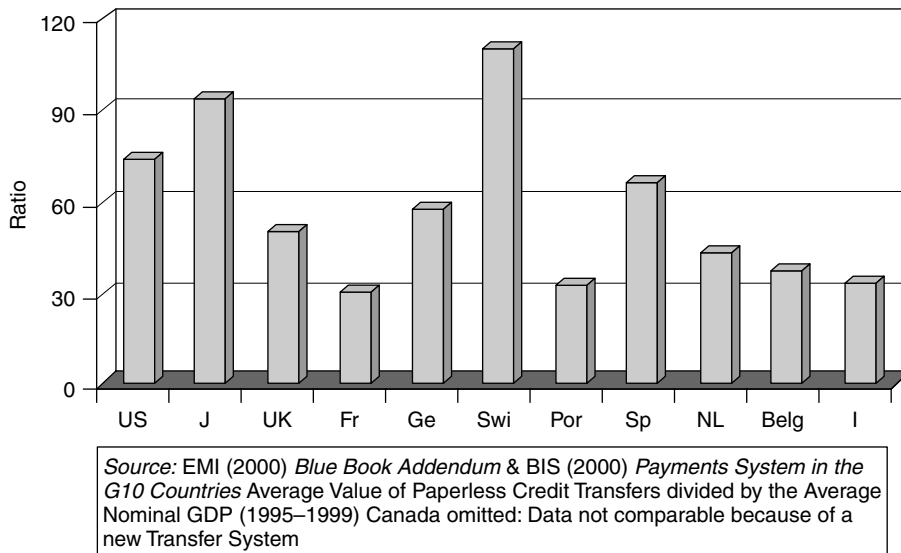


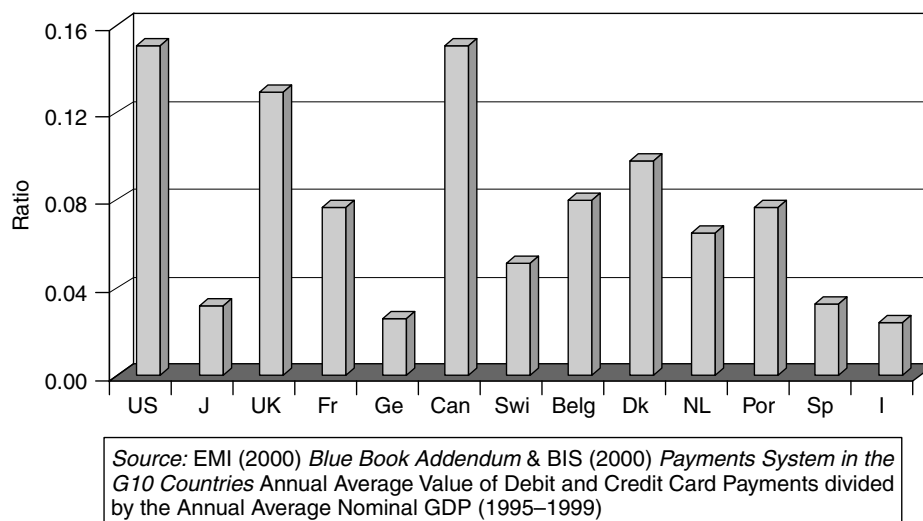
Figure 1.5 Ratio of value of paperless credit transfers to nominal GDP.



behind – especially Germany, Italy and Spain. The use of credit and debit cards in Japan is also low, compared to other countries.

Correspondent banking and *custody services* are also part of the payments system. *Correspondent banking* is an arrangement whereby one bank provides payment and other services to another bank. Reciprocal accounts, which normally have a credit line, are used to facilitate

Figure 1.6 Ratio of value of payments by debit and credit cards to nominal GDP.



payments through the correspondent bank. *Custody services* involve the safekeeping and administration of securities and other instruments on behalf of other banks or customers. Globally, the number of banks offering these services has declined, as a small number of large banks dominate an increasingly consolidated market. For example, the Bank of New York has opted to be a niche player, offering global custody services to other banks, managing \$6.3 trillion worth of custody assets in 2000. Banks specialising in these services normally have sound reputations, offer a fairly large range of products and services that are easily obtainable, participate in key payment and settlement systems, and can raise liquidity.

1.4. Banking Structures

1.4.1. Some Comparative Figures

The structure of banking varies widely from country to country. Often, a country's banking structure is a consequence of the regulatory regime to which it is subject, a topic that is covered in some detail in Chapter 5. Below, different types of banking structures are defined. These different banking structures do not alter the *core functions* of banks, the provision of intermediation and liquidity, and, indirectly, a payment service, which are the *defining* features of banks.

Table 1.2 shows the top 10 banks by assets and, in recent years, *tier 1 capital*, defined as equity plus disclosed reserves. The USA leads the way in 1996, when seven of its banks were in the top 10. In the 1990s, US banks were hard hit by global, then domestic, bank debts. By 1997, Japanese banks had replaced US ones, with six leading banks,

Table 1.2 The Top 10 banks, 1969–2003

	1969 (assets)	1994 (assets)	1997 (assets)	1997 (tier 1 capital)	2001 (assets)	2001 (tier 1 capital)	2002 (tier 1 capital)	2002 (assets)	2003 (tier 1 capital)
USA	7	1	0	3	3	3	3	2	3
Japan	0	6	6	3	2	3	3	3	3
UK	1	1	1	1	1	1	1	1	2
France	1	1	1	1	1	1	1	1	2
Germany	0	0	1	1	2	1	1	0	0
Netherlands	0	0	0	1	0	0	0	2	0
Switzerland	1	0	0	0	1	0	0	1	0
China	0	1	1	0	0	1	1	0	0

Source: *The Banker*, various July issues.

measured by assets, though the figures are less dramatic when banks are ranked, for the first time, by tier 1 capital. Note how Japanese banks shrink (by asset size) between 1997 and 2001/2. This partly reflects the serious problems in the Japanese banking sector, a topic to be discussed at greater length in Chapter 8. What is surprising is that Japan's tier 1 capital hardly changes in the period 1997–2000, when the Japanese banks were suffering from serious problems. The reason there is little change in the rankings is because of mergers among the top, but troubled, Japanese banks, especially in 2000/1. Consolidation also took place in the USA during the same period, albeit for different reasons.

Dramatic differences in banking structure can be seen by comparing the UK and USA. Tables 1.3 and 1.4 illustrate this. Table 1.3, which gives figures for the UK, is divided into

Table 1.3 UK Banking Structure, 1997 and 2002
 (a) 2002

Financial institutions	Number	Assets (£bn)
All banks resident in UK, of which:	517	4 663
Foreign (branches & subsidiaries)	281	2 161
UK incorporated, of which:	236	2 472
(1) Commercial	35	1 455
(2) BS + mortgage banks	78	683
(3) Other UK owned	53	52
(4) Foreign owned	70	281
Insurance companies, of which:	782	1 018
Life	182	942
Non-life	600	76

BS: building societies.

Source: IMF (2003), which claims sources from the Bank of England, BIS, FSA, and their own estimates.

Table 1.3 (continued)
(b) 1997

Financial institutions	Number	Assets (£bn)
All banks in the UK	466	2 643
UK owned banks	112	1 254
EU owned banks	110	608
US owned banks	39	207
Japanese owned banks	19	186.3
Building societies	141	167.7
Building Societies	141	

Sources for assets of banks and building societies: Bank of England (2000), Statistical Abstract, tables 3.2.1– 3.2.6; 16.2.

Sources for number of institutions: Bank of England website, <http://www.bankofengland.co.uk/mfsd/abst/ab1ukbks.doc> and British Bankers Association (2000), *Abstract of Banking Statistics*.

Table 1.4 US banking structure, 1997 and 2004

Type of bank	US assets (\$bn)		Number		% of total assets	
	1997	2000	1997	2004	1997	2004
Commercial*	4 771	6 239	9 308	7 769	77.6	79
Savings institutions	1 030	1 223	1 852	1 413	16.7	15
Credit unions	349	na	11 328	9 529	5.6	6
Total	6 150	7 462	22 488	18 711	100	100
Securities firms & investment banks	Capital – 30*		7 776*	5 286		

Sources: Table constructed from 1997 figures quoted in Saunders (2000), *Financial Institutions Management*, London: McGraw Hill, chapters 1, 3, which in turn are supplied by the FDIC (second table) and the Federal Reserve Bulletin. 2004 figures obtained from the FDIC website.

*1996 figures.

parts (a) and (b) because the figures are not strictly comparable between 1997 and 2002. Of 420 banks in the UK in 1997, 88 were UK owned,¹⁸ compared to nearly 22 500 US banks. US bank numbers, due to consolidation, are falling – they fell by about a quarter between 1997 and 2000. Even so, compare the 35 commercial banks in the UK in 2002 to over 7700 in the USA.

Table 1.5 shows that in 1996 and 1999, the USA had 10 000 more deposit-taking institutions than the other 10 major western countries combined. At the same time, it does not appear to be over-banked compared to some other countries with much smaller populations. In 1999, the USA had nearly 3500 inhabitants per branch, compared to its

¹⁸ Along with 67 building societies, which are mutually owned.

Table 1.5 Number of Depository Institutions and Population per Branch

	No. of Inhabitants per Branch		No. of Institutions	
	1996	1999	1996	1999
Belgium		1 221		121
Canada	1 857	2 233	2 497	2 108
France		2 350		1 672
Germany	1 169	1 481	3 509	2 995
Italy		1 400		878
Japan	1 634	1 961	4 635	3 169
Netherlands	2 277	2 523	126	123
Sweden	2 291	2 249	125	123
Switzerland	946	1 097	372	336
UK	1 611	1 743	561	506
USA	2 772	3 469	23 123	21 070

Source: BIS (1998, 2001), *Statistics on Payment Systems in the Group of 10 countries*.

neighbour, Canada, with a tenth of the population and 2233 inhabitants per depository institution.

The figures for Canada, France and Germany should be treated with caution. The Canadian banking structure in Canada is similar to that of the UK, with four banks holding a very large percentage of assets and deposits. *Caisses populaires* in Quebec, along with a large number of credit unions, make the numbers look big. In fact, these organisations have a tiny market share, by any measure. The figures also mask the importance of the cooperative movement in certain countries, especially France and Germany. Furthermore, Germany has a large number of regional banks, which somewhat dilute the dominance of the big universal banks such as Deutsche Bank and Dresdner, but again, their respective market shares are quite high. Together with the large number of “thrifts” (savings and loans), the USA has many more deposit-taking institutions, mainly because of the regulatory structure that discourages interstate and intrastate branching, and the Glass Steagall Act (1933) that required banks to be either investment or commercial, but not both. However, reforms in the 1990s should increase consolidation and could lead to nation-wide banking.¹⁹

Japan displays a lower population per bank branch than some countries in Western Europe. In Table 1.5, it ranks seventh – Germany, Italy, Belgium and Switzerland all have fewer inhabitants per branch. However, the figure for Japan may be biased downwards because it excludes the 24 000 Post Office outlets in that country, where on average about 35% of the country’s deposits are held. Western European countries differ widely, with extensive branch networks in Switzerland and Belgium, but relatively few in Denmark, the Netherlands and France. The main organisational banking structures are discussed below.

¹⁹ For more detail, see a brief discussion in section 4 and the detailed review of US bank regulation in Chapter 5.

1.4.2. Definitions of Types of Banking

Universal banking

Universal banks offer the full range of banking services, together with non-banking financial services, under one legal entity. In addition, the banks have direct links between banking and commerce through cross-shareholdings and shared directorships. Financial activities normally include the following.

- Intermediation and liquidity via deposits and loans; a byproduct is the payments system.
- Trading of financial instruments (e.g., bond, equity, currency) and associated derivatives.
- Proprietary trading, that is, trading on behalf of the bank itself, using its own trading book.
- Stockbroking.
- Corporate advisory services, including mergers and acquisitions.
- Investment management.
- Insurance.

Germany is the home of universal banking (the *German hausbank*), with banks such as Deutsche Bank and Dresdner offering virtually all of the services listed above. Though German banks may own commercial concerns, the sum of a bank's equity investments (in excess of 10% of the commercial firm's capital) plus other fixed investments may not exceed the bank's total capital. In addition to a German bank lending to commercial firms, it will also exert influence through the Supervisory Board.²⁰ Seats on a supervisory board are for employees and shareholders. Most of the shareholder seats are held by bank executives because the bank normally has a large shareholding. The influence of the bank is increased because smaller shareholders nominate the bank to represent them when they deposit their shares at the bank for safekeeping. Deutsche Bank has major holdings in Daimler-Benz (automobiles), Allianz (the largest insurance company), Metallgesellschaft (oil industry), Philip Holzman (construction) and Munich Re (a large re-insurance firm), to name a few. The bank also purchased a firm of management consultants (Roland Berger) and is represented on more than 400 Supervisory Boards. In 1986, Deutsche Bank undertook an important strategic expansion outside Germany when it purchased Morgan Grenfell in London. Subsequent purchases have included Banca America d'Italia,²¹ McLean McCarthy, a Canadian stockbroker, and Bankers Trust. It is a truly universal bank, which, together with its subsidiaries, can offer every type of financial service in Germany and, increasingly, in other major countries.

Commercial and Investment banks

These terms originated in the United States, though they are used widely in other countries. The four Glass Steagall (GS) sections of the Banking Act, 1933, became known as the Glass Steagall Act. Under GS, commercial banks were not allowed to underwrite

²⁰ German companies have two boards. The membership of the Executive Board consists of full-time executives of the company. It is where the main decisions are taken. The Supervisory Board must approve the Executive Board's financial decisions.

²¹ A subsidiary of Bank of America in Italy, with 105 branches.

securities with the exception of municipal bonds, US government bonds and private placements. Investment banks were prohibited from offering commercial banking services. The objectives of the Act were twofold, to discourage collusion among firms in the banking sector, and to prevent another financial crisis of the sort witnessed between 1930 and 1933.

The early US investment banks: (a) raised capital for large corporations and government, by acting as underwriters for corporate and government securities and (b) for a fee, arranged mergers and acquisitions (M&As). Modern investment banks engage in an expanded set of activities:

- underwriting
- mergers and acquisitions
- trading – equities, fixed income (bonds), proprietary
- fund management
- consultancy
- global custody

The expansion of activities helps to diversify these firms but has not been problem-free. For example, at Lehman Brothers, Goldman Sachs and others, the growth of the trading side of the bank created tensions between the relatively new traders and the banking (underwriting, M&As) side of the firm. At Lehman's, at one point, 60% of the stock was distributed to the bankers even though banking activities contributed to less than one-third of profits.

Controversy broke out in 2002, beginning with an investigation of Merrill Lynch by the New York Attorney General,²² Eliot Spitzer, and concluding in April 2003 when 10 of the top US investment banks settled with several regulatory bodies for just over \$1.4 billion in penalties and other payments, for alleged conflicts of interest between banks' analysts and their investment bank divisions. The probe began in 2002 when Henry Blodget, considered the top technology analyst at Merrill Lynch, was accused of recommending certain technology companies (thus sending up their share price) who were also clients at Merrill Lynch's investment bank. Mr Spitzer uncovered emails sent by Mr Blodget saying many of the stocks he recommended to investors were "junk" and "crap". Other documentation indicated the practice was widespread. The brokerage head of Citigroup was caught claiming that the research produced by Salomon Smith Barney was "basically worthless". Mr Weill, recent past Chairman of Citigroup, had asked an analyst at Salomon Smith Barney to reconsider the advice given on AT&T.²³ There was a potential conflict of interest because the profits of the investment bank financed banks' research departments. Thus, banks' analysts were under pressure to support a particular company that was also giving underwriting, consulting or other business to the banks' investment banking division.

The \$1.4 billion settlement consists of:

- \$487.5 million in penalties to be distributed between state regulators, the SEC, the New York Stock Exchange (NYSE) and the National Association of Securities Dealers (NASD);

²² The New York Attorney General is also the state's securities regulator.

²³ Mr Blodget and Mr Grubman (Salomon Smith Barney) were fined \$4 and \$5 million, respectively and banned for life from working in the securities sector.

- \$387.5 million to be returned to investors;
- \$432.5 million to set up an independent research body – firms must supply their clients with this independent research for the next five years;
- \$92.5 miscellaneous.

Though the banks never admitted to any wrong-doing, they agreed to make the following payments:

- Citigroup–Salomon Smith Barney \$400 million;
- Merrill Lynch \$200 million (including the \$100 million fine it paid in 2002);
- Credit Suisse First Boston \$200 million;
- Morgan Stanley \$125 million;
- Goldman Sachs \$110 million;
- Bear Sterns, JP Morgan, Lehman Brothers, UBS Warburg \$80 million each;
- Piper Jaffray \$32.5 million.

In addition, the investment banks have agreed to a number of new rules.

1. Their research and banking divisions will be supervised separately and issue separate reports.
2. Investment banking divisions are not allowed to rate research analysts.
3. A firewall²⁴ was erected – the compensation of analysts cannot be linked to the performance of the investment banking arm of the bank.
4. Research analysts may not participate in the marketing of the bank, e.g., share sales, deals for institutional investors.
5. No unnecessary communication is allowed between analysts and the investment banking group.
6. Banks must make public any companies that are investment bank clients and are analysed by the bank’s research department.
7. “Spinning” or giving favoured clients opportunities to purchase shares in top initial public offerings (in exchange, it is hoped, for consulting or other investment banking business) was banned.

Prior to the payout being made public, Merrill Lynch announced it would insert a Chinese wall between its research and corporate finance divisions. Citigroup revealed that its research and retail broking business would be turned into a separate subsidiary. However, other conflicts of interest issues continue to surface. Banks are accused of fraud²⁵ for inflating prices on stock firms and initial public offerings (IPOs). For example, some banks are cited in a \$30 billion damages issue for ignoring problems at Enron, and there are a number of class action lawsuits. At the time of writing, however, early judgements suggest these may not succeed: they are being dismissed for lack of evidence and because of the views of at

²⁴ See p. 28 for a formal definition.

²⁵ Under the 1934 Securities Act, a bank is liable for fraud if it is negligent and/or ignored problems on a firm’s balance sheet that is subsequently promoted.

least one judge (Milton Pollack, who is ruling on 25 class action lawsuits – he has described the plaintiffs as “high risk speculators” and has already dismissed several cases).²⁶

Washington politicians have criticised the settlement as being far too low, which banks will treat as the cost of doing business. For example, Mr Richard Shelby²⁷ noted that Citigroup (parent of Salomon Smith Barney) earned \$10.5 billion in investment banking revenues from 1999–2001, so its share of the fine is under 4% of its revenue for the period. Self-regulation has also come under fire because the NYSE and NASD regulate their own members but failed to spot the problem, nor did the SEC, though they are a powerful government regulatory body.

Merchant banks

Barings, the oldest of the UK merchant banks, was founded in 1762. Originally a general merchant, Francis Baring diversified into financing the import and export of goods produced by small firms. The financing was done through bills of exchange. After confirming firms’ credit standings, Barings would charge a fee to guarantee (or “accept”) merchants’ bills of exchange. The bills traded at a discount on the market. Small traders were given much-needed liquidity. These banks were also known as “accepting houses” – a term employed until the early 1980s. They expanded into arranging loans for sovereigns and governments, underwriting, and advising on mergers and acquisitions.

Financial reforms,²⁸ including the Financial Services Act (1986), changed merchant banking. The reforms allowed financial firms to trade on the London Stock Exchange, without buying into member firms. Fixed commissions were abolished, and *dual capacity* dealing for all stocks was introduced. This change eliminated the distinction between “brokers” and “jobbers”. Most stock exchange members acted as “market makers”, making markets in a stock *and* brokers, buying and selling shares from the public.

These changes made it attractive for banks to enter the stockbroking business, and most of the major banks (both clearing and merchant) purchased broking and jobbing firms or opted for organic growth in this area. The majority of the UK merchant banks began to offer the same range of services as US investment banks, namely, underwriting, mergers and acquisitions, trading (equities, fixed income, proprietary), asset or fund management, global custody and consultancy. As merchant banks became more like investment banks, the terms were used interchangeably and, in the new century, “merchant bank” has all but disappeared from the vocabulary.

The UK’s financial regulator, the Financial Services Authority (FSA), has been more sanguine on the conflict of interest issue, even though many of the US investment banks that are party to the April 2003 agreement have extensive operations in London. In a July 2002 discussion paper, the FSA acknowledged the presence of US banks operating in London. The study also identifies a number of conflicts of interest, the main one being when the remuneration of research analysts is dependent on the corporate finance or equity brokerage parts of an investment bank, which generate revenues from underwriting and

²⁶ Source: “Dismissed”, *The Economist*, 5 July 2003, pp. 81–82.

²⁷ Republican Senator and Chairman of the Senate Banking Committee.

²⁸ Collectively known, along with other reforms, as Big Bang, 1986.

advisory or brokerage fees. There were no specific accusations of bias, and the FSA noted that institutional investors, who are well informed, are more dominant in the UK markets. However, the paper reports the results of a study by the FSA comparing recommendations on FTSE 100 companies made by firms acting as corporate broker/advisor to the subject company to those made by independent brokers with no such relationship. The main finding was that the firms acting as corporate brokers/advisors to the subject company made nearly twice as many buy recommendations as the independent brokers.

Having identified potential conflicts of interest, the FSA noted that many are currently covered under Conduct of Business rules, Code of Market Conduct and insider trading laws. The paper concluded by suggesting four possible options: (1) the status quo; (2) all research reports from investment banks or related firms to be clearly labelled as advertising; (3) following the US route, though this option would require a far more prescriptive approach, which is at odds with the UK's emphasis on principles; or (4) letting market forces do their job, because investors know who the client firms of investment banks are, and discount any reports coming from their research department. These options were put forward for further discussion, and in 2003 the FSA published a consultative paper (CP171, 2003). It appears the FSA will continue with a principles-based approach, but like the US authorities, recommends analysts should not be involved in any marketing activities undertaken by the investment bank, nor should the investment banking department influence the way analysts are paid. The FSA also suggests that analysts working for a bank underwriting a share issue for a firm should be banned from publishing any research on this firm. There are objections to the last proposal: it is argued that the analyst at the underwriting firm is the best informed about the firm about to go public, so stopping the publication of their reports will mean the market is missing out on a good source of information. Also, what if more than one bank is underwriting a rights issue?

Unlike the USA, the banks will not be required to fund independent research. Nor will analysts be required to certify that any published report reflects their personal opinion. However, the FSA has announced plans to educate the public on the risk associated with stock market investments, which is in line with their statutory duties.

Is an investment bank a bank?

This chapter has stressed that the features which distinguish banks from other financial firms are the combined function of acting as an intermediary between savers and borrowers (either retail or wholesale) and offering liquidity as a service. Payment facilities are a byproduct of these two services.

Investment banks act as intermediaries when offering services such as underwriting, advice on mergers and acquisitions, trading, asset management and global custody. However, it is a different form of intermediation. Nor do investment banks offer liquidity as a service in the same way as a standard bank. They contribute to increased liquidity in the system by arranging new forms of finance for a corporation, but this is quite different from meeting the liquidity demands of depositors. Indeed, the functions of the investment bank differ so much from the traditional bank that the term "bank" may be a misnomer. The US National Association of Securities Dealers (NASD) does not officially recognise the term "investment bank", and uses "broker dealer" to describe investment banks and securities firms. However,

many investment banks, including Goldman Sachs, do offer the core/traditional deposit, chequing, ATM and loan facilities to very high net worth individuals. Merrill Lynch, in 2000, obtained permission from the Federal Reserve Bank to offer FDIC insured deposits. Though these services form a small part of their business, it does mean they are banks, and in most countries they report to both bank and securities regulators.

1.4.3. Commercial Banking

Commercial banks offer wholesale and retail banking services. In the USA, commercial banking excludes, by the 1933 Glass Steagall Act, investment banking activities. *Wholesale banking* typically involves offering intermediary, liquidity and payment services to large customers such as big corporations and governments. They offer business current accounts, make commercial loans, participate in syndicated lending²⁹ and are active in the *interbank* markets to borrow/lend from/to other banks. Global integration, technological advances and financial reforms have made parts of the wholesale market highly competitive. Most US commercial banks also have retail customers.

Retail banking offers the same services to numerous personal banking customers and small businesses. Retail banking is largely intrabank: the bank itself accepts deposits and makes many small loans. It tends to be domestic, though the information technology revolution has the potential to break down national barriers, an issue discussed in the next section.

1.4.4. Bank Holding Companies

The term “bank holding company” originated in the United States. The Bank Holding Company Act (1956) defined a BHC as any firm which held at least 25% of the voting stock of a bank subsidiary in *two* or more banks. BHCs are commercial banks, regulated by the Federal Reserve Bank.³⁰ Having been granted legal status, bank deposits under the control of BHCs grew from 15% in the 1960s to over 90% by the 1990s. Each BHC owns banking (and in some countries, non-banking financial) subsidiaries, which are legally separate and individually capitalised.

In the United States, BHCs were used to circumvent laws which placed restrictions on interstate branching, that is, having branches in more than one state. Through the BHC structure, a bank might own several bank subsidiaries in a number of states.

1.4.5. Section 20 Subsidiaries

In 1981, the US Supreme Court ruled that section 20 of the Glass Steagall Act did not extend to subsidiaries of commercial banks. They could offer investment banking activities, provided they were not “engaged principally” in the said activities. Since 1987, BHC

²⁹ Syndicated lending is when a lead bank persuades a number of other banks to contribute to a loan; normally very large loans to finance massive projects such as upgrading a railway network, or sovereign loans to developing/emerging markets.

³⁰ The definition of BHCs under the 1956 Act led to banks forming *one* bank holding company, with non-banking subsidiaries. A 1970 Amendment stopped BHCs from owning non-bank subsidiaries and gave the Federal Reserve the authority to approve all BHC activities, which had to be closely related to banking. BHCs even had to seek permission from the Fed to expand into credit card operations.

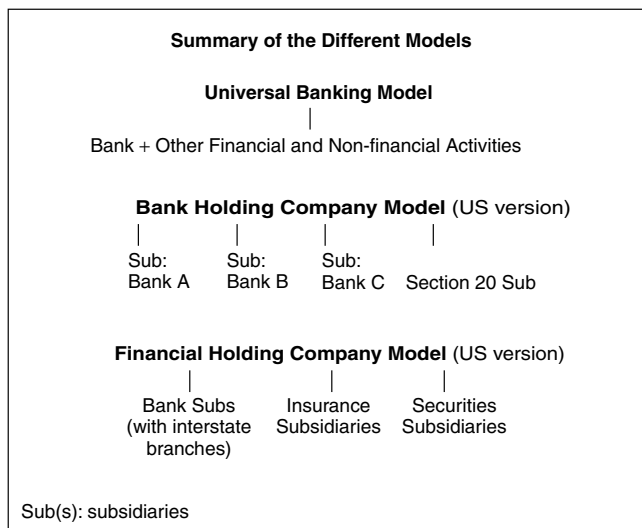
subsidiaries have been authorised by the Federal Reserve Bank to engage in securities activities, and became known as “section 20 subsidiaries”. They could underwrite corporate debt and equities provided it was limited to 5% of the bank’s total revenue, which was raised to 10% in 1989 and 25% in 1996. With the passage of the Gramm Leach Bliley Act (see below), these subsidiaries are expected to gradually disappear.

1.4.6. Financial Holding Companies

The Gramm Leach Bliley Financial Modernisation (GLB) Act was passed in late 1999 and effectively repeals the Glass Steagall Act. The GLB Act allows US bank holding companies to convert into financial holding companies (FHCs), which can own subsidiary commercial banks, investment banks and insurance firms. Likewise, investment banks and insurance firms may form FHCs, subject to the approval of the Federal Reserve.

The GLB Act means, for the first time, that US banks can become *restricted universal banks*. They can engage in commercial and investment banking and insurance businesses but, unlike the German banks, are *restricted* because, as subsidiaries, they must be separately capitalised, which is more costly than if they are part of a single legal entity. Also, the cross-share ownership of non-financial firms is largely prohibited. In the USA, BHCs are allowed to own up to a 5% interest in a commercial concern.

Different versions of restricted universal banks are found around the world. Canada also has legislation to stop banks from owning commercial firms. In the UK, Italy and Switzerland, there is virtually no integration of banking and commerce. It is discouraged by the regulatory authorities in the respective countries, but not prohibited by law. Under the financial reforms of the late 1990s, Japanese banks may also be part of a FHC, though FHCs may not own insurance subsidiaries. However, cross-shareholdings and shared directorships are an integral part of the Japanese financial and commercial structure.³¹



³¹ See Chapter 5 on bank structure and regulation for more detail.

1.5. Financial Conglomerates

Briault (2000) defined a financial conglomerate as a firm that undertakes at least two of five financial activities: intermediary/payments, insurance, securities/corporate finance, fund management and advising on or selling investment products to retail customers. He reports that while in 1978 the vast majority of UK banks engaged in just one of these five activities, by 1998, 8 firms were authorised to offer all five functions, 13 were authorised to offer four, and more than 50 were authorised to offer three.

The Briault figures are for the UK, but rapid growth of financial conglomerates is taking place in the world's key financial sectors. Financial reform (e.g., “big bangs”) in many countries eliminating (to some degree, depending on the country) segmented financial sectors has encouraged banks to become part of financial conglomerates. Given the nature of most activities listed above, virtually all conglomerates are global.

Briault identified the advantages and disadvantages of financial conglomerates. First, the efficiency of the financial system is improved if these conglomerates can achieve economies of scale and scope. *Economies of scale* is a long-run concept, where all factors of production (e.g., labour, capital, property) are variable. An equiproportional increase in factor inputs leads to a greater than equiproportional increase in output. Firms operate on the falling part of their average cost curves. For example, suppose there are three factor inputs: deposits, labour, property and one output: loans. Then, in the presence of economies of scale, the doubling of deposits, labour and property would result in loans more than doubling.

Economies of scope are said to exist if the joint production of two or more goods or services is cheaper than if they are produced independently, resulting in higher output. Suppose there are two products, $x = \text{loans}$ and $y = \text{deposits}$. Then economies of scope exist if $C(x, y) < C(x) + C(y)$, where C is defined as the cost of production. Put another way, average cost falls with an increased number of outputs produced jointly rather than separately.

However, it has proved difficult to produce definitive evidence for the existence of scale and scope economies.³² Furthermore, any increased efficiency may be offset by the effects of increased monopoly power if the growth of financial conglomerates reduces the number of firms operating in banking and other financial sectors. This will have the effect of raising “prices”.³³ The reduced amount of competition in the market could, in turn, increase inefficiency. Hence, it is unclear whether the net effect of financial conglomerates is to raise or lower efficiency.

Second, it is argued that if financial conglomerates locate in countries with emerging financial markets, they can apply their expertise to assist in the development of a country's

³² See Chapter 9 for a more detailed discussion of this issue.

³³ In the case of core banking products, higher prices would be reflected in lower deposit rates; higher loan rates and fees for financial services.

financial markets. Often these economies are short of trained labour in their respective financial sectors. The foreign firm can bring in expertise from other countries, but also train and educate the host country labour force.

A third argument is that financial conglomerates usually diversify their financial functions, with branches/subsidiaries around the world, making them less vulnerable to downturns in one economy or region. Likewise, a decline in securities activity may be accompanied by a rise in banking activity. However, as Staikourous and Wood (2001) have shown, diversification may actually increase the financial institutions' income volatility.

Others have argued that large, diversified financial firms encountering difficulties may "go for broke", adopting high risk/return strategies. If the gamble pays off, the conglomerates survive. If not, their size makes it likely a government might attempt to rescue them should they get into trouble. If, in the absence of a government bailout, they fail, it can trigger the collapse of financial institutions world-wide. Hence, the systemic threat to the global financial system is increased.

Functional supervision normally means independent regulators oversee different functions of the conglomerate – meaning different parts of the conglomerate *may* be answerable to different regulators. The problem with functional supervision is that damage to the reputation of one part of the firm could cause a loss of confidence in other parts of the firm, including its banking arm. The problem is illustrated by the collapse of British Commonwealth Holdings (BCH), a financial services group, in 1990. After news of serious financial problems in the computer leasing subsidiary of BCH (Atlantic Computers) in April 1990, there was a run on the British and Commonwealth Merchant Bank. Two months later, the Securities and Investment Board³⁴ removed the merchant bank from its approved list, and to prevent a further run, depositors' funds were frozen by the courts and an administrator appointed. The subsequent report by the administrators found the merchant bank to be financially sound.

In the UK, the Financial Services Authority created a Major Financial Groups Division (MFGD), which is responsible for approximately 50 of the most complex financial firms headquartered in the UK, USA, Japan or Europe. It includes the big four/five UK commercial banks, along with major banks and investment banks from the USA, Europe and Japan. They have been chosen according to size, systemic importance and the complexity of the business within the financial group. The MFGD assigns a "micro-regulator" to each financial conglomerate, which is responsible for coordinating communication among supervisors within the FSA, assessing the group's overall management and monitoring capital adequacy. A lead regulator is assigned to any firm engaged in several activities but not deemed to be a major financial conglomerate.

In June 1989, the Federal Reserve Bank (Fed) introduced a unique system for large complex banking organisations (LCBOs). Teams of 2–12 supervisors will be assigned to America's 50 largest LCBOs, most of which operate in global markets. The emphasis is on

³⁴ The Securities and Investment Board was one of the self-regulatory organisations set up after the Financial Services Act was passed in 1986. See Charts 5.1 and 5.2 for more detail.

daily supervision (replacing periodic examinations) of both the banking *and* trading books. The teams will use an organisation's risk management and information systems, provided the regulator is satisfied with the quality of internal audit, compliance, risk management and top management.

The main concern with the LCBO arrangement is the risk of *regulatory forbearance*, when the supervisor puts the interest of the regulated firm ahead of public/taxpayer interest. To counter this problem, teams will be rotated to new LCBOs every 3 years, and other Fed specialists will double-check particularly vulnerable areas.

Managers of financial conglomerates have expressed concern that compliance costs are too high, because most regulators require them to allocate capital (known as *dedicated capital*) to each of their major operations. For example, if they have businesses in investment banking, stockbroking and intermediary banking, capital must be set aside for each of these divisions. As was noted earlier, in the United States, the FHCs are required to keep insurance, investment and commercial banking activities as separate subsidiaries, which means each subsidiary will have separate capital requirements.

There is also the potential for conflict of interest between the different firms held by the conglomerate. In the UK and elsewhere, the regulatory authorities require firms to erect *Chinese walls* to prevent sensitive information flowing between the departments (or subsidiaries) of firms, which could create problems such as insider trading. For example, if a mergers and acquisitions department knows of an upcoming bid on a target firm and those working in the trading division are informed of the bid before it becomes public information, the traders who act on such information would be accused of insider trading. Investigations by US regulators in 2002 uncovered other serious conflicts of interest among modern investment banks that had expanded into brokerage and sales in addition to their traditional activities of underwriting/mergers and acquisitions. The record \$1.4 million payout by New York investment banks was discussed earlier in the chapter, but it is worth recalling the reason for the fines, etc. There was evidence of spinning and of bank analysts "talking up" the share price of companies that were also clients of the investment banking division. Thus, the expansion of modern investment banks into the broad range of activities listed previously may bring diversification benefits, but it has also created serious conflicts of interest. Financial conglomerates are also required to impose *firewalls* to counter the threat of *contagion* between their different operations. Regulators are especially anxious to keep core bank activities separate from those of other subsidiaries. *Firewalls* are legal restrictions placed on information flows and financial transactions between subsidiaries, branches, departments or other firms. For example, the Federal Reserve imposed 28 firewalls on section 20 subsidiaries. The main purpose of the firewall is to protect one unit of a holding company from funding problems associated with another subsidiary within the holding company. However, as will be seen below in the "NatWest" case, there are problems with firewalls that tend to arise if one of the subsidiaries gets into trouble. To quote Walter Wriston (Chairman of Citicorp in the 1980s) testifying before a Senate Committee in 1981, "It is inconceivable that any major bank would walk away from any subsidiary of its holding company".

Box 1.2 County National Westminster Bank

Even though the incident occurred some time ago, the case continues to illustrate the problems that can arise within a financial conglomerate. County National Westminster Bank (County NatWest or CNW) was a wholly owned subsidiary of National Westminster Bank (NWB) in London. CNW itself had a subsidiary, County National Westminster Securities (CNWS), which acted as market maker for CNW.

CNW was handling a rights issue for Blue Arrow, an employment agency, which was due to expire on 27/9/87. On 28/9, it was found that the shareholders of Blue Arrow had taken up just 49% of the share issue. As the underwriter of the shares, CNW sought out buyers of the additional shares, namely the following.

CNWS: According to CNWS, they were asked to purchase 4.6% of the shares in exchange for an indemnity with CNW. The market maker would be reimbursed for any losses on the shares when trading commenced, and CNW would meet all financing costs. If the share proved to be profitable, CNW would take 30% of the profits. County NatWest claims there was no indemnity: the market maker simply agreed to purchase the shares. The shares did not appear on either the trading or bank books of CNWS, and dealers were unaware the shares were being held. There was no public disclosure of the shareholding. Under section 209 of the UK Companies Act, disclosure is not necessary if the shares are held in the normal course of business.

Phillips and Drew: a subsidiary of the Union Bank of Switzerland (UBS), P&D were acting stockbrokers for Blue Arrow. Both firms took some of the shares, as did other corporate clients of CNW. A total of 60% of the shares were acquired by CNW-related firms. UBS obtained a written indemnity that CNW would meet any losses arising from the share issue. The Bank of England was informed of the indemnity, though it was kept a secret within CNW.

The October 1987 stock market crash caused the Blue Arrow share price to drop to 60p from 166p. CNW had to unwind its indemnity with UBS, which was done through its parent, National Westminster Bank, at a cost of \$30 million. In December, CNW announced it was holding 9.6% of the shares, declaring a provisional loss of £49 million and an overall annual loss of £116 million. It required an injection of £80 million from the parent bank. In February 1988, the two top executives at CNW resigned.

The Bank of England persuaded the Department of Trade and Industry to allow NatWest Bank to conduct an internal investigation, but public pressure eventually resulted in an independent investigation by the DTI. A year later, four individuals were found guilty of conspiracy to defraud; some convictions were overturned on appeal.

There are several issues raised with respect to the County NatWest case.

1. The Chinese walls (erected to prevent sensitive information flowing between the departments or firms) failed because information passed from the corporate finance division of CNW to the market makers at CNWS. Firewalls (legal restrictions placed on information flows and financial transactions between subsidiaries, branches, departments or other firms) also failed under pressure. For example, the secret indemnity with UBS (possibly CNWS), the possible violation of the Companies Act – see below – and the failure of the parent, NatWest, to act when it was aware of financial malpractice by at least one of its subsidiaries. CNW also manipulated the markets by getting other players to purchase shares, to make the share issue appear successful.
2. The UK Companies Act requires public disclosure if one firm owns more than 5% of the shares of another firm. Including shareholdings by CNW's private clients, NatWest's exposure exceeded 5%.
3. The parent, National Westminster Bank, was aware of financial malpractice in CNW, one of its subsidiaries, but failed to take action.
4. The Bank of England failed to query the UBS indemnity, and showed signs of *regulatory capture/forbearance*³⁵ because it was prepared to allow National Westminster Bank to conduct its own internal enquiry.

National Westminster Bank was purchased by the Royal Bank of Scotland group in March 2000.

1.6. Central Banking

Though most central banks began life as commercial banks with responsibility for special tasks (such as note issue), the modern central bank is a government institution and does not compete with banks operating in the private banking sector. Two key debates dominate

³⁵ In the NatWest incident, the taxpayer did not fund any of the cash injections.

the central banking literature. The first relates to the functions of the central bank, the second to the degree of autonomy enjoyed by it.

Modern central banks are normally responsible for monetary control and, in addition, may be involved in prudential regulation and placing government debt on the most favourable terms possible. These three functions are now considered in more detail.

1.6.1. Monetary Control or Price Stability

A country's money supply is defined as currency in circulation outside the banking system plus deposits held at banks.³⁶ Banks play an important role in creating money, but so does the central bank. Banks create money by lending out deposits, hence their activities can affect the central bank. The *traditional* methods³⁷ for controlling the money supply include the following.

1. Open market operations: traditionally, this was done by buying and selling gilts (UK government Treasury bills) but since 1996, the Bank of England has also used gilt *repos*, i.e., a gilt sale and repurchase agreement – the Bank of England sells a gilt with an agreement to buy back the gilt at a specified date, at an agreed rate of interest.
2. Buying or selling securities in the financial market: this causes the monetary base (the quantity of notes and coins in circulation plus the quantity held by the banking system) to be affected. For example, if the Bank of England prints new money to purchase government securities (a Treasury bill or more recently a repo), then the monetary base will increase. Most of it will be deposited in the banking system, which the commercial banks, in turn, lend out.³⁸ Or, if the bank sells government securities, the monetary base is reduced.
3. Reserve ratios: in some countries, banks are required to hold a certain fraction of deposits as cash reserves, and the central bank can influence the money supply. If the reserve ratio is raised, it means banks have to reduce their lending, so the money supply is reduced. This method was standard procedure until the 1980s, and was designed to encourage banks to reduce their amount of credit. In most western countries, the reserve ratio is no longer used as a key monetary tool. For example, in the UK, the reserve ratio in 1971 was 12.5% but in 1981, the government abandoned its use as a means of controlling the growth of credit. It was replaced by a cash ratio, the sole purpose of which is to finance the operations of the Bank of England, and that is currently 0.15%³⁹ of eligible liabilities for all credit UK institutions.
4. Discount rate: the rate charged to commercial banks when they want to borrow money from the central bank. Again, by raising the discount rate above the general

³⁶ The term “bank” used here refers to any financial institution authorised to hold deposits. In the UK it will include banks, building societies, investment banks, and so on.

³⁷ These methods were practised in industrialised countries up to the mid-1980s, but have been largely abandoned. In some developing economies, they are still used.

³⁸ A bank will loan out a large percentage in deposits, holding only a fraction of deposits on reserve. This action, in turn, increases the money supply via the money market multiplier. See any good introductory text or dictionary of economics for a detailed explanation.

³⁹ This system of raising funds for the Bank of England was formalised in the 1998 Banking Act; eligible liabilities are not defined, except to say they can be in sterling or foreign currencies.

market interest rate, it is more expensive for commercial banks to borrow in the event that withdrawals suddenly rise. The banks hold more cash in reserves to avoid the “penal rate”, which again reduces the money supply because it means fewer deposits are loaned out.

Thus, a central bank can stabilise the price level by the exercise of monetary policy, through control of the money supply and/or the use of interest rates. By the late 1970s and early 1980s, many governments singled out price stability as the key objective of the central bank. Some central banks were given a zero inflation target, or more commonly a range of acceptable inflation rates. For example, in the UK, the Bank of England, through its powerful Monetary Policy Committee, is required to exercise monetary control to meet an inflation rate target of 2.5% plus or minus 1%. Some bank governors (e.g., New Zealand) have their salaries and even job renewal dependent upon their success in meeting targets.

A simplified version of the monetarist version of the link between the money supply and inflation is summarised as follows:

$$\hat{P} = \widehat{MS} - \hat{y}$$

where \hat{P} is the rate of inflation, i.e., the rate of change in the price level over a given period of time (month, year), \widehat{MS} is the rate of growth in the money supply, where the money supply can be defined as “narrow” money (e.g., cash + sight deposits at banks) or “broad” money (narrow money + time deposits, CDs, etc.), and \hat{y} is the rate of growth of real output (e.g., real GNP).

According to this simple equation, if the money supply growth rate exceeds the growth rate of national output, then inflation results. The version can be made more complex by, for example, adding the velocity of money (the number of times money turns over in a given year), but the above is a fairly good representation of the basic ideas. In the 1980s, most countries tried to target the money supply growth rate to match the growth rate in output, but when this largely failed to control inflation, policymakers switched their focus to the interest rate.⁴⁰ If the central bank believes the economy is beginning to overheat or will do so in the near future, it will raise a base interest rate, or reduce rates if it concludes the opposite. The change in the base rate is expected to be passed on, via the banking system, to consumers and producers, in the form of higher retail and wholesale rates. By raising (lowering) the interest rate, aggregate demand is reduced (raised) which, in turn, reduces/raises the rate of inflation.

It is fairly straightforward to extend this simple model to include exchange rates. Define $\hat{e} > 0$ as the rate of depreciation in a country’s exchange rate. Then:

$$\hat{e} = \hat{P} - \hat{P}^*$$

where $\hat{P}^* > 0$ is the rate of inflation for a country’s major trading partners. The home country’s exchange rate will depreciate if the rate of inflation at home is greater than the

⁴⁰ Japan and Germany (until it became part of the European Monetary Union) employed both monetary targets and the interest rate.

rate of inflation for the country's major trading partners. Also, if exchange rates are fixed between countries,⁴¹ then $\hat{\epsilon} = 0$ and all these countries must follow the same monetary policy, to produce identical inflation rates and ensure a fixed exchange rate. If one country's inflation rate (e.g., Ireland) is higher than those of the other country's, either Ireland will have to do something to remedy its inflation rate, or the other countries will have to raise theirs, since the exchange rate between these countries is fixed. This issue is at the heart of the debate about the UK joining the euro. If it were to do so, responsibility for monetary policy would shift from a directly elected government (delegated to an "independent" Bank of England) and would be set by the European Central Bank (ECB).

It must be stressed that the methods for controlling the money supply described above have been largely abandoned by countries in the developed world. In its place, most central banks have a committee that meets on a regular basis and decides what interest rate should be set to ensure the country's inflation rate meets some government target. Any change in the interest rate should affect aggregate demand, which in turn will keep inflation in check. For example, if a central bank announces a lower rate, it signals that it is trying to raise demand, in order to keep the inflation rate from falling *below* the set target. Targeting the money supply growth rate is no longer fashionable, though in some countries, notably Japan, it continues, but in addition to setting interest rates to control demand.

1.6.2. Prudential Control

The central bank (or another government institution – see below) is expected to protect the economy from suffering the effects of a financial crisis. It is widely accepted that the banking system has a unique position in the national economy. A widespread collapse can lead to a decline in the intermediation, money transmission and liquidity services supplied by banks, which will, in turn, contribute to an inefficient allocation of resources in the economy. There are additional macroeconomic ramifications if there is a continuous reduction in the money supply growth rate or rise in interest rates.

A bank run begins when customers withdraw their deposits because they fear the bank will fail. Immediately, the bank finds it is unable to supply one of its key services: liquidity. The banking system is particularly vulnerable to *contagion* effects: a lack of confidence associated with one poorly performing bank spreads to other, healthy, banks because agents know that once a run on deposits begins, liquidated bank assets will decline in value, so everyone will want to withdraw their deposits before the run gains any momentum. In the absence of perfect information about the quality of each bank, the sudden collapse of one bank often prompts runs on other, healthy, banks.

The vulnerability of banks to contagion creates *systemic risk*: the risk that the economic system will break down as a result of problems in the banking sector. To expand on this theme, disturbances in a financial institution or market could spread across the financial system, leading to widespread bank runs by wholesale and retail depositors, and

⁴¹ Prior to the introduction of the euro in 2002, participating countries joined the European Monetary System and effectively fixed the exchange rate between countries.

possibly collapse of the banking system. This will severely hamper money transmission which, in the extreme, could cause a breakdown in the economy as it reverts to barter exchange.

The threat of contagion and systemic risk has meant governments are inclined to treat banks as special and to provide, through the central bank, *lender of last resort* or *lifeboat* facilities. By acting as lender of last resort, a central bank can supply liquidity to solvent banks threatened by contagion effects. Increasingly, central banks have pressured healthy banks to assist the bailout of troubled banks – known as a *lifeboat rescue* operation. If the central bank intervenes to assist weak or failing banks, it will be concerned as to how these banks are regulated and supervised because of the moral hazard that inevitably arises when private institutions know they have a chance of being bailed out by government funds if they encounter difficulties. Some central banks operate a “too big to fail” policy, whereby large banks are bailed out but smaller ones are left to collapse.⁴² This gives all banks an incentive to expand their assets, even if it means taking very risky lenders onto their books.

1.6.3. Government Debt Placement

If a central bank has this responsibility, it is expected to place government debt on the most favourable terms possible. Essentially, a government can instruct the central bank to raise *seigniorage* income⁴³ through a variety of methods, which include a reserve ratio (requiring banks to set aside a certain percentage of their deposits as non-interest-earning reserves held at the central bank – an implicit tax), interest ceilings, issuing new currency at a rate of exchange that effectively lowers the value of old notes, subsidising loans to state owned enterprises and/or allowing bankrupt state firms that have defaulted (or failed to make interest payments) on their loans to continue operating. Or, the inflationary consequences of an ongoing liberal monetary policy will reduce the *real value* of government debt.

This third objective is important in emerging markets, but by the close of the 20th century has become less critical than the other two functions in the industrialised world, where policies to control government spending means there is less government debt to place. A notable recent exception is Japan, where the debt to GDP ratio is 145 and rising (2002 figures). In emerging markets, central banks are usually expected to fulfil all three objectives – ensuring financial and price stability, and assisting the government in the management of a sizeable government debt. While all three are critical for the development of an efficient financial system, the central banks of these countries face an immense task, which they are normally poorly equipped to complete because of inferior technology and chronic shortages of well-trained staff.

The Bank of England had a long tradition of assuming responsibility for all three functions, but in 1997 the Chancellor of the Exchequer announced the imminent separation of the

⁴² Banks are classified as “too big to fail” if the cost of disruption to or even collapse of the financial system is considered higher than the cost of bailing it out.

⁴³ Income earned through, for example, printing money.

three functions, leaving the Bank of England with responsibility over monetary policy the FSA⁴⁴ regulates financial institutions, including consumer protection and prudential control of the banking sector. The Japanese government created the Financial Supervisory Agency in 1997, to supervise banks and other financial institutions. Part of the Prime Minister's office, this Agency has taken over the job previously undertaken by the Ministry of Finance and Banking of Japan.

The United States assigns responsibility for prudential regulation to several organisations including the Federal Reserve, Comptroller of the Currency and the Federal Deposit Insurance Corporation. The Federal Reserve also sets an independent monetary policy. Until France became part of Euroland, the 20 000 plus employees of the Banque du France played a dual role: implementing monetary policy and regulating/supervising the banking system. In Germany, since the advent of the euro, the Bundesbank has lost its *raison d'être*, and has lobbied hard to assume a regulatory role.

There are potential conflicts if one institution is responsible for the three objectives of price stability, prudential regulation and government debt placement. Given the inverse relationship between the price of bonds and interest rates, a central bank with control over government debt policy might be tempted to avoid raising interest rates (to control inflation) because it would reduce the value of the bank's debt portfolio. Or, it might increase liquidity to ease the placement of government debt, which might put it at odds with an inflation policy.

Consider a country experiencing a number of bank failures, which, in turn, threaten the viability of the financial system. If the central bank is responsible for the maintenance of financial stability in the economy, it may decide to inject liquidity to try and stem the tide of bank failures. It does this by increasing the money supply and/or reducing interest rates, so stimulating demand. The policy should reduce the number of bankruptcies (personal and corporate), thereby relieving the pressure on the banking system.

However, if the central bank's efforts to shore up the banking system are prolonged, this may undermine the objective of achieving price stability. Continuous expansionary monetary policy may cause inflation if the rate of growth in the money supply exceeds the rate of growth of national output. The central bank may be faced with a conflict of interest: does it concentrate on the threat to the financial system or is priority given to control of inflation? The dilemma may explain the recent trend to separate them. If the central bank is not responsible for financial stability, it can pursue the objective of price stability unhindered.

Under the Maastricht Treaty (agreed in 1991, signed in 1992), the euro is controlled by the European Central Bank, which has sole responsibility for one goal: price stability.

⁴⁴ Responsibility for the regulation of banks and other financial institutions was given to the newly formed Financial Services Authority, bound by the Financial Services and Markets Act (2000). The 1998 Bank of England Act makes the Bank responsible for price stability but it also has a division focused on the reduction of systemic risk and undertaking official operations to prevent contagion. A Memorandum of Understanding (Appendix 5 of the 1998 Act) makes the Bank of England, the FSA and the Treasury jointly responsible for financial stability. The 1998 Act also transfers responsibility for the management of government debt from the Bank of England to an executive agency of government, the Debt Management Office. Treasury officials set the agenda for the Chief Executive of the DMO in the annual Debt Management Report. See Blair (1998).

However, if a central bank is the ultimate source of liquidity it must, even if only indirectly, play a role in the regulation and supervision of banks. Consider the position of the European Central Bank. Suppose Italian banks came under threat after EU citizens moved their deposits to what they perceived to be safer, more efficient banks offering better rates in other member states. The Italian government will have to approach the ECB for an injection of liquidity, which means the ECB will want to be involved in prudential regulation and supervision, even if these functions have been devolved to the “state” central banks.

Canada and the USA are examples of countries with long histories where responsibility for monetary control lies with the Bank of Canada and the Federal Reserve Board, respectively. As noted above, the supervisory function is shared among several agencies in the USA, including the Federal Reserve. In Canada, the Superintendent of Financial Institutions has responsibility for inspection and regulation. The Bank of Canada is responsible for monetary control. However, in every instance where a bank has been threatened with failure, the Bank of Canada has taken part in the decision about whether it should be supported or allowed to fail. So even in a country where the monetary and supervisory functions are officially separate, the central bank plays a pivotal role in the event of problem banks.

A study by Goodhart and Schoenmaker (1995) looked at the arguments for and against the separation of monetary policy from supervision. They could not find overwhelming support for either approach, consistent with their finding that of the 26 countries examined, about 50% assign the functions to separate bodies. Since the research was published, several countries have changed policy and the computations would show the majority separate the two responsibilities. Nonetheless, given the current trends, it is interesting that neither model was found to be superior.

Another key issue is the extent to which central banking is given independence from government. There is a general view that an independent central bank, unfettered by government directives, can better achieve the goal of price stability. For a government, the control of inflation will be one of several macroeconomic objectives; others are unemployment and balance of trade or exchange rate concerns. If a government decides that the rate of unemployment must be brought down because it is unacceptably high, one option is to stimulate the economy through lower interest rates, which, in turn, has implications for future inflation. It is argued that the goal of price stability requires a long-term, reputable commitment to monetary control, which is at odds with the short-term concerns of politicians. Inflation targets, etc., are seen as more credible if a central bank, independent of government interference, is given sole responsibility for price stability.

In countries where the central bank is independent, the government cannot use it in the manner described above. Under the 1998 Bank of England Act, the Bank acquired some degree of independence from the Treasury over monetary policy. The Act created the Monetary Policy Committee, consisting of the Governor, two deputies and two senior Bank employees. The Bank does not enjoy full autonomy because the Treasury appoints the four outside experts and approves all members of the Monetary Policy Committee. The target inflation rate (currently 2.5%), which the MPC must meet, is also set by the Treasury. The Governor is obliged to write to the Chancellor of the Exchequer if the target is not met, give or take 1%.

The Bank of Japan Act (April 1998) granted the Bank independence to a degree;⁴⁵ it has sole responsibility for ensuring price stability. The Governor, Vice-Governor and Policy Board are appointed by Cabinet, but it cannot dismiss them. The final decision on monetary policy is taken by the Policy Board, though in a country of deflation, it has no inflation targets *per se* to meet. The once powerful Ministry of Finance and Economic Planning Agency no longer has members on the Policy Board, but their representatives can express opinions at meetings.

Independence is also an issue if a country is committed to a regime of fixed, managed or targeted exchange rates. It is the central bank that buys or sells foreign currency on behalf of a government committed to, say, a quasi-fixed exchange rate, only allowing fluctuation within a narrow band. In this situation, the central bank (or banks) will be trading against the market – trying to restore the value of a currency threatened with depreciation or appreciation. While the central bank or the coordinated efforts of several central banks might be able to stabilise a currency in the short term, the position cannot be sustained indefinitely. Attempts to shore up a currency may also come into direct conflict with monetary policy, as was illustrated earlier. Under a fixed exchange rate regime, the central bank will find its monetary policy is dependent on the monetary regimes (and inflation rates) of other key economies.

1.7. Summary: Why are Banks Special?

A key objective of the preceding sections of this chapter has been to identify the key features of banks, with an emphasis on the reasons why banks differ from other financial institutions. Before moving on to related topics, it is worth summarising the main reasons why banks are special. First and foremost, unlike other financial firms, they act as intermediaries between borrowers and lenders and, in so doing, offer a unique form of asset transformation. Second, liquidity is an important service offered to customers. A byproduct of intermediation is participation in the payments system. Finally, banks play an important role in the macroeconomy, and have a special relationship with the central bank because the process of lending creates money.

Before moving on to Chapter 2, it is important to credit the authors responsible for developing the ideas discussed in earlier sections. Only the key contributors are cited here; readers wanting a more complete list are referred to comprehensive reviews by Baltensperger (1980) and Santomero (1984).

⁴⁵ By the 1998 legislation, the Bank of Japan's enjoys a qualified independence, because:

- The MoF is responsible for the maintenance of currency stability.
- The Finance Minister has the right to approve the Bank of Japan's budget; and the BJ's semi-annual report is sent to the Diet but via the MoF.
- The Finance Minister can require the BJ to make loans to troubled banks and other financial institutions.

As early as 1888, Edgeworth identified the distinguishing feature of banks: holding less than 100% of deposits as reserves, and making a profit from the positive margin arising from the difference between loan and deposit rates. According to Edgeworth, since the optimal level of reserves grows less than proportionately to deposits, larger banks (measured by deposits) will be more profitable than smaller banks. The outcome is an imperfectly competitive market structure, meaning banks could exert monopoly power. These themes were later formalised by Klein (1971) and Monti (1972). Sealey (1983) showed banks earned monopoly rents because their charters gave them the right to issue sight deposits. The emphasis was on the intermediary function, with little attention paid to price or credit risk. The view was that by borrowing short and lending long, in an environment where interest rates were steady, banks incurred little in the way of credit risk. Tobin (1963) was one of the first to question this view, though his main contribution was describing the role of banks in a macroeconomic setting.

Leland and Pyle (1977), Campbell and Kracaw (1980) and Diamond (1984) formally extended the intermediary function of the bank as information gatherer and monitor. Firms were able to raise finance through loans, and this finance was not, in many cases, available on organised (e.g., bond) markets, because of high verification, monitoring and enforcement costs. Banks were specialists in credit risk analysis, and the internalised information meant they could profit from informational economies of scale (Lewis, 1991). Fama (1985) also identified the unique nature of bank loans, and the bank's need for inside information on a firm to effectively monitor the borrower. As was mentioned earlier, Stiglitz and Weiss (1988) showed that bank loans can convey important signals to the organised markets about the creditworthiness of the firm, which could help the firm raise external finance via bonds or an initial public offering.

The main contribution by Diamond and Dybvig (1983) and Gorton (1988), among others, was to recognise that in the presence of asymmetric information, banks may be inherently unstable. If deposits are paid on demand, any market view that a bank's assets are unsound can precipitate a bank run, which spreads to healthy banks. As was noted earlier in this chapter, if banks are unable to offer a core service, liquidity, they can quickly become insolvent.

Fama (1980, 1985) focused on the assets side of banking and portfolio management: banks that acquire a risky asset portfolio need to generate the expected returns to finance monitoring costs and benefit from a diversified portfolio. More generally, in addition to taking deposits, banks could profit by diversifying risk to earn significant returns through diversified capital investments.

Though Klein (1971), Monti (1972) and others developed monopolistic models of bank behaviour, the approach was criticised for its failure to incorporate the production or supply side of banking. In response, Niehans (1978) used a production function where the volume of loans and deposits depends on factor inputs (capital and labour) together with the interaction between resource costs and factors influencing a bank's portfolio choices. Baltensperger (1980) also explores this idea, building upon earlier contributions by Pesek (1970) and Sealey and Lindley (1977), among others.

The introduction of government-backed deposit insurance to discourage bank runs alters the incentives of banks, to the detriment of the taxpayer. In the presence of less than perfect information about loans and other assets acquired by banks, deposit insurance (and lender of last resort/lifeboat facilities) creates moral hazard problems and encourages banks to assume a riskier portfolio than they otherwise would. Risk is underpriced in a system backed by explicit or implicit guarantees; points argued by, among others, Benston *et al.* (1986) and Kane (1985). Hence the need for regulation, which the banking sector will accept, provided the benefits of mispricing outweigh the cost of compliance – see Buser *et al.* (1981).

In the 19th century, Thornton (1802) distinguished between credit and money, and Keynes (1930) highlighted their importance in a macroeconomy, showing the role of banks in relation to monetary policy. Gurley and Shaw (1956), Pesek and Saving (1969) and Tobin (1963) extended these themes. By the 1950s, the role of banks in the creation of money had become standard fare in introductory economic textbooks.

1.8. Conclusion

The main purpose of this chapter has been to review the traditional model of the bank. Banks are distinguished from other financial firms by the intermediary and payments functions they perform. The organisational structure of banks is consistent with Coase's classic analysis of the firm, and extensions of these ideas by authors such as Alchian, Demsetz and Williamson. Information plays an important role in banking; the presence of information costs helps to explain why banks act as intermediaries. Asymmetry of information gives rise to adverse selection and moral hazard, and the classic principal–agent problem between depositors and shareholders and a bank, and the bank and its officers and debtors.

After a review of payments systems and related technology, section 1.3 identified the main organisational structures of banks, including universal and restricted universal banks, holding companies and the difference between commercial (wholesale and retail) and investment banking. The growth of financial conglomerates was also discussed. It was noted that the US banking system has a structure quite unique to the western world, and as will be shown in Chapter 5, is largely the product of the statutes passed by Congress to regulate the banking sector.

Section 1.6 introduced central banking, explaining the link between a country's private banks and the central bank. The various functions of the central bank were reviewed. Concepts such as bank runs and contagion were introduced, in relation to the need for a central bank to provide liquidity when banking systems are threatened. These terms receive more detailed attention in Chapters 4 and 8. Also discussed were the important issues of central bank independence from government, and allocation of responsibility for the prudential regulation of banks to an agency that is separate from the central bank.

In this chapter different types of banking structure, such as universal, commercial and investment banking, were introduced, along with a discussion of the growth of financial conglomerates. These topics prepare the ground for Chapter 2, which looks at the diversification of banking activities. By the end of the 20th century, all but the smaller

or specialised banks expanded into other financial activities, while continuing to offer the core banking functions. Chapter 2 also reviews aspects of international financial markets and the growth of international banking. The final section considers the thorny issue of whether the growth of information technology and other developments threaten the very nature of banking.

