

Chapter

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**BANK BUSINESS
AND CAPITAL**

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Banking has a long and honourable history. Today, it encompasses a wide range of activities of varying degrees of complexity. Whatever the precise business undertaken by specific individual banks, the common denominator of all banking activities is that of bringing together those who require funding with those who possess surplus funding, and acting as a transmission mechanism for the processing of payments. That is in essence all that banks do, and while it isn't a complex service provision, it is nevertheless an important one. Societal and economic development worldwide relies on efficient banking service provision.

In this introductory chapter we describe the financial markets, the basic banking business model, and the concept of bank capital. We begin with a look at the business of banking. We then consider the different types of revenue generated by a bank, the concept of the banking book and the trading book, financial statements, and the concept of provisions. We also introduce the different products offered by banks to their customers.

THE BASIC BANK BUSINESS MODEL

The basic bank business model has remained unchanged ever since banks became an integral part of modern society.¹ Of course, as it is more of an art than a science, the model parameters themselves can be set to suit the specific strategy of the individual bank, depending on whether the strategy operates at a higher or lower risk–reward profile. However, the basic model is identical across all banks. In essence, banking involves taking risks, followed by effective management of that risk. This risk can be categorised as follows:

- Managing the bank's capital;
- Managing the liquidity mismatch – a fundamental ingredient of banking is “maturity transformation”, the recognition that loans (assets) generally have a longer tenor than deposits (liabilities).

If we wished to summarise the basic ingredients of the historical bank model, we might describe it in the following terms:

- Leverage: A small capital base is levered up into an asset pool that can be 10 to 30 times greater (sometimes even higher);
- The “gap”: Essentially, funding short to lend long is a function of the conventional positive-sloping yield curve and is dictated by recognition of the asset–liability mismatch noted above;
- Liquidity: An assumption that a bank will always be able to roll over funding as it falls due;
- Risk management: An understanding of credit or default risk.

¹The oldest bank still operating, Monte Dei Paschi di Siena, was set up in 1472. Berenberg Bank claims it is the oldest bank still operating in its original form: it was formed in 1509.

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These fundamentals remain unchanged. The critical issue for bank management, however, is that some of the assumptions behind the application of these fundamentals *have* changed, as demonstrated by the crash of 2007–2008. The changed landscape in the wake of the crisis has resulted in some hitherto “safe” or profitable business lines being viewed as risky. Although favourable conditions for banking may well return in due course, for the foreseeable future the challenge for banks will be to set their strategy only after first arriving at a true and full understanding of economic conditions as they exist today. The first subject for discussion is to consider what a realistic, sustainable return on the capital target level should be and to ensure that it is commensurate with the level of risk aversion desired by the Board. The Board should also consider the bank’s capital availability and what amount of business this could realistically support. These two issues need to be addressed before the remainder of the bank’s strategy can be considered.

Strategy

The most important function that a bank’s Board can undertake is to set the bank’s strategy. This is not as obvious as it sounds. It is vital that banks have a coherent, articulated strategy in place that sets the tone for the entire business from the top down.

In the first instance, the Board must take into account the current regulatory environment. This includes the requirements of the Basel III rules. A bank cannot formulate strategy without a clear understanding of the environment in which it operates. Once this is achieved – before proceeding with a formal strategy – the bank needs to determine what markets it wishes to operate in, and establish what products and what class of customer it wants to service. All its individual business lines should be set up to operate within the main strategy, once markets and customers have been identified.

In other words, a bank cannot afford to operate by simply meandering along, noting its peer group market share and Return on Equity (RoE) and making up its strategy as it goes along. This approach, although it would never be admitted, is evidently what many banks do indeed follow – however inadvertently – and results in a senior management and Board that is not fully aware of what the bank’s liabilities and risk exposures are.

The first task is to understand one’s operating environment. The bank also needs to incorporate a specific target market and product suite as the basis of its strategy. Concurrent with this, the bank must set its RoE target, which drives much of the bank’s culture and ethos. It is important to get this part of the process right at the start. Prior to the crash, it was common for banks to seek to increase revenue by adding to their risk exposure. Assets were added to the balance sheet, or higher risk assets were taken on. In the bull market environment of 2001–2007 – allied to low funding costs as a result of low base interest rates – this resulted in ever higher RoE figures, to the point where it

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was common for even Tier 2 banks to target levels of 22–25% RoE in their business appraisal. This process was of course not tenable in the long run.

The second task – following on immediately from the first – is to set a realistic RoE target and one that is sustainable over the entire business cycle. This cannot be done without educating Board directors as well as shareholders, who must appreciate new, lower RoE targets. Managing expectations will contribute to a more dispassionate review of strategy. Just as importantly, risk-adjusted RoE should also be set at a realistic level and not be allowed to increase. Hence, the Board and shareholders must accept that lower RoE levels will become the standard. This should also be allied to lower leverage levels and higher capital ratios.

Concurrently with the above process, a bank must ask itself where its strengths lie and formulate its strategy around that. In other words, it is important to focus on core competencies. Again, the experience of the crash has served to demonstrate that many banks found themselves with risk exposures that they did not understand. This may simply have been the holding of assets (such as structured finance securities) whose credit exposures, valuation, and secondary market liquidity they did not understand, or embarking on investment strategies such as negative basis trading without being aware of all the measurement parameters of such strategies.² To implement a coherent, articulate strategy properly, a bank needs to be aware of exactly what it does have (or does not have) expertise for undertaking, and not operate in products or markets in which it has no genuine knowledge base.

Allied to an understanding of core competence is a review of core and non-core assets. Bank strategy is not a static process or document, but rather a dynamic one. Regular reviews of the balance sheet need to be undertaken to identify any non-core assets, which can then be assessed to determine whether they remain compatible with the strategy. If they are not, then a realistic disposal process would need to be drawn up. In the long run, this is connected with an understanding of where the bank’s real strengths lie. Long-term core assets may well differ from core assets, but this needs to be articulated explicitly. The decision on whether an asset is core or non-core, or short-term core or long-term core, is a function of the bank’s overall strategy – based on its expertise – and what markets and customers it wishes to service. This will be embedded in

²Without naming the banks, the author is aware of institutions that purchased ABS and CDO securities under the belief that the senior tranche, rated AAA, would not be downgraded even if there was a default in the underlying asset pool, presumably because the junior note(s) would absorb the losses. Of course, this loss of subordination does erode the initial rating of the senior note – with a consequent markdown in market value. Another institution, according to anecdotal evidence received by email, entered into negative CDS basis trades without any consideration for the funding cost of the trade package. This resulted in losses irrespective of how the basis performed. In this case, it is clear that the trading desk in question entered into a relatively sophisticated trading strategy without being sufficiently aware of the technical and risk implications.

the strategy and the bank's business model. This drives the choice of products and business lines to which the bank feels it can add value.

BANKING BUSINESS

Banking operations encompass a wide range of activities, all of which contribute to the asset and liability profile of a bank. Table 1.1 shows selected banking activities and the type of risk exposure they represent. The terms used in the table, such as "market risk", are explained elsewhere in this book. In another chapter we discuss the elementary aspects of financial analysis – using key financial ratios – that are used to examine the profitability and asset quality of a bank. We also discuss bank regulation and the concept of bank capital.

All readers should be familiar with the way a bank's earnings and performance are reported in its financial statements. A bank's income statement will break down earnings by type, as we have defined in Table 1.1. So we need to be familiar with interest income, trading income, and so on. The other side of an income statement is costs, such as operating expenses and bad loan provisions.

Table 1.1 Selected banking activities and services

Service or function	Revenue generated	Risk
Lending		
– Retail	Interest income, fees	Credit, market
– Commercial	Interest income, fees	Credit, market
– Mortgage	Interest income, fees	Credit, market
– Syndicated	Interest income, fees	Credit, market
Credit cards	Interest income, fees	Credit, operational
Project finance	Interest income, fees	Credit
Trade finance	Interest income, fees	Credit, operational
Cash management		
– Processing	Fees	Operational
– Payments	Fees	Credit, operational
Custodian	Fees	Credit, operational
Private banking	Commission income, interest income, fees	Operational
Asset management	Fees, performance payments	Credit, market, operational
Capital markets		
– Investment banking	Fees	Credit, market
– Corporate finance	Fees	Credit, market
– Equities	Trading income, fees	Credit, market
– Bonds	Trading income, interest income, fees	Credit, market
– Foreign exchange	Trading income, fees	Credit, market
– Derivatives	Trading income, interest income, fees	Credit, market

That the universe of banks encompasses many different varieties of beasts is evident from the way they earn their money. Traditional commercial banking institutions, perhaps typified by a regional bank in the United States (US) or a building society in the United Kingdom (UK), will generate a much greater share of their revenues through net interest income (NII) than trading income, and vice versa for a firm with an investment bank heritage such as Morgan Stanley. In fact, the vast majority of the world's banks do not even run a "trading book", which is a business activity with a specific accounting definition and treatment. Such firms will earn a greater share of their revenues through fees and loan interest income. The breakdown varies widely across regions and banks.

Let us now consider the different types of income streams and costs.

Interest income

Interest income, or NII, is the main source of revenue for the majority of banks worldwide. It can form upwards of 60% of operating income, and for smaller banks and building societies it reaches 80% or more.

NII is generated from lending activity and interest-bearing assets, while "net" return is this interest income minus the cost of funding loans. Funding, which is a cost to the bank, is obtained from a wide variety of sources. For many banks, customer deposits are a key source of funding, as well as one of the cheapest. They are generally short term, though, or available on demand, so must be supplemented by longer term funding. Other sources of funds include senior debt in the form of bonds, securitised bonds, and money market paper.

NII is sensitive to both credit risk and market risk. Market risk, which we look at later, is essentially interest-rate risk for loans and deposits. Interest-rate risk will be driven by the maturity structure of the loan book, as well as the match (or mismatch) between the maturity of loans against the maturity of funding. This is known as the interest-rate gap.

Fees and commissions

Banks generate fee income as a result of providing services to customers. Fee income is very popular with bank senior management because it is less volatile and not susceptible to market risk like trading income or even NII. There is also no credit risk because fees are often paid upfront. There are other benefits as well, such as the opportunity to build up a diversified customer base for this additional range of services, but these are of less concern to a bank's asset-liability management (ALM) desk.

Fee income uses less capital and also carries no market risk, but does carry other risks, such as operational risk.

Trading income

Banks generate trading income through trading activity in financial products such as equities (shares), bonds, and derivative instruments. This includes acting as a dealer or market-maker in these products, as well as taking proprietary positions for speculative purposes. In some cases, running positions in securities (as opposed to derivatives) generate interest income; some banks strip this out of the capital gain made when the security is traded to profit, while others include it as part of overall trading income.

Trading income is perhaps the most volatile income source for a bank. It also generates relatively high market risk, as well as not inconsiderable credit risk. In the era of Basel III, banks will be migrating from the use of Value-at-Risk (VaR) methodology to measure the risk arising from trading activity to the use of the Expected Shortfall (ES) method, which gives a statistical measure of expected losses to the trading portfolio under certain market scenarios. This is dictated by the Fundamental Review of the Trading Book (FRTB) rules implemented under Basel III. A discussion of this topic is outside the scope of this book but further detail can be obtained from the author's book *Moorad Choudhry Anthology*.

Costs

Bank operating costs comprise staff costs and operating costs, such as provision of premises, information technology, and office equipment. Other significant elements of cost are provisions for loan losses, which are charges against the loan revenues of the bank. Provision is based on subjective measurement by management of how much of the loan portfolio can be expected to be repaid by the borrower.

SCOPE OF BANKING ACTIVITIES

The different aspects of banking business vary widely in nature. For our purposes we may group them together as shown in Figure 1.1. Put very simply, "retail" or "commercial" banking covers the more traditional lending and trust activities, while "investment" banking covers trading activity and fee-based income such as stock exchange listing and mergers and acquisitions. The one common objective of all banking activity is return on capital. Depending on the degree of risk it represents, a particular activity will be required to achieve a specified return on the capital it uses. The issue of banking capital is vital to an appreciation of the banking business; entire new business lines (such as securitisation) have been devised in response to the need to make the use of capital more efficient.

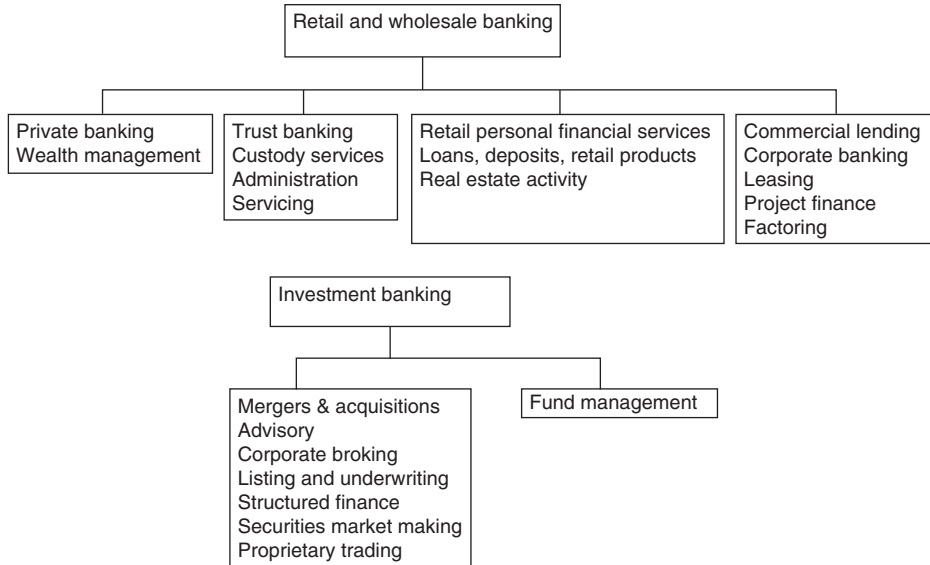


Figure 1.1 Scope of banking activities

As we can see from Figure 1.1, the scope of banking business is wide. Activities range from essentially plain vanilla activity, such as corporate lending, to complex transactions, such as securitisation and hybrid product trading. There is vast literature on all these activities, so we do not need to cover them here. However, it is important to have a grounding in the basic products; subsequent chapters will introduce these.

ALM is the discipline in banking risk management that is concerned with the efficient management of the mismatch between assets (loans) and liabilities (deposits), and with management of the bank's capital. It therefore concerns itself with all banking operations, even if day-to-day contact between the ALM desk (or Treasury desk) and other parts of the bank is infrequent. The ALM desk will be responsible for the Treasury and money market activities of the entire bank. So, if we wish, we could draw a box with ALM in it around the whole of Figure 1.1. This is not to say that the ALM function does all these activities; rather, it is just to make clear that all the various activities represent assets and liabilities for the bank, and one central function is responsible for this side of these activities.

For capital management purposes, a bank's business is organised into a "banking book" and a "trading book". We consider these next; first though, a word on bank capital.

Capital

Bank capital is the equity of the bank. In other words, it is a liability. This is important to remember because frequently in the business media one comes

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across commentary that banks have to “set aside” capital in order to undertake lending, as if it is some sort of asset. One does not set aside capital; however, depending on the riskiness of the lending, one has to have a minimum of the balance sheet funded by equity liabilities, as opposed to debt liabilities such as deposits or bonds.

Capital is the cushion that absorbs unexpected losses that the bank incurs when loan customers default on their borrowing. By acting as this cushion, it enables the bank to continue operating and thus avoid insolvency or bankruptcy during periods of market correction or economic downturn. When the bank suffers a loss or writes off a loss-making or otherwise economically untenable activity, the capital is used to absorb the loss. This can be done by eating into reserves, freezing dividend payments, or (in more extreme scenarios) a writedown of equity capital. In the capital structure, the rights of capital creditors, including equity holders, are subordinated to senior creditors and deposit holders.

Banks occupy a vital and pivotal position in any economy as the suppliers of credit and financial liquidity, so bank capital is important. As such, banks are heavily regulated by central monetary authorities, and their capital is subject to regulatory rules compiled by the Bank for International Settlements (BIS), based in Basel, Switzerland. For this reason its regulatory capital rules are often called the “Basel rules”. Under the original Basel rules (Basel I), a banking institution was required to hold a minimum capital level of 8% against the assets on its book.³ Total capital is comprised of:

- Equity capital;
- Reserves;
- Retained earnings;
- Preference shares;
- Subordinated debt.

Capital is split into Tier 1 capital and Tier 2 capital. The first four items in the bulleted list comprise Tier 1 capital or “additional tier 1” (AT1) capital, while the remaining item is Tier 2 capital.

The quality of the capital in a bank reflects its mix of Tier 1 and Tier 2 capital. Tier 1 or “core capital” is the highest quality capital, as it is not obliged to be repaid. Tier 2 is considered lower quality capital as it is not necessarily “loss absorbing”, although legally it is required to be; it is repayable and also of shorter term than equity capital. Assessing the financial strength and quality of a particular banking institution often requires calculating key capital ratios for the bank and comparing them with market averages and other benchmarks.

Analysts use a number of ratios to assess bank capital strength. Some of the more common ones are shown in Table 1.2.

³There is more to this than just this simple statement, and we consider it in detail in Chapter 15.

Table 1.2 Bank analysis ratios for capital strength

Ratio	Calculation	Notes
Common equity capital ratio	Tier 1 capital/Risk-weighted assets	A key ratio monitored, in particular, by rating agencies as a measure of high-quality, non-repayable capital, available to absorb losses incurred by the bank
Tier 1 capital ratio	Eligible Tier 1 capital/Risk-weighted assets	Another important ratio monitored by investors and rating agencies. Represents the amount of high-quality, non-repayable capital available to the bank
Total capital ratio	Total capital/Risk-weighted assets	Represents total capital available to the bank
Off-balance-sheet risk to total capital	Off-balance-sheet and contingent risk/Total capital	Measure of adequacy of capital against off-balance-sheet risk, including derivatives exposure and committed, undrawn credit lines

Banking and trading books

Banks and financial institutions make a distinction between their activities for capital management purposes, including regulatory capital. Activities are split between the “banking book” and the “trading book”. Put simply, the banking book holds the traditional banking activities such as commercial banking, loans, and deposits. This would cover lending to individuals as well as corporates and other banks, and so will interact with investment banking business.⁴ The trading book records wholesale market transactions, such as market-making and proprietary trading in bonds and derivatives. Again, speaking simply, the primary difference between the two books is that the overriding principle of the banking book is one of “buy and hold” – that is, a long-term acquisition. Assets may be held on the book for up to 30 years or longer. The trading book is just that, it employs a trading philosophy so that assets may be held for very short terms, less than 1 day in some cases.

⁴For a start, there will be a commonality of clients. A corporate client will borrow from a bank and may also retain the bank’s underwriting or structured finance departments to arrange a share issue or securitisation on its behalf.

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The regulatory capital and accounting treatment of each book differs. The primary difference here is that the trading book employs the “mark-to-market” approach to record profit and loss (P&L), which is the daily “marking” of an asset to its market value. An increase or decrease in the mark on the previous day’s mark is recorded as an unrealised profit or loss on the book: on disposal of the asset, the realised profit or loss is the change in the mark at disposal compared with its mark at purchase.

The banking book

Traditional banking activity – such as deposits and loans – is recorded in the banking book. The accounting treatment for the banking book follows the accrual concept, which accrues interest cash flows as they occur. There is no mark to market. The banking book holds assets for which both corporate and retail counterparties as well as banking counterparties are represented. So it is the type of business activity that dictates whether it is placed in the banking book, not the type of counterparty or which department of the bank is conducting it. Assets and liabilities on the banking book generate interest-rate and credit risk exposure for the bank. They also create liquidity and term mismatch (“gap”) risks. Liquidity refers to the ease with which an asset can be transformed into cash and to the ease with which funds can be raised in the market. So we see that “liquidity risk” actually refers to two related but separate issues.

All these risks form part of ALM. Interest-rate risk management is a critical part of Treasury policy and ALM, while credit risk policy will be set and dictated by the credit policy of the bank. Gap risk creates an excess or shortage of cash, which must be managed. This is the cash management part of ALM. There is also a mismatch risk associated with fixed rate and floating rate interest liabilities. The central role of financial markets is to enable cash management and interest-rate management to be undertaken efficiently. ALM of the banking book will centre on interest-rate risk management and hedging, as well as liquidity management. Note how there is no “market risk” for the banking book in principle, because there is no marking to market. However, the interest-rate exposure of the book creates an exposure that is subject to market movements in interest rates, so for regulatory purposes the banking book is exposed to market risk.

Trading book

Wholesale market activity, including market-making and proprietary trading, is recorded in the trading book. Assets on the trading book can be expected to have a high turnover, although not necessarily so, and are marked to market daily. Counterparties to this trading activity can include other banks and financial institutions such as hedge funds, corporates, and central banks. Trading book activity generates the same risk exposure as that on the banking book, including market risk, credit risk, and liquidity risk. It also creates a need for cash management. Much trading book activity involves derivative

instruments, as opposed to “cash” products. Derivatives include futures, swaps, and options. These can be equity, interest rate, credit, commodity, foreign exchange (FX), weather, and other derivatives. Derivatives are known as “off-balance-sheet” instruments because they are recorded “off” the (cash) balance sheet. Their widespread use and acceptance have greatly improved the efficiency of the process behind risk exposure hedging for banks and other institutions alike.

Off-balance-sheet transactions refer to “contingent liabilities”, which are so called because they refer to future exposure contracted now. These are not only derivatives contracts, such as interest-rate swaps or writing an option, but also include guarantees such as a credit line to a third-party customer or a group subsidiary company. These represent a liability for the bank that may be required to be honoured at some future date. In most cases, they do not generate cash inflow or outflow at inception – unlike a cash transaction – but represent future exposure. If a credit line is drawn on, it represents a cash outflow and that transaction is then recorded on the balance sheet.

BANKING PRODUCTS

We provide a summary description of the main products offered by banks to their customers, grouped into liabilities and assets.

Interest-bearing and non-interest-bearing current account

This is *the* principal banking product and the one that has been a significant factor in global economic development. Sometimes referred to as a money transmission account (MTA) or an “operational deposit”, these are also known as cheque accounts or (in the US) “checking accounts”. They are the simplest form of short-term deposit or investment instrument. Customer funds may be withdrawn instantly on demand, either by cheque, cash machine (“automated teller machine” or ATM) card, or electronically via telephone or internet mobile app. They may also be set up with regular payments to third parties such as standing orders and direct debits.

Banks generally pay interest on surplus balances, although not always. Current accounts are a cheap source of funding for banks, as well as a stable one, because their balances, although variable on a monthly basis, are viewed as behaviourally long term.

The current account product defines a bank. Many so-called “challenger banks” or digital mobile app-only banks do not offer such a product, which means that their customers will need to obtain MTA services from another bank.

The other side of the current account, the on-demand instant overdraft facility, is also a very important product.

Demand deposit

Also referred to as a savings account, sight deposit, or call account, these are similar to cheque accounts but are always interest bearing and may not be used for making payments to third parties. The funds are available on demand, but cannot be used for cheques or other similar payments.

Time deposit

Time or term deposits are interest-bearing deposit accounts of fixed maturity and, often, fixed interest rate. They are usually offered with a range of maturities ranging from 1 month to 5 years, with longer dated deposits attracting higher interest. This reflects a positive yield curve, which indicates the funding value to the bank of longer term liabilities. Most time deposits pay a fixed rate of interest, payable on maturity. Accounts of longer than 1-year maturity often capitalise interest on an annual basis.

Fixed term deposits are sometimes called “bonds” or “savings bonds” but are not tradable instruments, so this term is not to be confused with capital market bonds or fixed income securities.

Savings deposit (non-instant access)

A notice account is a savings deposit account that pays a higher rate of interest to a standard demand deposit, provided the customer gives 30, 35, 60, 90, or 180 days’ notice before withdrawing funds. Banks also incentivise customers with a higher interest rate when they arrange to pay in a fixed amount each month over a 12- or 24-month period, so-called “monthly saver” accounts. Such deposits are treated as behaviourally stable funds for regulatory purposes.

In some jurisdictions, interest on deposit accounts is paid net of a withholding tax. Some accounts may be set up to pay gross interest, or may be arranged to be tax-free interest-bearing accounts, provided they meet certain stipulated conditions.

Structured deposit

A structured deposit is a deposit whose payoff or return profile is structured to match a specific customer requirement. The structuring results from the use of an embedded derivative in the product, which links the deposit to changes in interest rates, FX rates, stock market indices, or other market rates. There is a wide range of different products available that fall in the class of “structured deposit”.

An example is the following: a customer places funds on deposit at a specific interest rate and fixed term. Under the agreement, if the central bank base

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interest rate remains between 4 and 5%, then return is enhanced by 100bp. If the rate moves below 4% or above 5%, then the deposit forfeits all interest for the remaining term of its life. This is an example of a “collared range accrual” deposit. It’s a pretty superfluous product and asks the customer to speculate on interest rates, which makes it more of an investment product than a pure bank deposit.

Personal and corporate loans

The basic customer product of a bank is the retail or corporate customer loan. This may be secured on collateral or unsecured, and may be set with a fixed-rate or variable floating-rate of interest. The loan term is usually fixed, and the repayment may be “bullet”, meaning the initial borrowed amount is paid in one go on maturity, or it may be amortising, meaning the borrower pays down a regular portion of the loan during its life.

On-demand overdraft

The basic current account is usually, although not always, able to go “overdrawn” if payments are made through it that are of higher value than its credit balance at the time. Typically, the customer will have arranged such an overdraft in advance, because unarranged overdrafts are charged at a higher interest rate. There is no repayment date on an overdraft, but a bank may withdraw the facility at 30 or 60 days’ notice, which would require the overdraft to be repaid in that time. In general, overdraft facilities are renewed on an annual basis.

Liquidity facilities

Liquidity facility is the generic term for a standing loan agreement, against which a borrower can draw down funds at any time up to the maximum value of the line. The borrower pays a fee, called the standing fee, even if the line is not used and then pays the agreed rate of interest on any funds that it does draw.

We distinguish between the following:

- *Back-up facility*: A facility that is not used in the normal course of business. It is generally drawn down if the borrower is experiencing some difficulty in obtaining funding from its usual sources;
- *Revolving credit facility (RCF)*: A commitment from a bank to lend on a revolving basis under prespecified terms. Under an RCF there is usually a regular drawdown and repayment of funds during the life of the facility;
- *Overdraft*: See above;
- *Credit card*: See below.

Liquidity facilities require full regulatory capital backing, as the capital treatment is to assume that they are being used at all times.

Credit card

A credit card is a form of liquidity facility because it references a line of borrowing approved in advance by the bank, which the customer can draw down on at any time and on demand. There is usually a credit limit set when the card is issued to the customer. Credit cards, which are used by both retail and corporate customers, are very useful products because they enable the borrower to purchase goods and services over all communications media, from face to face over the counter to digital and mobile app.

Trade finance: letter of credit

A letter of credit (LoC) is a standard vanilla product available from a commercial bank. It is an instrument that guarantees that a buyer's payment to a seller will be received at the right time and for the specific amount. The buyer is the customer of the bank. If the buyer is unable to make payment on the due date, the bank will cover the full amount of the purchase. The bank therefore takes on the credit risk of the buyer when it writes an LoC on the buyer's behalf. The buyer therefore pays a fee for the LoC that reflects its credit standing.

LoCs are used in domestic and international trade transactions. Cross-border trade transactions involve both parties in issues such as distance, different legal jurisdictions, and lack of any available due diligence on the counterparties. An LoC is a valuable tool that eases the process for the buying and selling parties. The bank also acts on behalf of the buyer (the purchaser of the LoC) because it would only make payment when it knows that the goods have been shipped. For the seller, an LoC substitutes the credit of the buyer for that of the bank, which is an easier risk exposure for the seller to take on.

LoCs represent fee-based income for a bank and are sometimes referred to as "off-balance-sheet" because no actual funded lending is involved.

Commercial letter of credit

A commercial LoC is a contract issued by a bank, known as the issuing bank, on behalf of one of its customers, authorising another bank, known as the advising or confirming bank, to make payment to the beneficiary. The issuing bank makes a commitment to guarantee drawings made under the named credit. The beneficiary is normally the provider of goods and/or services. An advising bank, usually a foreign correspondent bank of the issuing bank, will advise the beneficiary, but otherwise has no other obligation under the LoC.

An LoC is generally negotiable; this means that the issuing bank is obliged to pay the beneficiary but – should the issuing bank so request – any bank nominated by the beneficiary could make the payments. To be negotiable, the LoC features an unconditional promise to pay on demand at a specified time.

Standby letter of credit

A standby LoC is a contract issued by a bank on behalf of a customer to provide assurances of its ability to perform under the terms of a contract between it and the beneficiary. In other words, a standby LoC is more of a guarantee, as both parties to the transaction do not expect the LoC will be drawn on. It essentially provides comfort to the beneficiary, as it enhances the creditworthiness of its customer.

Syndicated loan

To raise debt capital, companies may issue bonds or loans (as well as other debt-like instruments), both of which are associated with a certain seniority or ranking. In a liquidation or winding up, the borrower's remaining assets are distributed according to a priority waterfall: debt obligations with the highest seniority are repaid first; only if assets remain thereafter are obligations with lower seniorities repaid. Further, debt instruments may be secured or unsecured: if certain of the borrower's assets are ring-fenced to serve as collateral for the lenders under a particular obligation only, this obligation is deemed to be "secured". Together, seniority and collateral determine the *priority* of an obligation. As illustrated in Table 1.3, bonds and loans issued by investment-grade companies, as well as bonds issued by sub-investment-grade companies, called "high-yield bonds", are typically senior unsecured. However, loans issued by sub-investment-grade companies are typically senior secured. Often, these are called "leveraged loans" or "syndicated loans". The market often uses both terms interchangeably.

The definition of "leveraged loan" is not universal, however. Various market participants define a leveraged loan to be a loan with a sub-investment-grade rating, while other users view it as one with a certain spread over Libor (say 100bp or more) and sometimes a certain debt/EBITDA ratio of the borrower. S&P, for instance, calls a loan "leveraged" if it is rated sub-investment grade or if it is rated investment grade but pays interest of at least Libor + 125bp. Bloomberg uses a hurdle rate of Libor + 250bp. Essentially, the market refers to leveraged loans and high-yield bonds as "high-yield debt".

Leveraged loans may be arranged either between a borrower and a single lending bank, or, more commonly, between a borrower and a syndicate of

Table 1.3 Typical priorities of corporate bonds and loans of investment grade and sub-investment-grade borrowers

	Investment-grade borrower	Sub-investment-grade borrower
Bonds	Senior unsecured	Senior unsecured (high-yield bonds)
Loans	Senior unsecured	Senior secured (leveraged loans/syndicated secured loans)

Source: Choudhry (2010).

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lending banks. In the latter case, one (or more) of the lending banks acts as lead arranger. Before any other lending banks are involved, the lead arranger conducts detailed due diligence on the borrower. Also, the lead arranger and borrower agree on the basic transaction terms, such as the size of the loan, interest rate, fees, loan structure, covenants and type of syndication. These terms are documented in a "loan agreement". Based on the information received in the due diligence process, the lead arranger prepares an information memorandum, also called the "bank book", which is used to market the transaction to other potential lending banks or institutional investors. Together, the lead arranger and the other lenders constitute the primary market. If the transaction is an "underwritten syndication", the lead arranger guarantees the borrower that the entire amount of the loan will be placed at a predefined price. If the loan is undersubscribed at that price, the lead arranger is forced to absorb the difference. If the transaction is a "best efforts syndication", the lead arranger tries to place the loan at the predefined terms but will, if investor demand is insufficient, adjust these terms to achieve full placement.

Leveraged loans are usually secured by particular assets of the borrower. These assets are listed in the loan agreement and may comprise all tangible and intangible assets of the borrower. This means that, in the event of default, lenders can take possession of these assets, liquidate them, and use the proceeds to satisfy their claims in the order of priority stipulated in the loan agreement and the related inter-creditor agreement. This happens before the claims of any unsecured lenders are satisfied.

Leveraged loans commonly mature between 7 and 10 years after issuance. The effective life of leveraged loans, however, tends to be significantly shorter as the borrower is typically allowed to prepay or "call" the loan at any time at no premium or at a limited premium.

CAPITAL MARKETS

A "capital market" is the term used to describe the market for raising and investing long-term finance. The economies of developed countries and a large number of developing countries are based on financial systems that encompass investors and borrowers, markets, and trading arrangements. A market can be one in the traditional sense, such as an exchange where financial instruments are bought and sold on a trading floor, or it may refer to one where participants deal with each other over the telephone or via electronic screens. The basic principles are the same in any type of market. There are two primary users of capital markets: lenders and borrowers. The source of lenders' funds is, to a large extent, the personal sector made up of household savings and those acting as their investment managers, such as life assurance companies and pension funds. The borrowers are made up of the government, local government, and companies (called corporates). There is a basic conflict between the financial objectives of borrowers and lenders, in that those who are investing funds wish

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to remain liquid, which means having easy access to their investments. They also wish to maximise the return on their investment. A corporate, on the other hand, will wish to generate maximum net profit on its activities, which will require continuous investment in plant, equipment, human resources, and so on. Such investment will therefore need to be as long term as possible. Government borrowing as well is often related to long-term projects such as the construction of schools, hospitals, and roads. So while investors wish to have ready access to their cash and invest short, borrowers desire funding to be as long term as possible. One economist referred to this conflict as the “constitutional weakness” of financial markets (Hicks, 1939), especially as there is no conduit through which to reconcile the needs of lenders and borrowers. To facilitate the efficient operation of financial markets and the price mechanism, intermediaries exist to bring together the needs of lenders and borrowers. A bank is the best example of this. Banks accept deposits from investors, which make up the liability side of their balance sheet, and lend funds to borrowers, which forms the assets on their balance sheet. If a bank builds up a sufficiently large asset and liability base, it will be able to meet the needs of both investors and borrowers, as it can maintain liquidity to meet investors’ requirements as well as create long-term assets to meet the needs of borrowers. A bank is exposed to two primary risks in carrying out its operations: that a large number of investors decide to withdraw their funds at the same time (a “run” on the bank) or that a large number of borrowers go bankrupt and default on their loans. The bank in acting as a financial intermediary reduces the risk it is exposed to by spreading and pooling risk across a wide asset and liability base.

Corporate borrowers wishing to finance long-term investment can raise capital in various ways. The main methods are:

- Continued reinvestment of the profits generated by a company’s current operations;
- Selling shares in the company, known as equity capital, equity securities, or *equity*, which confers on buyers a share in ownership of the company. Shareholders as owners have the right to vote at general meetings of the company, as well as the right to share in the company’s profits by receiving dividends;
- Borrowing money from a bank via a bank loan. This can be a short-term loan such as an overdraft, or a longer term loan over 2, 3, or 5 years or even longer. Bank loans can be at either a fixed or, more usually, variable rate of interest;
- Borrowing money by issuing debt securities in the form of *bills*, *commercial paper*, and *bonds* that subsequently trade in the debt capital market.

The first method may not generate sufficient funds, especially if a company is seeking to expand by growth or the acquisition of other companies. In any case, a proportion of annual after-tax profits will need to be paid out as dividends

to shareholders. Selling further shares is not always popular among existing shareholders as it dilutes the extent of their ownership; moreover, there are a host of other factors to consider, including whether there is any appetite in the market for that company's shares. A bank loan is often inflexible, and the interest rate charged by the bank may be comparatively high for all but the highest quality companies. We say "comparatively" because there is often a cheaper way for corporates to borrow money: by tapping the bond markets. An issue of bonds will fix the rate of interest payable by the company for a long-term period, and the chief characteristic of bonds – that they are *tradable* – makes investors more willing to lend a company funds.

In every capital market the first financing instrument ever developed was the bill and then the bond. Today, in certain developing economies the government short-dated bond market is often the only liquid market in existence. Over time – as financial systems develop and corporate debt and equity markets take shape – the money and bond markets retain their importance due to their flexibility and the ease with which transactions can be undertaken. In advanced financial markets – such as those in place in developed countries today – the introduction of financial engineering techniques has greatly expanded the range of instruments that can be traded. These instruments include instruments used for hedging positions held in bonds and other cash products, as well as meeting the investment and risk management needs of a whole host of market participants. Debt capital markets have been and continue to be important to the economic development of all countries, as they represent the means of *intermediation* for governments and corporates to finance their activities. In fact, it is difficult to imagine long-term capital-intensive projects – such as those undertaken by, say, petroleum, construction, or aerospace companies – taking place without the existence of a debt capital market to allow the raising of vital finance.

FINANCIAL STATEMENTS AND RATIOS

A key information tool for bank analysis is the financial statement, which comprises the balance sheet and the P&L account. Assets on the balance sheet should equal the assets on a bank's ALM report, while receipt of revenue (such as interest and fees income) and payout of costs during a specified period are recorded in the P&L report or income statement.

The balance sheet

The balance sheet is a statement of a company's assets and liabilities as determined by accounting rules. It is a snapshot of a particular point in time, and so

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Table 1.4 Components of a bank balance sheet

Assets	Liabilities
Cash	Short-term liabilities
Loans	Deposits
Financial instruments (long)	Financial instruments (short)
Fixed assets	Long-dated debt
Off-balance-sheet (receivables)	Equity

by the time it is produced it is already out of date. However, it is an important information statement. A number of management information ratios are used when analysing the balance sheet; they are considered in the next chapter.

In Chapter 2 we use a hypothetical example to illustrate balance sheets. For a bank, there are usually five parts to a balance sheet, split up in such a way to show separately:

- Lending and deposits, or traditional bank business;
- Trading assets;
- Treasury and inter-bank assets;
- Off-balance-sheet assets;
- Long-term assets, including fixed assets, shares in subsidiary companies, together with equity and Tier 2 capital.

This is illustrated in Table 1.4. The actual balance sheet of a retail or commercial bank will differ significantly from that of an investment bank, due to the relative importance of their various business lines, but the basic layout will be similar.

Profit and loss report

The income statement for a bank is the P&L report, which records all income and losses during a specified period of time. A bank income statement will show revenues that can be accounted for as net interest income, fees and commissions, and trading income. The precise mix of these sources will reflect the type of banking institution and the business lines it operates in. Revenue is offset by operating (non-interest) expenses, loan loss provisions, trading losses, and tax expense.

A more “traditional” commercial bank will have a much higher dependence on interest revenues than an investment bank that engages in large-scale wholesale capital market business. Investment banks have a higher share of revenue comprising trading and fee income. Table 1.5 shows the components of a UK retail bank’s income statement.

Table 1.5 Components of bank income statement, typical structure for retail bank

%	Expressed as percentage of
Core operating income	100
Net interest income	64 Core operating income
Commissions and fee income	31 Core operating income
Trading income	8 Core operating income
+Net other operating income	8 Core operating income
–Operating expenses	61 Revenues
Personnel	38 Revenues
Other, depreciation	
–Loan loss provisions	23 Pre-provision net income
=Net operating income	
+Other non-operating income	
=Profit before tax	
–Tax	
=Net income	
–Minority interest	
=Attributable income	

Source: Bank financial statements.

The composition of earnings varies widely among different institutions. Figure 1.2 shows the breakdown for a UK building society and the UK branch of a US investment bank in 2005, as reported in their financial accounts for that year.

Net interest income

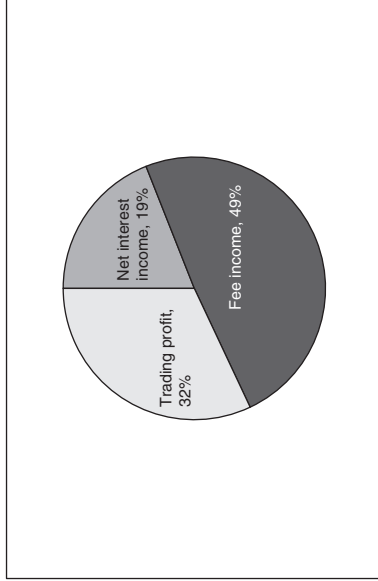
The traditional source of revenue for retail banks – NII – remains as such today (see Figure 1.2). NII is driven by lending, interest-earning asset volumes, and the net yield available on these assets after taking into account the cost of funding. While the main focus is on the loan book, the ALM desk will also concentrate on the bank's investment portfolio. The latter will include coupon receipts from money market and bond market assets, as well as dividends received from any equity holdings.

The cost of funding is a key variable in generating overall NII. For a retail bank, the cheapest source of funds is deposits, especially non-interest-bearing deposits such as cheque accounts.⁵ Even in an era of high-street competition, the interest payable on short-term liabilities such as instant access deposits is far below the wholesale market interest rate. This is a funding advantage

⁵These are referred to as NIBLs (non-interest-bearing liabilities).

UK subsidiary, North American investment bank, core earnings split 2015

Net interest income 19%
Fee income 49%
Trading profit 32%



UK building society, core earnings split 2015

Net interest income 83%
Fee income 15%
Trading profit 2%

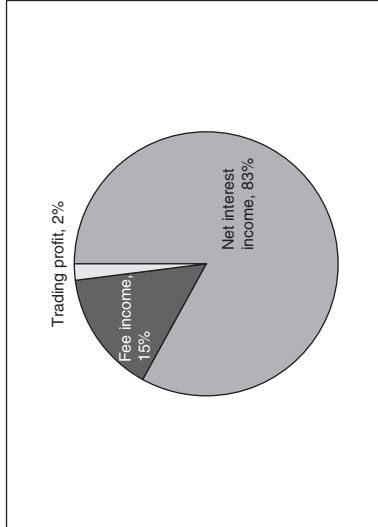


Figure 1.2 Composition of earnings

Source: Bank financial statements.

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for retail banks when compared with investment banks, which generally do not have a retail deposit base. Other funding sources include capital markets (senior debt), wholesale markets (the inter-bank money market), securitised markets, and covered bonds. The overall composition of funding significantly affects the net interest margin and, if constrained, can reduce the activities of the bank.

The risk profile of asset classes that generate yields for the bank should lead to a range of net interest margins being reported across the sector, such that a bank with a strong unsecured lending franchise should seek significantly higher yields than one investing in secured mortgage loans; this reflects the different risk profiles of assets. The proportion of non-interest-bearing liabilities will also have a significant impact on the net interest margin of the institution. While a high net interest margin is desirable, it should also be adequate return for the risk incurred in holding the assets.

Bank NII is sensitive to both credit risk and market risk. Interest income is sensitive to changes in interest rates and the maturity profile of the balance sheet. Banks that have assets that mature earlier than their funding liabilities will gain from an environment of rising interest rates. The opposite applies where the asset book has a maturity profile that is longer dated than the liability book. Note that in a declining or low-interest-rate environment, banks may suffer from negative NII irrespective of their asset–liability maturity profile, as it becomes more and more difficult to pass on interest-rate cuts to depositors.

While investment banks are less sensitive to changes in overall NII expectations due to their lower reliance on NII itself, their trading book will also be sensitive to changes in interest rates.

Fee and commission income

Fee revenue is generated from the sale and provision of financial services to customers. The levels of fees and commission are communicated in advance to customers. Fee income known as non-interest income is separate from trading income and is desirable for banks because it represents a stable source of revenue that is not exposed to market risk. It is also attractive because it provides an opportunity for the bank to cross-sell new products and services to existing customers, and provision of these services does not expose the bank to additional credit or market risk. Fee income represents diversification in a bank's revenue base.

Note, though, that although fee-based business may not expose the bank to market risk directly, it does bring with it other risks, and these can include indirect exposure to market risk.⁶ In addition, an ability to provide fee-based

⁶For example, a strategy pursued by banks in the 1990s was to merge with or acquire insurance companies, creating so-called bancassurance groups. Although much insurance business is fee based, the acquisition of insurance portfolios brought with it added market risk for banks.

financial services may require significant investment in infrastructure and human resources.

Trading income

Trading income arises from the capital gain earned from buying and selling financial instruments. These instruments include both cash and derivative (off-balance-sheet) instruments and can arise from undertaking market-making, which in theory is undertaken to meet client demands and the proprietary business needs of the bank's own trading book. Note that interest income earned while holding assets on the trading book should really be considered NII and not trading income, but sometimes it is not stripped out from overall trading book P&L. There is no uniformity of approach among banks in this regard.

Trading income is the most volatile form of bank revenue. Even a record of consistent profit in trading over a long period is no guarantee against future losses arising out of market corrections or simply making the wrong bet on financial markets. Trading activity was the first type of banking activity whose risk exposure was measured using the VaR methodology, which replaced duration-based risk measures in the 1990s.

Operating expenses

Banking operating costs typically contain human resources costs (remuneration and other personnel-related expenses) together with other operating costs, such as premises and infrastructure costs, depreciation charges, and goodwill.⁷ Cost is generally measured as a proportion of revenue. A number of cost-income ratios are used by analysts, some of which are given in Table 1.6.

The RoE measure is probably the most commonly encountered and is usually part of bank strategy, with a target RoE level stated explicitly in management objectives. Note that there is a difference between accounting RoE and market RoE; the latter is calculated as a price return, rather like a standard P&L calculation, taken as the difference between market prices between two dates. During the 1990s, and certainly into 2005, average required RoE was in the order of 15% or higher – with investment banks usually setting a higher target of 20%, 22%, or even higher for certain higher risk business. The RoE target needs to reflect the relative risks of different business activities.

Return on Assets (ROA) is another common measure of performance. It is calculated as follows:

$$\text{Current income (Interest income + Fees)} \times \text{Asset value}$$

⁷These are accounting terms common to all corporate entities and are not used just to describe bank operating costs.

Table 1.6 Bank cost-income ratios

Ratio	Calculation	Notes
Pre-tax RoE	Pre-tax income/ Average shareholders' equity	Measures the pre-tax return on equity. A measure above 20% is viewed as above average and strong.
RoE	Attributable net income/Average shareholders' equity	Measures RoE. A measure above 10% is considered strong.
ROA	Net income/Average assets	Measures return on assets. A measure above 1% is considered strong.
Cost-income ratio	Non-interest costs/Total net revenues	Non-interest costs minus non-cash items such as goodwill or depreciation of intangible assets. The cost to produce one unit of net interest and non-interest income. The lower the ratio, the more efficient the bank.
Net interest margin	Net interest income/Average earning assets	The difference between tax-equivalent yield on earning assets and the rate paid on funds to support those assets, divided by average earning assets.
Loan loss provision	Loan loss provision/Pre- provision, pre-tax income	The proportion of pre-tax income that is being absorbed by loan losses. This is the credit cost of conducting the business.
Non-interest income	Non-interest income/ Net revenues	Non-interest income includes service charges on deposits, trust fees, advisory fees, servicing fees, net trading profits from trading books, and commissions and fees from off-balance-sheet items. Generally, the higher the ratio, the greater the bank's sensitivity to changes in interest rates.

Both financial statement P&L reports and measures such as RoE and ROA are bland calculations of absolute values; that is, they do not make any adjustment for relative risk exposure, so cannot stand too much comparison with equivalent figures from another institution. This is because risk exposure – not to mention the specific type of business activity – will differ from one bank to another. However, there are general approximate values that serve as benchmarks for certain sectors, such as the 15% RoE level we state above. Banks also calculate risk-adjusted ratios.

Provisions

Banks expect a percentage of loan assets, and other assets, to suffer loss or become completely unrecoverable. Provisions are set aside out of reserves to cover for these losses each year; they are a charge against the loan revenues of the bank. The size of the provision taken is a function of what writeoffs may be required against the loan portfolio in the current period and in the future, and the size and adequacy of loan loss reserves currently available. In some jurisdictions there are regulatory requirements that dictate the minimum size of loss provision.

Provisions fund the bank's loan loss reserve, and the reserve will grow in size when the bank provides more for expected credit losses than the actual amount that is written off. If the bank believes subsequently that the size of the reserve built up is in excess of what is currently required, it may write back a percentage of it.

The amount of provisioning will vary with the business cycle. During a boom period in the cycle, corporate and retail default rates are at historically lower levels, and so a bank can afford to lower the level of its provisioning. However, prudent management dictates that senior managers are familiar with their markets and are able to judge when provision levels should increase. In other words, banks should "know their market".

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