Part I

Setting the Stage

CHAPTER

1

Functions of the Financial System

OVERVIEW

Having a well-functioning financial system in place that directs funds to their most productive uses is a crucial prerequisite for economic development. The financial system consists of all financial intermediaries and financial markets and their relations with respect to the flow of funds to and from households, governments, business firms, and foreigners, as well as the financial infrastructure.

The main task of the financial system is to channel funds from sectors that have a surplus to sectors that have a shortage of funds. In doing so, the financial sector performs two main functions: (1) reducing information and transaction costs, and (2) facilitating the trading, diversification, and management of risk. These functions are discussed at length in this chapter.

The importance of financial markets and financial intermediaries differs across Member States of the European Union (EU). An important question is how differences in financial systems affect macroeconomic outcomes. Atomistic markets face a free-rider problem: when an investor acquires information about an investment project and behaves accordingly, he reveals this information to all investors, thereby dissuading other investors from devoting resources towards acquiring information. Financial intermediaries may be better able to deal with this problem than financial markets.

This chapter discusses these and other pros and cons of bank-based and market-based systems. A specific element in this debate is the role of corporate governance, i.e. the set of mechanisms arranging the relationship between stakeholders of a firm, notably holders of equity, and the management of the firm. Investors (the outsiders) cannot perfectly monitor managers acting on their behalf since managers (the insiders) have superior information about the performance of the company. So there is a need for certain mechanisms that prevent the insiders of a company using the profits of the firm for their own benefit

rather than returning the money to the outside investors. This chapter outlines the various mechanisms in place.

While there is considerable evidence that financial development is good for economic growth, there is no clear evidence that one type of financial system is better for growth than another. However, various recent studies suggest that differences in financial systems may influence the type of activity in which a country specialises. The reason is that different forms of economic activity may be more easily provided by one financial system than another. Likewise, there is some evidence suggesting that in a market-based system households may be better able to smooth consumption in the face of income shocks. However, there is also evidence indicating that a bank-based system is better able to provide inter-temporal smoothing of investment.

Finally, the chapter discusses the 'law and finance' view according to which legal system differences are key in explaining international differences in financial structure. According to this approach, distinguishing countries by the efficiency of national legal systems in supporting financial transactions is more useful than distinguishing countries by whether they have bank-based or market-based financial systems.

LEARNING OBJECTIVES

After you have studied this chapter, you should be able to:

- explain the main functions of the financial system
- differentiate between the roles of financial markets and financial intermediaries
- explain why financial development may stimulate economic growth
- explain why government regulation and supervision of the financial system is needed
- describe the advantages and disadvantages of bank-based and market-based financial systems
- explain the various corporate governance mechanisms
- explain the 'law and finance' view.

1.1 Functions of a financial system

The financial system

This section explains why financial development matters for economic welfare. To understand the importance of financial development, the essentials

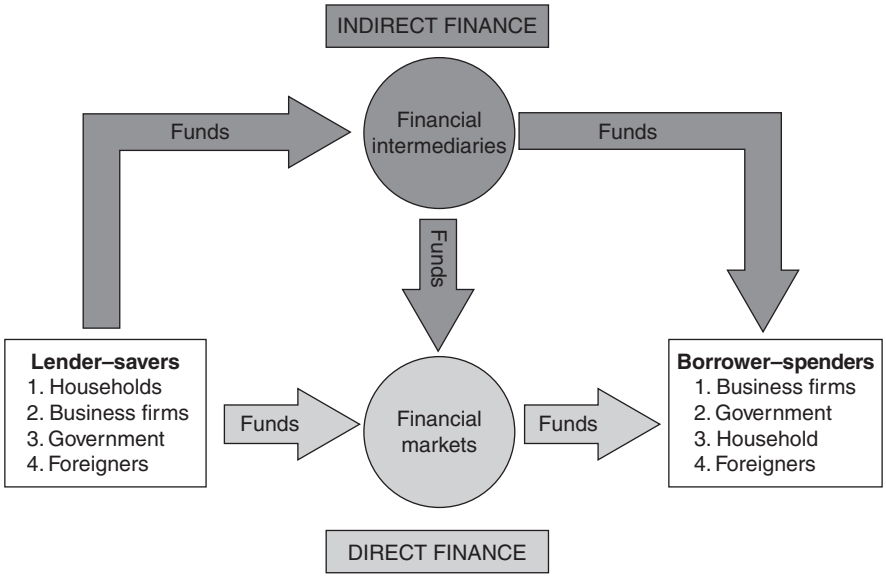

Figure 1.1 Working of the financial system
Source: Mishkin (2006)

of a country's financial system will first be outlined. The *financial system* encompasses all financial intermediaries and financial markets and their relations with respect to the flow of funds to and from households, governments, business firms, and foreigners, as well as the financial infrastructure. *Financial infrastructure* is the set of institutions that enables effective operation of financial intermediaries and financial markets, including such elements as payment systems, credit information bureaus, and collateral registries.

The main task of the financial system is to channel funds from sectors that have a surplus to sectors that have a shortage of funds. Figure 1.1 offers a schematic diagram explaining the working of the financial system.

Sectors that have saved and are lending funds are at the left, and those that must borrow to finance their spending are at the right. *Direct finance* occurs if a sector in need of funds borrows from another sector via a financial market. A *financial market* is a market where participants issue and trade securities. This direct finance route is shown at the bottom of Figure 1.1. With *indirect finance*, a financial intermediary obtains funds from savers and uses these savings to make loans to a sector in need of finance. *Financial intermediaries* are coalitions of agents that combine to provide financial services, such as banks, insurance companies, finance companies, mutual funds, pension funds, etc. (Levine, 1997). This indirect finance route is shown at the top of Figure 1.1.

In most countries, indirect finance is the main route for moving funds from lenders to borrowers. These countries have a *bank-based system*, while countries that rely more on financial markets have a *market-based system*.

The financial system transforms household savings into funds available for investment by firms. However, the importance of financial markets and financial intermediaries differs across Member States of the EU, as will be explained in some detail in this chapter. Also the types of assets held by households differ among the various European countries. Despite all these differences, there is one feature that is common to all the financial systems in these countries and that is the importance of *internal finance*. Most investments by firms in industrial countries are financed through retained earnings, regardless of the relative importance of financial markets and intermediaries (Allen and Gale, 2000).

The past 30 years have seen revolutionary changes in the structure of the world's financial markets and institutions. Some financial markets have become obsolete, while new ones have emerged. Similarly, some financial institutions have gone bankrupt, while new entrants have emerged. However, the functions of the financial system have been more stable than the markets and institutions used to accomplish these functions (Merton, 1995). This first chapter of the book discusses at length the functions of the financial system. The later chapters discuss the changes in the financial markets and financial institutions in Europe.

Having a well-functioning financial system in place that directs funds to their most productive uses is a crucial prerequisite for economic development. If sectors with surplus funds cannot channel their money to sectors with good investment opportunities, many productive investments will never take place. Indeed, cross-country, case-study, industry- and firm-level analyses suggest that the functioning of financial systems is vitally linked to economic growth. Specifically, countries with larger banks and more active stock markets grow faster over subsequent decades, even after controlling for many other factors underlying economic growth (Levine, 2005). Box 1.1 discusses some studies coming to this conclusion.

Main functions

Let us focus on the two main *functions of the financial system*, i.e. (1) reducing information and transaction costs, and (2) facilitating the trading, diversification, and management of risk, to explain why the financial sector may stimulate capital formation and/or technological innovation, two of the driving forces of economic growth.

Box 1.1 Financial development and economic growth

King and Levine (1993a, b) were among the first to argue that financial development is related to economic development. King and Levine (1993b) suggest that current financial depth can predict economic growth over the consequent 10–30 years and conclude that 'better financial systems stimulate faster productivity growth and growth in per capita output by funnelling society's resources to promising productivity-enhancing endeavours' (King and Levine, 1993b, p. 540).

Rajan and Zingales (1998) argue that financial development should be most relevant to industries that depend on external finance and that these industries should grow fastest in countries with well-developed financial systems. They therefore focus on 36 individual industries in 41 countries and analyse the influence of the interaction between the external financial dependence of those industries and the financial development of the countries on the growth rates of those industries in the different countries over the period 1980 to 1990. Using various measures of financial development of a country (the ratio of market capitalisation to GDP, domestic credit to the private sector over GDP, and accounting standards), they report a strong relation between economic growth in different industries and countries and the interaction of financial development of countries and the financial dependence of industries. Rajan and Zingales (1998, p. 584) conclude that their results 'suggest that financial development has a substantial supportive influence on the rate of economic growth and this works, at least partly, by reducing the cost of external finance to financially dependent firms'.

Papaioannou (2008) points out that evidence based on cross-country cross-sectional regressions faces various problems in establishing causality. First, it is almost impossible to account for all possible factors that may foster growth. Second, the effect of financial development may be heterogeneous across countries. Third, there can be reverse causation: financial development can be both the cause and the consequence of economic growth. Finally, the indicators of financial development as generally used in these studies (such as private domestic credit to GDP and market capitalisation as a share of GDP) lack a sound theoretical basis.

Other important studies include Levine *et al.* (2000), who address the endogeneity problems inherent in finance and growth regressions, and the papers in Demirgüç-Kunt and Levine (2001) that use a number of different econometric techniques on datasets ranging from micro-level firm data to international comparative studies. All these studies, and many others, report evidence that financial development stimulates economic growth (Levine, 2005; Papaioannou, 2008).

However, some other studies voice concerns about this conclusion. For instance, Driffill (2003) questions the robustness of some well-known studies, arguing that a number of results hinge on the inclusion of outliers, while the inclusion of regional dummies,

especially those for the Asian Tigers, also renders coefficients on financial development insignificant. Trew (2006) argues that most empirical evidence on the finance-growth nexus is disconnected from theories suggesting why financial development affects growth.

Reducing information asymmetry and transaction costs

The financial system helps overcome an information asymmetry between borrowers and lenders. An information asymmetry can occur ex ante and ex post, i.e., before and after a financial contract has been agreed upon. The ex-ante information asymmetry arises because borrowers generally know more about their investment projects than lenders. Borrowers most eager to engage in a transaction are the most likely ones to produce an undesirable outcome for the lender (*adverse selection*). It is difficult and costly to evaluate potential borrowers. Individual savers may not have the time, capacity, or means to collect and process information on a wide array of potential borrowers. So high information costs may keep funds from flowing to their highest productive use. Financial intermediaries may reduce the costs of acquiring and processing information and thereby improve resource allocation (see chapters 6, 7, 8, and 9). Without intermediaries, each investor would face the large fixed cost associated with evaluating investment projects. Also financial markets may reduce information costs (see chapter 3). Economising on information-acquisition costs facilitates the gathering of information about investment opportunities and thereby improves resource allocation. Besides identifying the best investments, financial intermediaries may boost the rate of technological innovation by identifying those entrepreneurs with the best chances of successfully initiating new goods and production processes (Levine, 2005).

The information asymmetry problem occurs ex post when borrowers, but not investors, can observe actual behaviour. Once a loan has been granted, there is a risk that the borrower will engage in activities that are undesirable from the perspective of the lender (*moral hazard*). Financial markets and intermediaries also mitigate the information acquisition and enforcement costs of monitoring borrowers. For example, equity holders and banks will create financial arrangements that compel managers to manage the firm in their best interest (see section 1.2 for more details).

Furthermore, the financial system reduces the time and money spent in carrying out financial transactions (*transaction costs*). Financial intermediaries

can reduce transaction costs as they have developed expertise and can take advantage of economies of scale and scope. A good example of how the financial system reduces transaction costs is *pooling*, i.e., the (costly) process of agglomerating capital from disparate savers for investment. By pooling the funds of various small savers, large investment projects can be financed. Without pooling, savers would have to buy and sell entire firms (Levine, 1997). Mobilising savings involves (a) overcoming the transaction costs associated with collecting savings from different individuals, and (b) overcoming the informational asymmetries associated with making savers feel comfortable in relinquishing control of their savings (Levine, 2005).

By reducing information and transaction costs, financial systems lower the cost of channelling funds between borrowers and lenders, which frees up resources for other uses, such as investment and innovation. In addition, financial intermediation affects capital accumulation by allocating funds to their most productive uses. However, higher returns on investment ambiguously affect saving rates, as the income and substitution effects work in opposite directions. A higher return makes saving more attractive (substitution effect), but fewer savings are needed to receive the same returns (income effect). Similarly, lower risk – to which we will turn below – also ambiguously affects savings rates. Thus, the improved resource allocation and lower risk brought about by the financial system may lower saving rates (Levine, 2005).

Trading, diversification, and management of risk

The second main service the financial sector provides is facilitating the trading, diversification, and management of risk. Financial systems may mitigate the risks associated with individual investment projects by providing opportunities for trading and diversifying risk which – in the end – may affect long-run economic growth. In general, high-return projects tend to be riskier than low-return projects. Thus, financial systems that make it easier for people to diversify risk by offering a broad range of high-risk (like equity) and low-risk (like government bonds) investment opportunities tend to induce a portfolio shift towards projects with higher expected returns. Likewise, the ability to hold a diversified portfolio of innovative projects reduces risk and promotes investment in growth-enhancing innovative activities (Levine, 2005).

One particular way in which financial intermediaries and markets reduce risk is by providing *liquidity*, i.e., the ease and speed with which agents can convert assets into purchasing power at agreed prices (Levine, 1997). Savers

are generally unwilling to delegate control over their savings to investors for long periods so that less investment is likely to occur in high-return projects that require a long-term commitment of capital. However, the financial system creates the possibility for savers to hold liquid assets – like equity, bonds, or demand deposits – that they can sell quickly and easily if they seek access to their savings, simultaneously transforming these liquid financial instruments into long-term capital investments. Without a financial system, all investors would be locked into illiquid long-term investments that yield high payoffs only to those who consume at the end of the investment. Liquidity is created by financial intermediaries as well as financial markets. For instance, a bank transforms short-term liquid deposits into long-term illiquid loans, therefore making it possible for households to withdraw deposits without interrupting industrial production. Similarly, stock markets reduce liquidity risks by allowing stock holders to trade their shares, while firms still have access to long-term capital.

Risk measurement and management is a key function of financial intermediaries. The traditional role of banks in monitoring the credit risk of borrowers has evolved towards the use of advanced models by all types of financial intermediaries to measure and manage financial risks. Progress in information technology has facilitated the development of advanced risk-management models, which rely on statistical methods to process financial data (see chapters 7 and 9 for more details).

Securitisation is an important means for the financial system to perform the function of trading, diversification, and management of risk. *Securitisation* is the packaging of particular assets and the redistribution of these packages by selling securities, backed by these assets, to investors. For instance, an intermediary may create a pool of mortgage loans (bundling) and then issue bonds backed by those mortgage loans (unbundling). Securitisation thereby converts illiquid assets into liquid assets. While residential mortgages were the first financial assets to be securitised, many other types of financial assets have undergone the same process. A recent example are so-called catastrophe bonds (also known as cat bonds). If insurers have built up a portfolio of risks by insuring properties in a region that may be hit by a catastrophe, they could create a special-purpose entity that would issue the cat bond (see chapter 8 for more details). Investors who buy the bond make a healthy return on their investment, unless a catastrophe, like a hurricane or an earthquake, hits the region because then the principal initially paid by the investors is forgiven and is used by the sponsors to pay their claims to policy holders.

Role of government

A well-functioning financial system requires particular government actions. First, government regulation is needed to protect *property rights* and to *enforce contracts*. Property rights refer to control of the use of the property, the right to any benefit from the property, the right to transfer or sell the property, and the right to exclude others from the property. Absence of secure property rights and enforcement of contracts severely restrict financial transactions and investment, thereby hampering financial development. If it is not clear who is entitled to perform a transaction, exchange will be unlikely. As the financial system allocates capital across time and space, contracts are needed to connect providers and users of funds. If one of the parties does not adhere to the content of a contract, an independent enforcement agency (for instance, a court) is needed, otherwise contracts would be useless.

Second, government regulation is needed to encourage proper information provision (*transparency*) so that providers of funds can take better decisions on how to allocate their money. Government regulation can reduce adverse selection and moral hazard problems in financial systems and enhance their efficiency by increasing the amount of information available to investors, for instance by setting and enforcing accounting standards. Although government regulation to increase transparency is crucial to reducing adverse selection and moral hazard problems, borrowers have strong incentives to cheat so that government regulation may not always be sufficient, as various recent corporate scandals, such as WorldCom, Parmalat, and Ahold, illustrate.

Third, in view of the importance of financial intermediaries, government should arrange for regulation and supervision of financial institutions in order to ensure their *soundness*. Savers are often unable to properly evaluate the financial soundness of a financial intermediary as that requires extensive effort and technical knowledge. Financial intermediaries have an incentive to take too many risks. This is because high-risk investments generally bring in more revenues that accrue to the intermediary, while if the intermediary fails a substantial part of the costs will be borne by the depositors. Government regulation may prevent financial intermediaries from taking too much risk. Depositors may also be protected by introducing some deposit-insurance system, but this may provide the intermediary with an even stronger incentive for risky behaviour. Finally, there is a risk that a sound financial intermediary may fail when another intermediary goes bankrupt due to taking too much risk (*contagion*). Since the public cannot distinguish between sound