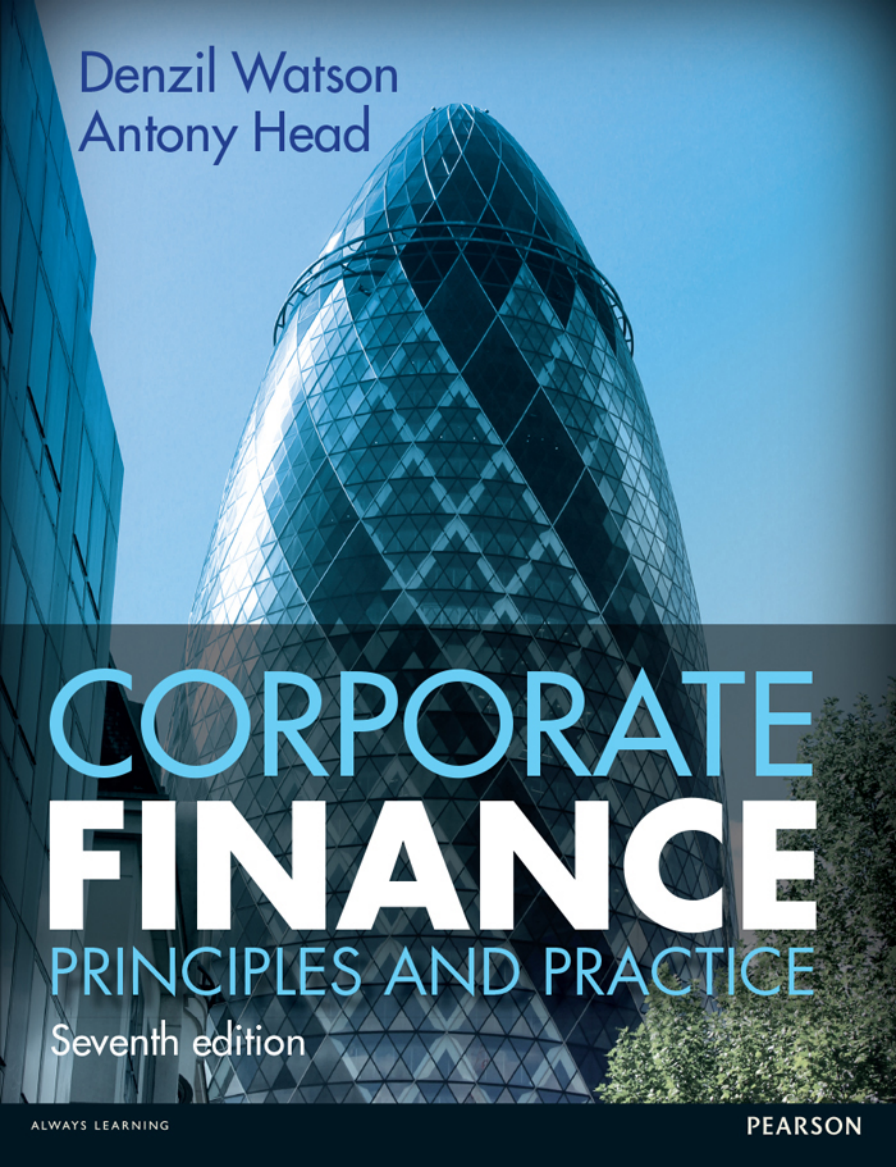
Denzil Watson
Antony Head
CORPORATE
FINANCE
PRINCIPLES AND PRACTICE
Seventh edition
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CORPORATE FINANCE

PRINCIPLES AND PRACTICE

Seventh edition

Denzil Watson and
Antony Head

Sheffield Hallam University

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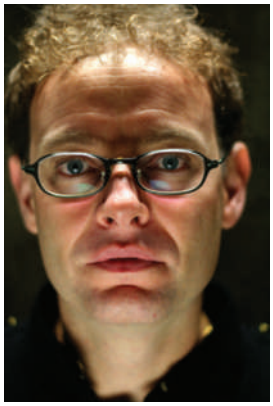

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Denzil Watson is a Principal Lecturer in Finance in the Sheffield Business School at Sheffield Hallam University (www.shu.ac.uk). Denzil has been teaching finance since he joined Hallam in 1991, having completed his BA(Hons) in Economics and MA(Hons) in Money, Banking and Finance at Sheffield University in the 1980s. He has taught financial management, corporate finance, risk management, microeconomics and financial markets for 25 years over a range of undergraduate, postgraduate and distance learning modules.

Finance is by no means Denzil's only passion. He is a committed traveller, having now visited 50 countries including ones as diverse as Peru, Syria, Uzbekistan, Vietnam, Laos and the Chinese Silk Road. Travel photography is also high up on his list as can be witnessed by the covers of this book and its previous four editions. He is a keen Urbexer and, along with his co-author, a long-time suffering Derby County fan.

His other great love is music. He can be found fronting Sheffield post-New Wave indie group RepoMen (http://repomen.bandcamp.com) or listening to the likes of Joy Division, The Stranglers, The Perfect Disaster, Luke Haines, Gogol Bordello, That Petrol Emotion, Sleaford Mods, The Undertones, Dead Kennedys, The Clash and other fine bands. His inspirations include his mother Doreen, his sadly departed father Hugh, Kevin Hector, Ian Curtis, Michael Palin, Aung San Suu Kyi, Joe Strummer and John Peel. Denzil lives with his wife Dora and their two children, Leonardo and Angelina.

Photo: Denzil Watson

Antony Head is an Associate Lecturer in the Sheffield Business School at Sheffield Hallam University, having formerly been a Principal Lecturer in Financial Management there and Leader of the Financial Accounting and Management Accounting Subject Group. Tony joined Hallam after various jobs, which included spells as a chemical engineer and health-food shop proprietor. His higher education began in Sheffield, where he took an honours degree in Chemical Engineering and Fuel Technology at Sheffield University in the early 1970s.

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Tony, like Denzil, has a number of interests outside of academia. He is a dedicated Derby County fan and a season ticket holder at Pride Park. His musical tastes are wide and varied, including Bob Dylan, Miles Davis, King Crimson, David Sylvian, Mahler and Bruckner. Tony lives with his wife Sandra and has a daughter Rosemary, a son Aidan, a step-daughter Louise, step-sons Michael and Robert, and five grandchildren: Joshua, Isaac, Elizabeth, Amelia and Magnus.

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CONTENTS

PREFACE

Introduction

Corporate finance is concerned with the financing and investment decisions made by the management of companies in pursuit of corporate goals. As a subject, corporate finance has a theoretical base which has evolved over many years and which continues to evolve as we write. It has a practical side too, concerned with the study of how companies actually make financing and investment decisions, and theory and practice can sometimes disagree.

The fundamental problem facing financial managers is how to secure the greatest possible return in exchange for accepting the smallest amount of risk. This necessarily requires that financial managers have available to them (and are able to use) a range of appropriate tools and techniques. These will help them to value the decision options open to them and to assess the risk of those options. The value of an option depends on the extent to which it contributes towards the achievement of corporate goals. In corporate finance, the fundamental goal is usually taken to be to increase the wealth of shareholders.

The aim of this book

The aim of this book is to provide an introduction to the core concepts and key topic areas of corporate finance in an approachable, 'user-friendly' style. Many texts on corporate finance adopt a theory-based or mathematical approach that is not appropriate for those coming to the subject for the first time. This book covers the core concepts and key topic areas without burdening the reader with what we see as unnecessary detail or too heavy a dose of theory.

Flexible course design

Many undergraduate courses are now delivered on a modular or unit basis over one teaching semester of 12 weeks' duration. In order to meet the constraints imposed by such courses, this book has been designed to support self-study and directed learning. There is a choice of integrated topics for the end of the course.

Each chapter offers:

- a comprehensive list of key points to check understanding and aid revision;
- self-test questions, with answers at the end of the book, to check comprehension of concepts and computational techniques;
- questions for review, with answers available in the accompanying downloadable Instructor's Manual, to aid in deepening understanding of particular topic areas;

- questions for discussion, with answers available in the accompanying downloadable Instructor's Manual;
- comprehensive references to guide the reader to key texts and articles;
- suggestions for further reading to guide readers who wish to study further.

A comprehensive glossary is included at the end of the text to assist the reader in grasping any unfamiliar terms that may be encountered in the study of corporate finance.

New for the seventh edition

The vignettes have been reviewed and updated to reflect the changing economic environment in which corporate finance exists. Relevant changes in regulations and taxation, such as the UK tax treatment of dividends, have been considered and incorporated where appropriate.

Target readership

This book has been written primarily for students taking a course in corporate finance in their second or final year of undergraduate study on accounting, business studies and finance-related degree programmes. It will also be suitable for students on professional and postgraduate business and finance courses where corporate finance or financial management are taught at introductory level.

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1 THE FINANCE FUNCTION

Learning objectives

After studying this chapter, you should have achieved the following learning objectives:

- an understanding of the time value of money and the relationship between risk and return;
- an appreciation of the three decision areas of the financial manager;
- an understanding of the reasons why shareholder wealth maximisation is the primary financial objective of a company, rather than other objectives a company may consider;
- an understanding of why the substitute objective of maximising a company's share price is preferred to the objective of shareholder wealth maximisation;
- an understanding of how **agency** theory can be used to analyse the relationship between shareholders and managers, and of ways in which agency problems may be overcome;
- an appreciation of the developing role of institutional investors in overcoming agency problems;
- an appreciation of how developments in **corporate governance** have helped to address the agency problem.

INTRODUCTION

Corporate finance is concerned with the efficient and effective management of the finances of an organisation in order to achieve the objectives of that organisation. This involves planning and controlling the *provision* of resources (where funds are raised from), the *allocation* of resources (where funds are deployed to) and finally the *control* of resources (whether funds are being used effectively or not). The fundamental aim of financial managers is the *optimal allocation* of the scarce resources available to the company – the scarcest resource being money.

The discipline of corporate finance is frequently associated with that of accounting. However, while financial managers do need to have a firm understanding of management accounting (in order to make decisions) and a good understanding of financial accounting (in order to be aware of how financial decisions and their results are presented to the outside world), corporate finance and accounting are fundamentally different in nature. Corporate finance is inherently forward looking and based on cash flows; this differentiates it from financial accounting, which is historic in nature and focuses on profit rather than cash. Corporate finance is concerned with raising funds and providing a return to investors; this differentiates it from management accounting, which is primarily concerned with providing information to assist managers in making decisions within the company. However, although there are differences between these disciplines, there is no doubt that corporate finance borrows extensively from both.
While in the following chapters we consider in detail the many and varied problems and tasks faced by financial managers, the common theme that links these chapters is the need for financial managers to be able to *value alternative courses of action* available to them. This allows them to make a decision as to which is the best choice in financial terms. Therefore before we look at the specific roles and goals of financial managers, we introduce two key concepts that are central to financial decision-making.

1.1 TWO KEY CONCEPTS IN CORPORATE FINANCE

Two key concepts in corporate finance that help managers to value alternative courses of action are the **time value of money** and the relationship between risk and return. Since these two concepts are referred to frequently in the following chapters, it is vital that you have a clear understanding of them.

1.1.1 The time value of money

The *time value of money* is perhaps the single most important concept in corporate finance and is relevant to both companies and investors. In a wider context it is relevant to anyone expecting to pay or receive money over a period of time. The time value of money is particularly important to companies since the financing, investment and dividend decisions made by companies result in substantial cash flows over a variety of periods of time. Simply stated, the time value of money refers to the fact that the value of money changes over time.

Imagine as a student you can take your £4,000 student grant either today or in one year's time. Faced with this choice, you will (hopefully) prefer to take the grant today. The question to ask yourself is *why* do you prefer the £4,000 grant today? There are three major factors at work here:

- *Time*: if you have the money now, you can spend it now. It is human nature to want things now rather than to wait for them. Alternatively, if you do not wish to spend your money now, you will still prefer to take it now, since you can then invest it so that in one year's time you will have £4,000 plus any investment income you have earned.
- *Inflation*: £4,000 spent now will buy more goods and services than £4,000 spent in one year's time because inflation undermines the purchasing power of your money. Unless, of course, we are in a deflationary period, when the reverse will be true, but this is rare.
- *Risk*: if you take £4,000 now you definitely have the money in your possession. The alternative of the *promise* of £4,000 in a year's time carries the risk that the payment may be less than £4,000 or may not be paid at all.

Different applications of the time value of money are considered in Section 1.1.3.

1.1.2 The relationship between risk and return

This concept states that an investor or a company takes on more risk only if a higher return is offered in compensation. *Return* refers to the financial rewards gained as a result of making an investment. The nature of the return depends on the form of the investment. A company that invests in **non-current assets** and business operations expects returns in the form of *profit*, whether measured on a before-interest, before-tax or an after-tax basis, and in the form of *cash flows*. An investor who buys **ordinary shares** expects returns in the form of *dividend payments* and **capital gains** (share price increases). An investor who buys **corporate bonds** expects regular returns in the form of *interest payments*. The meaning of risk is more complex than the meaning of return. An investor or a company expects or anticipates a particular return when making an investment. *Risk* refers to the possibility that the actual return may be different from the expected return. If the actual return is greater than the expected return, this is usually a welcome occurrence. Investors, companies and financial managers are more likely to be concerned with the possibility that the actual return is *less* than the expected return. A *risky investment* is therefore one where there is a significant possibility of its actual return being different from its expected return. As the possibility of actual return being different from expected return increases, investors and companies demand a higher expected return.

The relationship between risk and return is explored in a number of chapters in this book. In 'Investment appraisal: applications and risk' (Chapter 7) we will see that a company can allow for the risk of a project by requiring a higher or lower rate of return according to the level of risk expected. In 'Portfolio theory and the capital asset pricing model' (Chapter 8) we examine how an individual's attitude to the trade-off between risk and return shapes their utility curves; we also consider the capital asset pricing model, which expresses the relationship between risk and return in a convenient linear form. In 'The cost of capital and capital structure' (Chapter 9) we calculate the costs of different

sources of finance and find that the higher the risk attached to the source of finance, the higher the return required by the investor.

1.1.3 Compounding and discounting

Compounding is the way to determine the *future value* of a sum of money invested now, for example in a bank account, where interest is left in the account after it has been paid. Since interest received is left in the account, interest is earned on interest in future years. The future value depends on the rate of interest paid, the initial sum invested and the number of years for which the sum is invested:

$$FV = C_0(1 + i)^n$$

where: FV = future value
C_0 = sum deposited now
i = annual interest rate
n = number of years for which the sum is invested

For example, £20 deposited for five years at an annual interest rate of 6 per cent will have a future value of:

$$FV = £20 \times (1.06)^5 = £26.77$$

In corporate finance, we can take account of the time value of money through the technique of discounting. Discounting is the opposite of compounding. While *compounding* takes us *forward* from the current value of an investment to its future value, *discounting* takes us *backward* from the future value of a cash flow to its **present value**. Cash flows occurring at different points in time cannot be compared directly because they have different time values; discounting allows us to compare these cash flows by comparing their present values.

Consider an investor who has the choice between receiving £1,000 now and £1,200 in one year's time. The investor can compare the two options by changing the future value of £1,200 into a present value and comparing this present value with the offer of £1,000 now (note that the £1,000 offered now is already in present value terms). The present value can be found by applying an appropriate **discount rate**, one which reflects the three factors discussed earlier: time, inflation and risk. If the best investment available to the investor offers an annual interest rate of 10 per cent, we can use this as the discount rate. Reversing the compounding illustrated above, the present value can be found from the future value by using the following formula:

$$PV = \frac{FV}{(1 + i)^n}$$

where: PV = present value
FV = future value
i = discount rate
n = number of years until the cash flow occurs

inserting the values given above:

$$PV = 1{,}200/(1.1)^1 = £1{,}091$$

Alternatively, we can convert our present value of £1,000 into a future value:

$$FV = £1{,}000 \times (1.1)^1 = £1{,}100$$

Whether we compare present values or future values, it is clear that £1,200 in one year's time is worth more to the investor than £1,000 now.

Discounting calculations are aided by the use of *present value tables*, which can be found at the back of this text. The first table, of present value factors, can be used to discount *single point* cash flows. For example, what is the present value of a single payment of £100 to be received in five years' time at a discount rate of 12 per cent? The table of present value factors gives the present value factor for five years (row) at 12 per cent (column) as 0.567. If we multiply this by £100 we find a present value of £56.70.

The next table, of cumulative present value factors, enables us to find the present value of an **annuity**. An annuity is a regular payment of a fixed amount of money over a finite period. For example, if we receive £100 at the end of each of the next five years, what is the present value of this series of cash flows if our required rate of return is 7 per cent? The table gives the cumulative present value factor (annuity factor) for five years (row) at a discount rate of 7 per cent (column) as 4.100. If we multiply this by £100 we find a present value of £410.

The present value of a **perpetuity**, the regular payment of a fixed amount of money over an infinite period, is equal to the regular payment divided by the discount rate. The present value of a perpetuity of £100 at a discount rate of 10 per cent is £1,000 (i.e. £100/0.1).

Discounted cash flow (DCF) techniques allow us to tackle more complicated scenarios than the simple examples we have just considered. Later in the chapter we discuss the vital link existing between shareholder wealth and *net present value*, the specific application of DCF techniques to investment appraisal decisions. Net present value (NPV) and its sister DCF technique internal rate of return are introduced in 'An overview of investment appraisal methods' (Chapter 6). The application of NPV to more complex investment decisions is comprehensively dealt with in Chapter 7. In 'Long-term finance: debt finance, hybrid finance and leasing' (Chapter 5), DCF analysis is applied to valuing a variety of debt-related securities.

1.2 THE ROLE OF THE FINANCIAL MANAGER

While everyone manages their own finances to some extent, financial managers of companies are responsible for a much larger operation when they manage corporate funds. They are responsible for a company's *investment decisions*, advising on the allocation of funds in terms of the total amount of assets, the composition of non-current and current assets, and the consequent risk profile of the choices. They are also responsible for *raising funds*, choosing from a wide variety of financial institutions and markets, with each source of finance having different features as regards cost, availability, maturity and risk. The place where supply of finance meets demand for finance is called the financial market: this consists of the short-term money markets and the longer-term capital markets.

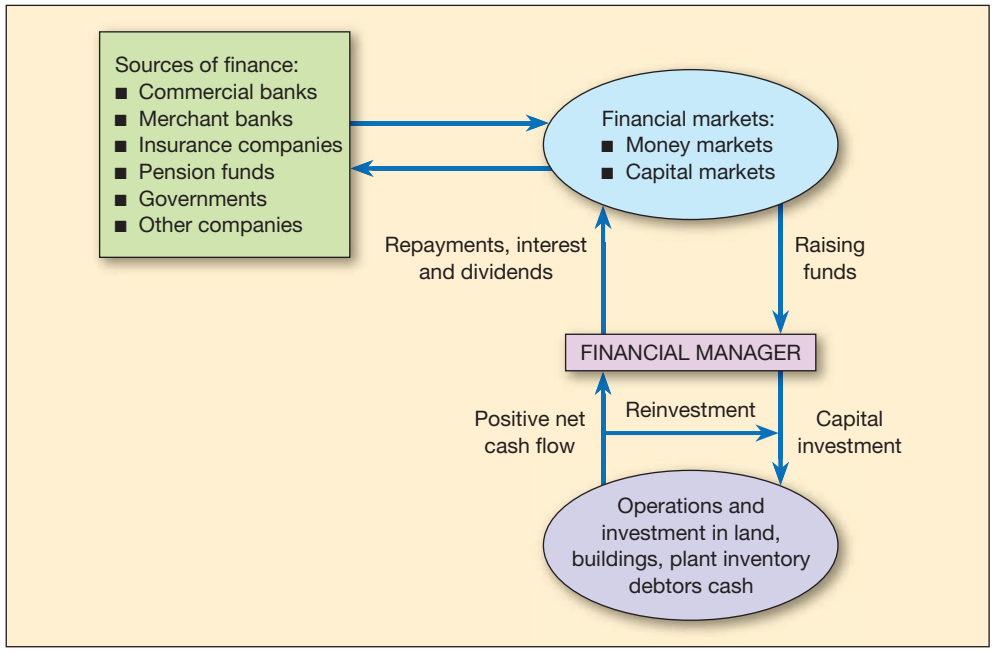

Figure 1.1 **The central role of the financial manager in a company's financing, investment and dividend decisions**

A major source of finance for a company is internal rather than external, i.e. to retain part of the cash or earnings generated by its business activities. The managers of the company, however, have to strike a balance between the amount of earnings they retain and the amount they pay out to shareholders as a dividend.

We can see, therefore, that a financial manager's decisions can be divided into three general areas: investment decisions, financing decisions and dividend decisions. The position of the financial manager as a person central to these decisions and their associated cash flows is illustrated in Figure 1.1.

While it is convenient to split a financial manager's decisions into three decision areas for discussion purposes, it is important to stress that these decision areas are highly interdependent. A financial manager making a decision in one of these three areas should always take into account the effect of that decision on the other two areas. Examples of possible knock-on effects in the other two areas of taking a decision in one of the three areas are indicated in Figure 1.2.

Who makes corporate finance decisions in practice? In most companies there will be no one individual solely responsible for corporate financial management. The more strategic dimensions of the three decision areas tend to be considered at board level, with an important contribution coming from the *finance director*, who oversees the finance function. Any financial decisions taken at this level will be after extensive consultation with accountants, tax experts and lawyers. The daily cash and treasury management duties of the company and its liaison with financial institutions such as banks will be undertaken

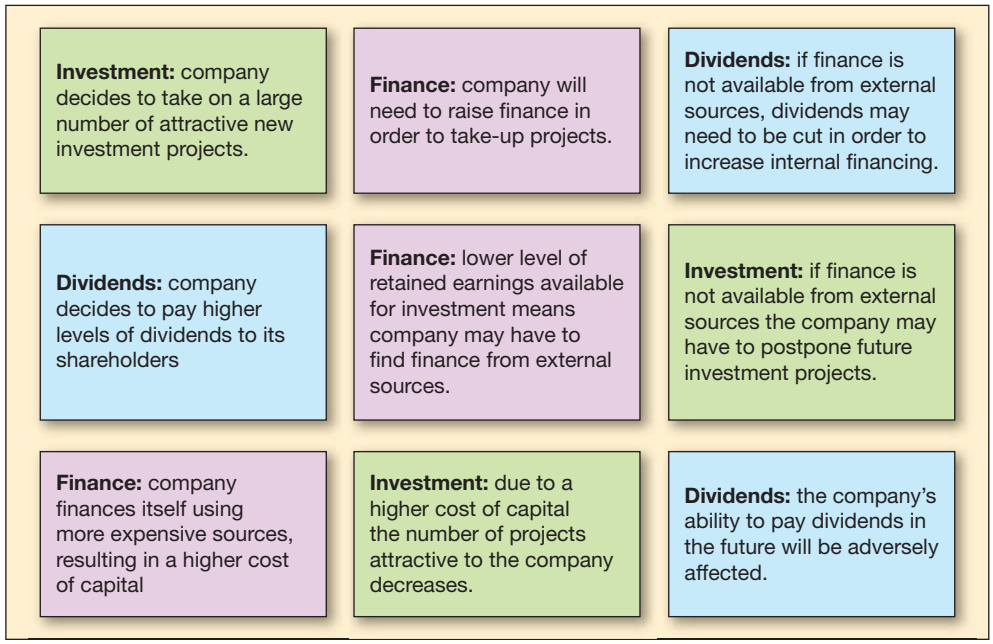

Figure 1.2 The interrelationship between financing, dividend and investment decisions

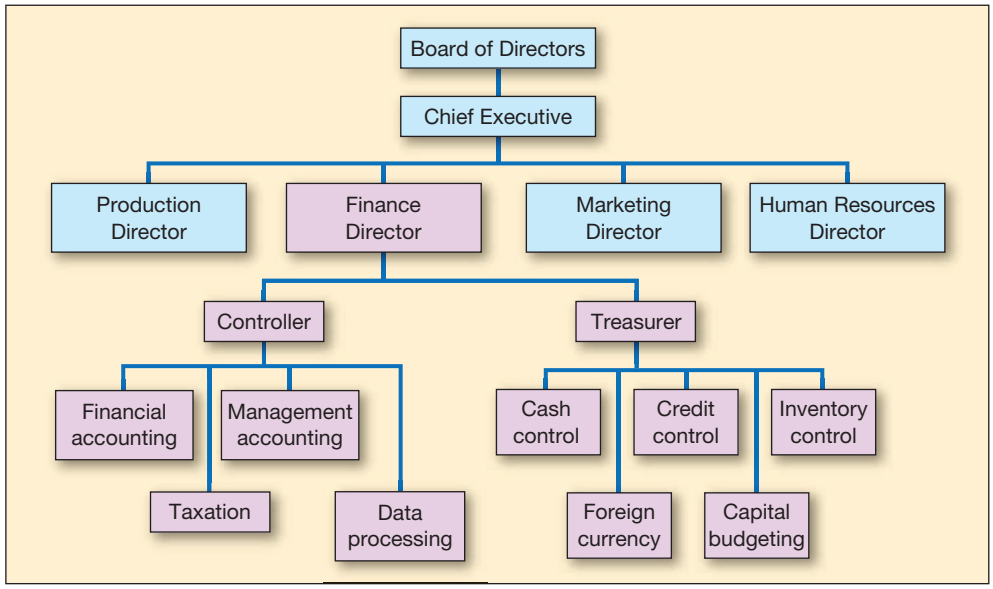

Figure 1.3 How the finance function fits within a company's management structure

by the *corporate treasurer*. It is common for both finance director and corporate treasurer to have an accounting background. An important responsibility for the corporate treasurer is hedging interest and **exchange rate risk**. An illustration of the various functions within the finance department of a large company is given in Figure 1.3.

1.3 CORPORATE OBJECTIVES

What should be the primary financial objective of corporate finance and, therefore, the main objective of financial managers? The answer is that the objective should be to make decisions that maximise the value of the company for its owners. As the owners of the company are its *shareholders*, the primary financial objective of corporate finance is usually stated to be the maximisation of shareholder wealth. Since shareholders receive their wealth through *dividends* and *capital gains* (increases in the value of their shares), shareholder wealth will be maximised by maximising the value of dividends and capital gains that shareholders receive over time. How financial managers go about achieving this objective is considered in Section 1.3.1.

Owing to the rather vague and complicated nature of the concept of shareholder wealth maximisation, other objectives are commonly suggested as possible substitutes or surrogates. Alternative objectives to shareholder wealth maximisation also arise because of the existence of a number of other groups with an interest in the company (**stakeholders**). All of these groups, such as employees, customers, creditors and the local community, will have different views on what the company should aim for. It is important to stress that while companies must consider the views of stakeholders other than shareholders, and while companies may adopt one or several substitute objectives over shorter periods, from a corporate finance perspective such objectives should be pursued only in support of the overriding long-term objective of maximising shareholder wealth. Vignette 1.1 highlights the view that managers should not let their pursuit of shareholder wealth eclipse the objectives of other stakeholders in the business. We now consider some of these other possible objectives for a company.

Vignette 1.1

Shareholder value re-evaluated

A palace revolution in the realm of business is toppling the dictatorship of shareholder value maximisation as the sole guiding principle for corporate action. As so often with regicide, many of the knives are in the hands of the old regime's own henchmen. Jack Welch, the former General Electric chief executive who ushered in the reign of shareholder value maximisation a quarter-century ago, told the *Financial Times* last week that 'shareholder value is the dumbest idea in the world'. But this revolution will not eat its own children – not Mr Welch, and more importantly not shareholders at large, who rather stand to benefit from being less fetishised.

In capitalism, private companies fulfil the social function of providing goods and services people want by competing for consumers' purchases. Companies that compete well – whose products consumers choose – are rewarded with profits. Since profits ultimately redound to the owners' advantage, holding managers accountable to shareholders best ensures that companies remain profitable and keep their products attractive to customers.

This basic model of economic organisation (supplemented with the government's requisite role as regulator and provider of public goods) is still sound; it fuelled unparalleled economic growth throughout the second half of the 20th century. Shareholder value maximisation as a principle of management, however, goes much further. It says that companies should take shareholder returns as

Vignette 1.1 (*continued*)

their operative goal. Its most extreme version argues that executives should single-mindedly aim to increase the stock price even in the short run.

But the theory confuses cause and effect and conflates goals with metrics. Competent executives' dedication to improving products, to motivating employees, and to pleasing customers will usually be reflected in higher profits and stock prices. But such results are measures, not causes, of business success. As this crisis shows, efforts to boost stock prices far from guarantee stable or secure earnings.

Shareholder value maximisation presupposes efficient **capital markets** where companies' stock prices fully capture their future profitability and nothing else. The bubbles that ballooned and burst in the past decade show that in the short run, and over surprisingly long periods, capital markets can be remarkably inefficient. In a bubble, each individual investor maximises short-term return by following the herd – but the herd as a whole must lose money when the bubble bursts.

Clearly, strong total shareholder returns – capital gains from the share price plus a flow of dividends – are what ultimately matter to investors in a company. But there are reasons to think that shareholder value, like happiness and many of life's other good things, is best achieved by not aiming at it too directly.

Take compensation policy. It makes sense partly to align executives' or employees' remuneration with the stock price through share awards. But some such schemes, particularly involving share options, can create incentives to play the stock price rather than create sound and sustainable business practices. Their vesting period, typically three years, may have encouraged managers, especially in the banking industry, to take dangerous short-term **business risks**, the catastrophic results of which only became evident long after the options had been monetised.

Good business results often require long-term relationships based on trust between managers, employees, customers and suppliers. But long-term trust between two parties is impossible unless their respect for each other's interests is anchored in something deeper than the effect on the next quarterly profit numbers.

None of this undermines the model of capitalism that leaves to private market actors the power to decide how capital should be deployed. Instead it has implications for how market actors ought to use that power.

Managers must know – and they must communicate to shareholders – that if companies strive to make good products and generate trust with customers, suppliers and creditors, profits will follow for the well-run business. Investors must permit and encourage that focus and not obsess about short-term results. Directors – independent directors in particular – have a special responsibility to create this mutual understanding.

If they do, companies will enjoy more stable and sustainable profits and dividends, and the prospects for the stock price improves. In the end this secures value for shareholders better than actively maximising the stock price is likely to do. Shareholder value maximisation is dead; long live shareholder value.

Questions

1 Why are profits and share prices described as measures of business success, rather than causes?

2 Why do efficient capital markets play an important role in shareholder wealth maximisation?

1.3.1 Maximisation of profits

The classical economic view of the firm, as put forward by Hayek (1960) and Friedman (1970), is that it should be operated in a manner that maximises its **economic profits**. The concept of *economic profit* is far removed from the *accounting profit* found in a