BREALEY & MYERS

ON

CORPORATE FINANCE

CAPITAL INVESTMENT AND VALUATION

RICHARD A. BREALEY
STEWART C. MYERS
WITH THE BRATTLE GROUP

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with

The Brattle Group

New York Chicago San Francisco
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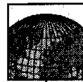
Capital Investment *and* Valuation

PREFACE



This book describes the theory and practice of corporate finance. We hardly need to explain why financial managers should master the practical aspects of their job, but we should spell out why down-to-earth, red-blooded managers need to bother with theory.

Managers learn from experience how to cope with routine problems. But the best managers are also able to respond to change. To do this you need more than time-honored rules of thumb; you must understand *why* companies and financial markets behave the way they do. In other words, you need a *theory* of finance.

Does that sound intimidating? It shouldn't. Good theory helps you grasp what is going on in the world around you. It helps you to ask the right questions when times change and new problems must be analyzed. It also tells you what things you do *not* need to worry about. Throughout this book we show how managers use financial theory to solve practical problems.

Of course, the theory presented in this book is not perfect and complete—no theory is. There are some famous controversies in which financial economists cannot agree on what firms ought to do. We have not glossed over these controversies. We set out the main arguments for each side and tell you where we stand.

Once understood, good theory is common sense. Therefore we have tried to present it at a common-sense level, and we have avoided proofs and heavy mathematics. There are no ironclad prerequisites for reading this book except algebra and the English language. An elementary knowledge of accounting, statistics, and microeconomics is helpful, however.

This book has been adapted for business professionals from *Principles of Corporate Finance* by Richard A. Brealey and Stewart C. Myers. For years this book has been the "bible" of corporate finance, and the best selling finance textbook worldwide. Among other changes, the text has been divided into two volumes, this one on corporate investment decisions and a companion, *Financing and Risk Management,* on corporate financial policy. We believe that this format will be more useful in an office (as distinct from a classroom) setting. We also have added examples and material not present in the textbook.

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ACKNOWLEDGMENTS

This book has benefited from comments and suggestions of many people over the years since the first edition of *Principles of Corporate Finance* was published. We wish to acknowledge those people again here, but trust that it will be satisfactory to do so by reference to the original text (Richard A. Brealey and Stewart C. Myers, *Principles of Corporate Finance,* 7th ed., McGraw-Hill Higher Education, 2003).

The text was adapted from *Principles* by The Brattle Group. A. Lawrence Kolbe and James A. Read, Jr. are the Brattle authors, with Read having primary responsibility for the companion volume and Kolbe having primary responsibility for this volume. Debra A. Paolo provided expert editorial advice and assistance throughout the process.

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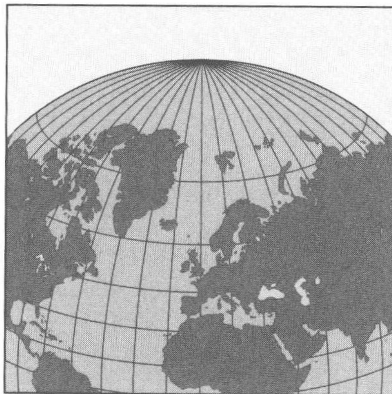
PART ONE

VALUE



FINANCE AND THE FINANCIAL MANAGER

This book is about financial decisions made by corporations. We should start by saying what these decisions are and why they are important.

Corporations face two broad financial questions: What investments should the firm make? and How should it pay for those investments? The first question involves spending money; the second involves raising it.

The secret of success in financial management is to increase value. That is a simple statement, but not very helpful. It is like advising an investor in the stock market to "Buy low, sell high." The problem is how to do it. This book is about the first of these questions. A companion volume[1] addresses the second.

There may be a few activities in which one can read a textbook and then do it, but financial management is not one of them. That is why finance is worth studying. Who wants to work in a field where there is no room for judgment, experience, creativity, and a pinch of luck? Although this book cannot supply any of these items, it does present the concepts and information on which good financial decisions are based, and it shows you how to use the tools of the trade of finance.

We start in this chapter by explaining what a corporation is and introducing you to its financial manager. We will also take a look at the ocean in which the financial manager swims. Since the manager is the link between the firm's operations and the financial markets, we provide a brief overview of the financial markets and the financial institutions that operate there.

Finance is about money and markets, but it is also about people. The success of a corporation depends on how well it harnesses everyone to work to a common end. The financial manager must appreciate the conflicting objectives often encountered in financial management. Resolving

[1]R.A. Brealey and S.C. Myers, with The Brattle Group, *Financing and and Risk Management*, McGraw-Hill, New York, 2003.

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conflicts is particularly difficult when people have different information. This is an important theme, one which runs through to the last chapter of this book. In this chapter we will start with some definitions and examples.

WHAT IS A CORPORATION?

Not all businesses are corporations. Small ventures can be owned and managed by a single individual. These are called *sole proprietorships*. In other cases several people may join to own and manage a *partnership*.[2] However, this book is about corporate finance. So we need to explain what a **corporation** is.

Almost all large and medium-sized businesses are organized as corporations. For example, General Motors, Chase Manhattan Bank, Microsoft, and General Electric are corporations. So are overseas businesses, such as BP (formerly British Petroleum), Unilever, Nestlé, Volkswagen, and Sony. In each case the firm is owned by stockholders who hold shares in the business.

When a corporation is first established, its shares may all be held by a small group of investors, perhaps the company's managers and a few backers. In this case the shares are not publicly traded and the company is *closely held*. Eventually, when the firm grows and new shares are issued to raise additional capital, its shares will be widely traded. Such corporations are known as *public companies*. Most well-known corporations in the United States are public companies. In many other countries, it's common for large companies to remain in private hands.

By organizing as a corporation, a business can attract a wide variety of investors. Some may hold only a single share worth a few dollars, cast only a single vote, and receive a tiny proportion of profits and dividends. Shareholders may also include giant pension funds and insurance companies whose investment may run to millions of shares and hundreds of millions of dollars, and who are entitled to a correspondingly large number of votes and proportion of profits and dividends.

Although the stockholders own the corporation, they do not manage it. Instead, they vote to elect a *board of directors*. Some of these directors may be drawn from top management, but others are non-executive directors, who are not employed by the firm. The board of directors represents the shareholders. It appoints top management and is supposed to ensure that managers act in the shareholders' best interests.

This *separation of ownership and management* gives corporations permanence.[3] Even if managers quit or are dismissed and replaced, the corporation can survive, and today's stockholders can sell all their shares to new investors without disrupting the operations of the business.

Unlike partnerships and sole proprietorships, corporations have **limited liability**, which means that stockholders cannot be held personally responsible for the firm's debts. If, say, General Motors were to fail, no one could demand that its shareholders put up more money to pay off its debts. The most a stockholder can lose is the amount he or she has invested.

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[2]Many professional businesses, such as accounting and legal firms, are partnerships. Most large investment banks started as partnerships, but eventually these companies and their financing needs grew too large for them to continue in this form. Goldman Sachs, the last of the leading investment-bank partnerships, announced in 1998 that it planned to issue shares and become a public corporation.

[3]Corporations can be immortal but the law requires partnerships to have a definite end. A partnership agreement must specify an ending date or a procedure for wrapping up the partnership's affairs. A sole proprietorship also will have an end because the proprietor is mortal.

Although a corporation is owned by its stockholders, it is legally distinct from them. It is based on *articles of incorporation* that set out the purpose of the business, how many shares can be issued, the number of directors to be appointed, and so on. These articles must conform to the laws of the state in which the business is incorporated.[4] For many legal purposes, the corporation is considered as a resident of its state. As a legal "person," it can borrow or lend money, and it can sue or be sued. It pays its own taxes (but it cannot vote!).

Because the corporation is distinct from its shareholders, it can do things that partnerships and sole proprietorships cannot. For example, it can raise money by selling new shares to investors and it can buy those shares back. One corporation may make a takeover bid for another and then merge the two businesses.

There are also some *disadvantages* to organizing as a corporation. Managing a corporation's legal machinery and communicating with shareholders can be time-consuming and costly. Furthermore, in the United States there is an important tax drawback. Because the corporation is a separate legal entity, it is taxed separately. So corporations pay tax on their profits, and, in addition, shareholders pay tax on any dividends that they receive from the company. The United States is unusual in this respect. To avoid taxing the same income twice, most other countries give shareholders at least some credit for the tax that the company has already paid.[5]

THE ROLE OF THE FINANCIAL MANAGER

To carry on business, corporations need an almost endless variety of **real assets.** Many of these assets are tangible, such as machinery, factories, and offices; others are intangible, such as technical expertise, trademarks, and patents. All of them need to be paid for. To obtain the necessary money, the corporation sells pieces of paper called **financial assets,** or **securities.** These pieces of paper have value because they are claims on the firm's real assets and the cash that they produce. For example, if the company borrows money from the bank, the bank gets a written promise that the money will be repaid with interest. Thus the bank trades cash for a financial asset. Financial assets include not only bank loans but also shares of stock, bonds, and a dizzying variety of specialized securities.[6]

The financial manager stands between the firm's operations and the **financial markets,** where investors hold the financial assets issued by the firm.[7] The financial manager's role is illustrated in Figure 1.1, which traces the flow of cash from investors to the firm and back to investors again. The flow starts when the firm sells securities to raise cash (arrow 1 in the figure). The cash is used to purchase real assets used in the firm's operations (arrow 2). Later, if the firm does well, the real assets generate cash inflows which more than repay the initial investment (arrow 3). Finally, the cash is either reinvested (arrow 4*a*) or returned to the investors who purchased the original security issue (arrow 4*b*). Of course, the choice between arrows 4*a* and 4*b* is not completely free. For example, if a bank lends money at stage 1, the bank has to be repaid the money plus interest at stage 4*b*.

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[4]Delaware has a well-developed and supportive system of corporate law. Even though they may do little business in that state, a high proportion of United States corporations are incorporated in Delaware.

[5]Or companies may pay a lower rate of tax on profits paid out as dividends.

[6]We review these securities in Chapter 13.

[7]You will hear financial managers use the terms *financial markets* and *capital markets* almost synonymously. But *capital markets* are, strictly speaking, the source of long-term financing only. Short-term financing comes from the *money market.* We use the term *financial markets* to refer to all sources of financing.

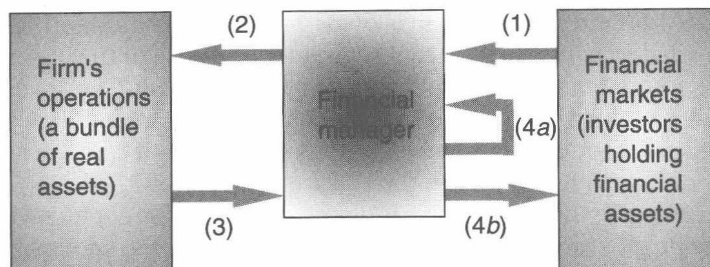

Figure 1.1

Flow of cash between financial markets and the firm's operations. Key: (1) Cash raised by selling financial assets to investors; (2) cash invested in the firm's operations and used to purchase real assets; (3) cash generated by the firm's operations; (4*a*) cash reinvested; (4*b*) cash returned to investors.

Source: Adapted from S. C. Myers, ed., *Modern Developments in Financial Management*, New York, Praeger Publishers, Inc., Fig. 1, p. 5.

Our diagram takes us back to the financial manager's two basic questions. First, what real assets should the firm invest in? Second, how should the cash for the investment be raised? The answer to the first question—the focus of this book—is the firm's **investment,** or **capital budgeting, decision.** The answer to the second is the firm's **financing decision.**

Financial managers of large corporations need to be men and women of the world. They must decide not only *which* assets their firm should invest in but also where those assets should be located. Take Nestlé, for example. It is a Swiss company, but only a small proportion of its production takes place in Switzerland. Its 500 or so factories are located in 74 countries. Nestlé's managers must therefore know how to evaluate investments in countries with different currencies, interest rates, inflation rates, and tax systems.

The financial markets in which the firm raises money are likewise international. The stockholders of large corporations are scattered around the globe. Shares are traded around the clock in New York, London, Tokyo, and other financial centers. Bonds and bank loans move easily across national borders. A corporation that needs to raise cash doesn't have to borrow from its hometown bank. Day-to-day cash management also becomes a complex task for firms that produce or sell in different countries. For example, think of the problems that Nestlé's financial managers face in keeping track of the cash receipts and payments in 74 different countries.

We admit that Nestlé is unusual, but few financial managers can close their eyes to international financial issues. So throughout the book we will pay attention to differences in financial systems and examine the problems of investing and raising money internationally.

WHO IS THE FINANCIAL MANAGER?

In this book we will use the term *financial manager* to refer to anyone responsible for a significant investment or financing decision. But only in the smallest firms is a single person responsible for all the decisions discussed in this book. In most cases, responsibility is dispersed. Top management is of course continuously involved in financial decisions. But the engineer who designs a new production facility is also involved: The design determines the kind of real assets the firm will hold. The marketing manager who commits to a major advertising campaign is also making an important investment decision. The campaign is an investment in an intangible asset that is expected to pay off in future sales and earnings.

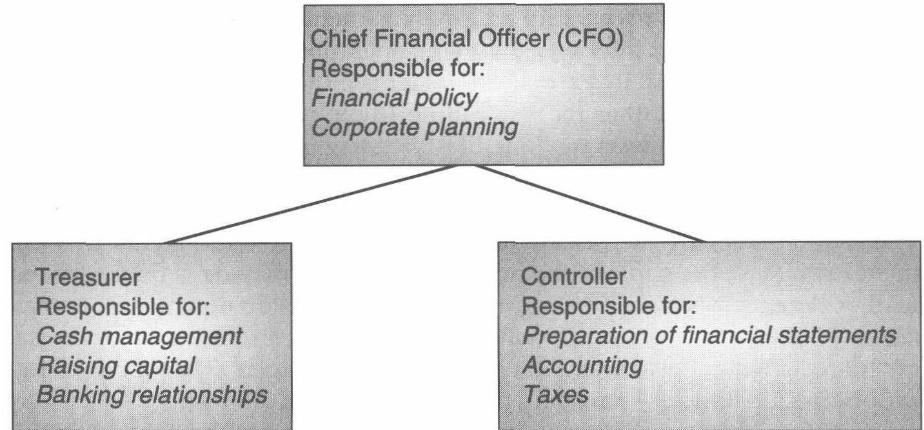

Figure 1.2

The financial managers in large corporations.

Nevertheless there are some managers who specialize in finance. Their roles are summarized in Figure 1.2. The **treasurer** is responsible for looking after the firm's cash, raising new capital, and maintaining relationships with banks, stockholders, and other investors who hold the firm's securities.

For small firms, the treasurer is likely to be the only financial executive. Larger corporations also have a **controller,** who prepares the financial statements, manages the firm's internal accounting, and looks after its tax obligations. You can see that the treasurer and controller have different functions: The treasurer's main responsibility is to obtain and manage the firm's capital, whereas the controller ensures that the money is used efficiently.

Still larger firms usually appoint a **chief financial officer (CFO)** to oversee both the treasurer's and the controller's work. The CFO is deeply involved in financial policy and corporate planning. Often he or she will have general managerial responsibilities beyond strictly financial issues and may also be a member of the board of directors.

The controller or CFO is responsible for organizing and supervising the capital budgeting process. However, major capital investment projects are so closely tied to plans for product development, production, and marketing that managers from these areas are inevitably drawn into planning and analyzing the projects. If the firm has staff members specializing in corporate planning, they too are naturally involved in capital budgeting.

Because of the importance of many financial issues, ultimate decisions often rest by law or by custom with the board of directors. For example, only the board has the legal power to declare a dividend or to sanction a public issue of securities. Boards usually delegate decisions for small or medium-sized investment outlays, but the authority to approve large investments is almost never delegated.

SEPARATION OF OWNERSHIP AND MANAGEMENT

In large businesses separation of ownership and management is a practical necessity. Major corporations may have hundreds of thousands of shareholders. There is no way for all of them to be actively involved in management: It would be like running New York City through a series of town meetings for all its citizens. Authority has to be delegated to managers.

The separation of ownership and management has clear advantages. It allows share ownership to change without interfering with the operation of the business. It allows the firm to hire professional managers. But it also brings problems if the managers' and owners' objectives differ. You can see the danger: Rather than attending to the wishes of shareholders, managers may seek a more leisurely or luxurious working lifestyle; they may shun unpopular decisions, or they may attempt to build an empire with their shareholders' money.

Such conflicts between shareholders' and managers' objectives create *principal–agent problems*. The shareholders are the principals; the managers are their agents. Shareholders want management to increase the value of the firm, but managers may have their own axes to grind or nests to feather. **Agency costs** are incurred when (1) managers do not attempt to maximize firm value and (2) shareholders incur costs to monitor the managers and influence their actions. Of course, there are no costs when the shareholders are also the managers. That is one of the advantages of a sole proprietorship. Owner–managers have no conflicts of interest.

Conflicts between shareholders and managers are not the only principal– agent problems that the financial manager is likely to encounter. For example, just as shareholders need to encourage managers to work for the shareholders' interests, so senior management needs to think about how to motivate everyone else in the company. In this case senior management are the principals and junior management and other employees are their agents.

Agency costs can also arise in financing. In normal times, the banks and bondholders who lend the company money are united with the shareholders in wanting the company to prosper, but when the firm gets into trouble, this unity of purpose can break down. At such times decisive changes may be necessary to rescue the firm, but lenders are concerned to get their money back and are reluctant to see the firm taking risks that could imperil the safety of their loans. Squabbles may even break out between different lenders as they see the company heading for possible bankruptcy and jostle for a better place in the queue of creditors.

Think of the company's overall value as a pie that is divided among a number of claimants. These include the management and the shareholders, as well as the company's workforce and the banks and investors who have bought the company's debt. The government is a claimant too, since it gets to tax corporate profits.

All these claimants are bound together in a complex web of contracts and understandings. For example, when banks lend money to the firm, they insist on a formal contract stating the rate of interest and repayment dates, perhaps placing restrictions on dividends or additional borrowing. But you can't devise written rules to cover every possible future event. So written contracts are incomplete and need to be supplemented by understandings and by arrangements that help to align the interests of the various parties.

Principal–agent problems would be easier to resolve if everyone had the same information. That is rarely the case in finance. Managers, shareholders, and lenders may all have different information about the value of a real or financial asset, and it may be many years before all the information is revealed. Financial managers need to recognize these *information asymmetries* and find ways to reassure investors that there are no nasty surprises on the way.

Here is one example. Suppose you are the financial manager of a company that has been newly formed to develop and bring to market a drug for the cure of toetitis. At a meeting with potential investors you present the results of clinical trials, show upbeat reports by an independent market research company, and forecast profits amply sufficient to justify further investment. But the potential investors are still worried that you may know more than they do. What can you do to convince them that you are telling the truth? Just saying "Trust me" won't do the trick. Perhaps

Differences in information

Issues of shares and other securities (14)

Financing (14)

Different objectives

Managers vs. stockholders (2, 12, 18, 19)

Top management vs. operating management (12)

Stockholders vs. banks and other lenders (14)

Figure 1.3

Differences in objectives and information can complicate financial decisions. We address these issues at several points in this book. (Chapter numbers in parentheses.)

you need to signal your integrity by putting your money where your mouth is. For example, investors are likely to have more confidence in your plans if they see that you and the other managers have large personal stakes in the new enterprise. Therefore your decision to invest your own money can provide information to investors about the true prospects of the firm.

In later chapters we will look more carefully at how corporations tackle the problems created by differences in objectives and information. Figure 1.3 summarizes the main issues and signposts the chapters where they receive most attention.

FINANCIAL MARKETS

We have seen that corporations raise money by selling financial assets such as stocks or bonds. This increases both the amount of cash held by the company and the amount of stocks or bonds held by the public. Such an issue is known as a *primary issue* and it is sold in the **primary market.** But in addition to helping companies to raise new cash, financial markets also allow investors to trade stocks or bonds between themselves. For example, Ms. Watanabe might decide to raise some cash by selling her Sony stock at the same time that Mr. Hashimoto invests his savings in Sony. So they make a trade. The result is simply a transfer of ownership from one person to another, which has no effect on the company's cash, assets, or operations. Such purchases and sales are known as *secondary transactions* and they take place in the **secondary market.**

Some financial assets have less active secondary markets than others. For example, when a company borrows money from the bank, the bank acquires a financial asset (the company's promise to repay the loan with interest). Banks do sometimes sell packages of loans to other banks, but usually they retain the loan until it is repaid by the borrower. Other financial assets are regularly traded and their prices are shown each day in the newspaper. Some, such as shares of stock, are traded on organized exchanges like the New York, London, or Tokyo Stock Exchanges. In other cases there is no organized exchange and the financial assets are traded by a network of dealers. For example, if General Motors needs to buy foreign currency for an overseas investment, it will do so from one of the major banks that deals regularly in currency. Markets where there is no organized exchange are known as *over-the-counter (OTC)* markets.

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