An executive cannot be an effective manager without a clear understanding of the principles and practices of modern finance. The good news is that these principles and practices can be communicated simply without sacrificing thoroughness or rigor. Indeed, you will discover that most of the concepts and methods underlying modern corporate finance are based on business common sense. But, translating business common sense into an effective management system can be a real challenge. It requires, in addition to a solid understanding of fundamental principles, the determination and the discipline to manage a business according to the precepts of modern finance. Consider, for example, one of financial management’s most useful guiding principles:

**Managers should manage their firm's resources with the objective of increasing the firm's market value.**

This may seem to be an obvious statement. But, you probably know a number of companies that are not managed to their full potential value. You may even know well-intentioned managers who are value destroyers. Their misguided actions, or lack of actions, actually reduce the value of their firms.

How do you manage for value creation? This book should help you find the answer. Our main objective is to present and explain the methods and tools that will help you determine whether the firm’s current investments are creating value and, if they are not, what remedial actions should be taken to improve operations. We also show you how to determine whether a business proposal—such as the decision to buy a piece of equipment, launch a new product, acquire another firm or restructure existing operations—has the potential to raise the firm’s value. Finally, we show you that managing with the goal of raising the firm’s value provides the basis for an integrated financial management system that not only helps you evaluate actual business performance and make sound business decisions but
also helps you design effective management compensation packages—compensation packages that align the interests of the firm’s managers with those of the firm’s owners.

This introductory chapter reviews some of the most challenging issues and questions raised by modern corporate finance and gives a general but comprehensive overview. Although the topics of this chapter are examined in detail in later chapters, many of the important terms and concepts are introduced and defined here. After reading this chapter, you should understand:

- The meaning of managing a business for value creation.
- How to measure the value that may be created by a business proposal, such as an investment project, a change in the firm’s financial structure, a business acquisition, or the decision to invest in a foreign country.
- The significance of the firm’s cost of capital and how it is measured.
- The function of financial markets as a source of corporate funds and the role they play in the value-creation process.
- A firm’s business cycle and how it determines the firm’s capacity to grow.
- The basic structure and the logic behind a firm’s balance sheet, income statement, and cash flow statement.
- Risk, how to measure it and how it affects the firm’s cost of capital.
- The terms “market value added” and “economic value added” and how they relate to the goal of managing for value creation.

**THE KEY QUESTION: WILL YOUR DECISION CREATE VALUE?**

Suppose you have identified a need in the marketplace for a new product. You believe you can manufacture that product cheaply and rapidly. You are even confident you can sell it for a tidy profit. Should you go ahead? You should not make this decision until after you check the project’s long-term financial viability. How will your firm finance the project? Where will the money come from? Will the project be sufficiently profitable to cover the cost of the funds required to support it? More to the point, will the firm be more valuable with the project or without it? We believe that you should answer these questions before making a final decision.

In most cases, the proposed venture will not be financed with your money. It will be financed by the firm’s owners, its shareholders (you may be one of them), and by those who lend money to the firm, the debtholders. Cash contributed by shareholders is called equity capital; cash contributed by lenders is debt capital. As with any other resource, capital is not free. It has a cost. Your venture will attract outside capital only if it is sufficiently profitable to cover the cost of that capital. But this will probably not be enough to convince the firm’s owners to let you go ahead with the project. The firm’s owners want to increase the firm’s value, and in order to do this, a project’s expected return must exceed its financing cost. In other words,
before deciding to go ahead with a business proposal, you should ask yourself the Key Question:

**Will the proposal raise the firm’s market value?**

If, in light of existing information and proper analysis, you can confidently answer yes, then go ahead. Otherwise, you should abandon the project.

The Key Question applies not only to a business proposal but also to current operations. If some existing investments are destroying rather than creating value, you should take immediate corrective actions. If these actions fail to improve performance, you should seriously consider selling those investments.

**THE IMPORTANCE OF MANAGING FOR VALUE CREATION**

We realize, of course, that the Key Question is much easier asked than answered. The next section describes how to apply the fundamental finance principle to help you answer the question. Before introducing that principle, we want to explain why the paramount objective of management should be the creation of value for the firm’s owners. This objective makes business common sense if you think about a firm that fails to create value for its owners: it will be unable to attract the equity capital it needs to fund its activities. And without equity capital, no firm can survive.

You may rightly ask whether we are forgetting the contributions of employees, customers, and suppliers. No firm can succeed without them. Great companies not only have satisfied shareholders; they also have loyal customers, motivated employees, and reliable suppliers. The point, of course, is not to neglect customers, squeeze suppliers, or ignore the interest of employees for the benefit of owners: More value for shareholders does not mean less value for employees, customers, or suppliers. On the contrary, firms managed with a focus on creating value for their shareholders are among those that have built durable and valuable relationships with their customers, employees, and suppliers. They know that dealing successfully with employees, customers, and suppliers is an important element in achieving their ultimate objective of creating value for their shareholders.

Indeed, there is evidence that firms that take care of their customers and employees also deliver value to their shareholders. Consider the results of a survey that asked more than 10,000 executives, outside directors, and financial analysts to rate the ten largest U.S. companies in their industry according to the following eight criteria: (1) quality of management; (2) quality of products or services; (3) ability to attract, develop, and keep talented people; (4) company’s value as a long-term investment; (5) use of corporate assets; (6) financial soundness; (7) capacity to innovate; and (8) community and environmental responsibilities.¹ The ten companies with the highest scores produced an average compound annual return of 22 percent for their shareholders during the period 1985 to 1995 while the Standard & Poor’s market

¹*Fortune* (March 4, 1996).
index (an average of 500 companies) produced a return of 15 percent. What was the stock market performance of the ten companies with the lowest scores? They were value destroyers. They delivered a negative average compound annual return of 3 percent to their shareholders.

An analysis based on only the three criteria that relate to the way companies treat their customers (the second criterion), their employees (the third criterion), and their community (the last criterion) showed similar results. The companies with the highest scores in these three areas achieved an average compound annual return of 19 percent while those with the lowest scores produced a negative annual return of 5 percent.

The above results clearly indicate that the ability of firms to create value for their shareholders is related to the way they treat their customers, employees, and community. But you should not conclude that the guaranteed recipe for value creation consists in delighting customers, establishing durable relations with suppliers, and motivating employees. Some firms that deal successfully with their customers, employees, and suppliers are unable to translate this goodwill into a higher firm value. What should the firm’s managers do in this case? They must revise the firm’s current business strategy. Shareholders will eventually question the relevance of a strategy that does not allow the firm to produce a satisfactory return on the equity capital they have invested in it. Dissatisfied shareholders, particularly those holding a significant portion of the firm’s equity capital, may try to force the firm’s management to change course or may try to oust the existing management team. Or, they may simply withdraw their support by selling their holdings to others who might force changes.

Whether shareholders will be successful in getting management to change its strategy, or even be replaced, depends on a number of factors, including the institutional and legal frameworks that govern the relationship between management and shareholders and the structure and organization of the country’s equity markets in which the firm’s shares are listed and traded. We simply suggest that no firm can afford to have delighted customers, motivated employees, and devoted suppliers for too long if it does not also have satisfied shareholders.

When asked in whose interest corporations are run, Mr. Jack Welch, the CEO of General Electric, replied: “A proper balance between shareholders, employees, and communities is what we all try to achieve. But it is a tough balancing act because, in the end, if you don’t satisfy shareholders, you don’t have the flexibility to do the things you have to do to take care of employees or communities. In our society, whether we like it or not, we have to satisfy shareholders.”2 And how do you satisfy shareholders? Mr. Roberto Goizueta, the former Chairman and CEO of the Coca-Cola Company and an ardent believer in the maximization of shareholders’ wealth, once said: “Management doesn’t get paid to make shareholders comfortable. We get paid to make the shareholders rich.”3
THE SATURN STORY

In the mid-eighties, General Motors, the world’s largest vehicle manufacturer, faced strong competition from foreign producers of small, efficient, reliable, and inexpensive cars. In response to this challenge, GM set up a separate company to build an entirely new car, the Saturn. The car was designed, produced, and sold according to the best practices available at the time. Workers were highly motivated, car dealers could not keep up with demand, and customers were extremely satisfied with their cars. According to these criteria, Saturn was an undeniable success story.

However, at the time of this writing, the project had not delivered the rise in value of GM’s shares that management had hoped would occur. Why? The Saturn project has not created value because most observers think that it is unlikely ever to become profitable. From the project’s inception until the mid-nineties, GM invested more than $6 billion to develop, manufacture, and launch the Saturn. According to knowledgeable consultants, this amount is so large that, in order for GM to earn an acceptable return for its shareholders, “it would have to operate existing facilities at full capacity forever, earn more than double standard profit margins, and keep 40 percent of the dealers’ sticker price as net cash flow.”

How long should a firm fund a project that delights its customers, pleases its distributors, and satisfies its employees but fails to deliver value to its shareholders?

THE FUNDAMENTAL FINANCE PRINCIPLE

Recall the Key Question you should ask before making a business decision: Will the decision create value for the firm’s owners? The question can be answered with the help of the fundamental finance principle:

A business proposal—such as a new investment, the acquisition of another company, or a restructuring plan—will raise the firm’s value only if the present value of the future stream of net cash benefits the proposal is expected to generate exceeds the initial cash outlay required to carry out the proposal.

The present value of the future stream of expected net cash benefits is the amount of dollars that makes the firm’s owners indifferent between receiving that sum today or getting the expected future cash-flow stream. For example, if the firm’s owners are indifferent between receiving a cash dividend of $100,000 today or getting an expected cash dividend of $110,000 next year, then $100,000 is the present value of $110,000 expected next year.

MEASURING VALUE CREATION WITH NET PRESENT VALUE

The difference between a proposal’s present value and the initial cash outlay required to implement the proposal is the proposal’s net present value or NPV:

Net present value = - Initial cash outlay + Present value of future net cash benefits

We can use the net present value concept to restate the fundamental finance principle more succinctly:

A business proposal creates value if its net present value is positive and destroys value if its net present value is negative.

The proposal’s net present value goes to the investors who own the project, in other words, to the shareholders of the firm that undertakes the project. This means that the shareholders should be able to sell their equity stake in the company that announced the project for more than they could sell it for if the project were not undertaken, and the difference should be equal to the project’s net present value.

The firm’s ability to identify the project and the market expectation that the firm will carry out the project successfully create an increase in the firm’s value and in the wealth of its shareholders. More precisely, if the shares of the firm are listed and traded on a stock exchange, the market value of the firm (the share price multiplied by the number of shares outstanding) should rise by an amount equal to the project’s net present value on the day the project is announced, assuming the announcement is unanticipated and the market agrees with the firm’s analysis of the project’s profitability. We return to this point later in the chapter when we examine the role played by financial markets in the process of value creation.

ONLY CASH MATTERS

The fundamental finance principle requires that the initial investment needed to undertake a proposal, as well as the stream of net future benefits it is expected to generate, be measured in cash. As Exhibit 1.1 shows, the investors who are financing the proposal—the firm’s shareholders and debtholders—have invested cash in the firm and are thus only interested in cash returns. Note that the cash benefits of a project must not be confused with the increase in the firm’s net profit expected from the project because profits are accounting measures of benefits, not of cash returns.

Chapter 4 identifies the differences between a firm’s cash flows, its revenues, its expenses, and its net profit, while Chapter 8 shows how to estimate the cash flows that are relevant to an investment decision.

DISCOUNT RATES

Consider an investment proposal that require a firm to invest $100,000 today in order to generate an expected $110,000 of cash at the end of the year. Suppose that
the present value of the $110,000 is $100,000. Recall that the present value is that
value that makes the firm’s owners indifferent between receiving this cash today or
receiving the expected $110,000 in one year. This is the same as saying that the
firm’s owners expect to receive a return of 10 percent from the project because
$100,000 invested at 10 percent will yield $110,000 in one year. The 10 percent is
called the discount rate: it is the rate at which the future cash flow must be dis-
counted in order to find its present value.

If we want to estimate the net present value of a proposal, we must first discount
its future cash-flow stream to find its present value and then deduct from that pre-
sent value the initial cash outlay required to carry out the proposal. Chapter 6 exam-
ines the discounting mechanism in detail and explains how to calculate present
values and how to estimate a project’s net present value when the project has an
expected cash-flow stream that is longer than one year.

In our example, we know the discount rate because we already know the
expected future cash flow and the present value. However, this is not usually the
case. In general, a proposal’s future cash flow must be estimated and the discount
rate must be determined. But, what discount rate should be used? A proposal’s
appropriate discount rate is the cost of financing the proposal.

In the example, the return expected from the project must be at least 10 percent
in order to induce shareholders to invest in the project. In other words, because 10
percent is the rate of return required by shareholders to fund the project, it is also
the project’s cost of equity capital. It represents the cost of using shareholders’ cash
to finance the investment proposal.

A PROPOSAL’S COST OF CAPITAL

Firms typically finance their investment proposals with a combination of equity cap-
ital and debt capital, and both shareholders and debtholders require a return from
their contribution to the financing of the proposal. When a project is funded with
both equity and debt capital, the cost of capital is no longer equal to just the cost of
equity. It is the weighted average of the project’s cost of equity and its aftertax cost
of debt, where the weights are the proportions of equity and debt financing in the total capital employed to fund the project.

To illustrate, suppose a project will be financed 50 percent with equity and 50 percent with debt. Also, assume the project has an estimated cost of equity of 16 percent and an aftertax cost of debt of 6 percent. Then, the project’s weighted average cost of capital or WACC is equal to 11 percent:

\[
\text{Project cost of capital (WACC) = } [6\% \times 50\%] + [16\% \times 50\%] = 3\% + 8\% = 11\%
\]

In other words, the contribution of debt financing to the project’s cost of capital is 3 percent (50 percent of 6 percent) and that of equity financing is 8 percent (50 percent of 16 percent) as shown in Exhibit 1.2.

The cost of debt is taken after tax because firms can deduct from their pretax profits the interest they pay on the money they borrow (interest payments are a tax-deductible expense).

If the proportions of equity and debt financing are modified, the weighted average cost of capital will be affected, not only because the financing proportions have changed but also because the cost of debt and the cost of equity also change when the financing proportions are altered. Chapter 10 shows how to estimate a project’s cost of debt, its cost of equity, and its weighted average cost of capital. Chapter 11 demonstrates how the weighted average cost of capital is affected when the financing proportions change.

**EXHIBIT 1.2 The Cost of Financing a Business Proposal Is Its Weighted Average Cost of Capital.**

<table>
<thead>
<tr>
<th>Return required by lenders measured aftertax (6% aftertax cost of debt)</th>
<th>Contribution of debt to the financing of the proposal (50%)</th>
<th>Return required by shareholders (16% cost of equity)</th>
<th>Contribution of equity to the financing of the proposal (50%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3%</td>
<td></td>
<td>8%</td>
<td></td>
</tr>
</tbody>
</table>

**Weighted Average Cost of Capital (WACC) = 11%**

\[
[\text{Aftertax cost of debt}] \times [\% \text{ Debt financing}] + [\text{Cost of equity}] \times [\% \text{ Equity financing}]
\]
APPLYING THE FUNDAMENTAL FINANCE PRINCIPLE

The fundamental finance principle has widespread applications in major areas of corporate decision making. In this book, we address the capital budgeting decision (whether an investment project should be accepted or rejected), the capital structure decision (how much of the firm’s assets should be financed with debt and how much with equity), the business acquisition decision (how much should be paid to acquire another company), and the foreign investment decision (how to account for multiple-currency cash flows and for the extra risk of operating in a foreign country). The capital budgeting decision is covered in Chapters 6 through 8, the capital structure decision in Chapter 11, the acquisition decision in Chapter 12, and the management of cross-border operations in Chapter 13. This section provides an overview of these corporate decisions.

THE CAPITAL BUDGETING DECISION

The capital budgeting decision, also called the capital expenditure decision, concerns the acquisition of fixed assets, such as plants and equipment. This is a major corporate decision because it typically affects the firm’s business performance for a long period of time. The decision criteria used in capital budgeting, such as the net present value rule and the internal rate of return rule, are direct applications of the fundamental finance principle.

The Net Present Value (NPV) Rule

According to the net present value rule, an investment project with a positive NPV should be undertaken and one with a negative NPV should be rejected:

A project should be undertaken if its net present value is positive and should be rejected if its net present value is negative.

The NPV rule is a direct application of the fundamental finance principle because it states that a project should be undertaken only if it creates value. If the project has a positive NPV, it creates value because the present value of its expected future cash benefits is greater than the initial cash outlay required to launch the project. If the proposal has a negative NPV, it destroys value because the present value of its expected future cash benefits is less than the initial cash outlay required to launch the project. If a business proposal has a zero NPV, the firm breaks even in the sense that the proposal neither creates nor destroys value: the present value of its expected future cash benefits is equal to the initial cash outlay required to undertake the project.
The Internal Rate of Return (IRR) Rule

One of the most commonly used alternatives to the NPV rule, especially in the analysis of capital expenditures, is the internal rate of return rule. A project’s internal rate of return or IRR is the rate for which the proposal’s NPV is zero. Chapter 7 shows how to calculate the IRR of multiple-year projects.

To use the IRR rule to determine whether a project creates value, we must compare the project’s IRR to its weighted average cost of capital. Suppose the project that has an IRR of 15 percent has an estimated weighted average cost of capital (WACC) of 12 percent. In this case, the project creates value because its profitability, measured by its IRR, exceeds the cost of financing the project, measured by its estimated WACC. If the project’s IRR is lower than its WACC, the project cannot be financed profitably and should be rejected. In general:

A project should be undertaken if its internal rate of return is higher than its cost of capital and should be rejected if its internal rate of return is lower than its cost of capital.

Chapter 7 examines the properties of the IRR rule and other capital budgeting rules, compares them to the NPV criterion, and shows why the NPV rule is the most reliable method for making capital budgeting decisions.

Sources of Value Creation in a Business Proposal

We have seen that firms with positive net present value proposals are expected to generate excess cash profits, cash profits above the level required to remunerate the firm’s shareholders. However, there is nothing more powerful than excess cash profits to attract a horde of eager competitors into a new market. Clearly, the challenge for firms with recurrent positive NPV businesses is to keep competitors at bay and prevent them from entering their markets. They must erect entry barriers that are costly enough to discourage potential competitors. How costly? Entry barriers must be costly enough to make the NPV of their competitors’ proposals to enter the market negative, but not so costly as to wipe out their own positive NPV.

What are these entry barriers? Some of the most effective barriers are patents or trademarks on products that competitors are legally prevented from copying or imitating. For example, in the early nineties, Glaxo, a British pharmaceutical company, owned the patent for the world’s best selling ulcer drug (sold under the name of Zantac). This drug had annual sales of $3 billion and a significantly positive NPV. As a result, Glaxo created considerable value for its shareholders during that period of time. Coca-Cola uses superior marketing and advertising expertise to build product recognition. Because Coca-Cola’s trademarked image cannot be copied, product recognition leads to increased sales and value creation.

Effective barriers also include licenses purchased from governments, for example, to exploit a natural resource, operate a telecommunication network, or run a casino. A license can also be bought from a company to distribute its products.
abroad. For example, before Nissan—Japan’s second largest vehicle manufacturer—
took over the distribution of its cars in the UK, the private distributor of Nissan cars
in that country became one of Britain’s richest men, thanks to his exclusive right to
sell Nissans in the UK.

Entry barriers can also be erected by creating a unique distribution channel.
For example, Dell Computers has thrived by selling directly to customers, over the
phone and via the internet, computers that are practically manufactured to order
and delivered by mail.

In addition, some firms have raised entry barriers around markets for standard
products that, in principle, could be reproduced easily and legally. They have simply
managed to become their market’s lowest cost producer or service deliverer.
Their market is protected because no one else is capable of producing the goods or
services as cheaply as they can.

The point we want to make is that positive NPV businesses are not easily cre-
at, discovered, or protected. Firms that have developed or found positive NPV
businesses have to prevent competitors from entering their markets and reducing
their excess profit to zero.

THE CAPITAL STRUCTURE DECISION

Why would a firm want to modify its capital structure? As shown in Chapter 11, a
firm’s capital structure usually affects its value. And, there is a particular capital
structure for which the firm’s value is the highest. The fundamental finance principle
can help you determine the optimal capital structure, the one that maximizes
the firm’s value.

Contrary to an investment decision, the decision to change the firm’s capital
structure is not accompanied by an initial cash outlay. For example, if a firm
decides to replace $10 million of equity with $10 million of debt, the net effect on
the firm’s cash position will be zero (we ignore the transaction costs required to
carry out this capital restructuring). Thus, to apply the fundamental finance principle
to the capital structure decision, we simply need to find out if the present
value of the future cash flows that the firm’s assets are expected to generate will
increase or decrease as a result of the decision to change the structure of the cap-
it employed to finance these assets.

As illustrated in Exhibit 1.3, debtholders have fixed claims on the cash flows
generated by the firm’s assets (interest payments plus the repayment of the amount
borrowed). Hence, if a change in the firm’s capital structure results in an increase
in the present value of the cash flows from assets, then this increase will go entirely
to shareholders’ claims. Thus, the firm’s optimal capital structure is the one that pro-
vides the greatest increase in the present value of the cash flows from assets.

To illustrate, suppose $10 million is borrowed at 10 percent and the corporate
tax rate is 40 percent. Interest expenses are $1 million (10 percent of $10 million)
and the firm’s taxable profits are reduced by that amount because interest expenses
are tax-deductible. The $1 million reduction in taxable profits will save the firm’s owners $400,000 in taxes every year (40 percent of $1 million). This saving occurs because the firm can deduct interest expenses from taxable profits. Conclusion: Everything else remaining the same, the new capital structure creates $400,000 of value to the firm’s owners every year. Unfortunately for shareholders, other things usually do not remain the same.

As the firm replaces increasing amounts of equity with borrowed funds, the risk that it may be unable to service its debt (pay interest and repay the loan in full and on time) will rise. This risk, called financial distress risk, generates costs that reduce the cash flows from the firm’s assets and decrease the firm’s value, thus offsetting the value created by the tax benefits of debt financing. Examples of these costs include the loss of sales due to customers’ reluctance to buy products from a firm that may soon experience financial difficulties and the inability to obtain supplies from companies that are reluctant to provide goods and services to a firm that may be unable to pay for them. As long as the present value of the tax savings from debt financing is higher than the present value of the expected costs of financial distress, additional borrowing will increase the firm’s value. When the present value of the tax advantage of debt financing is exactly offset by the present value of the expected costs of financial distress, the firm has reached its optimal capital structure. This trade-off theory of capital structure is examined in detail in Chapter 11, along with a review of a number of other factors managers must consider when they establish their firm’s capital structure.
THE BUSINESS ACQUISITION DECISION

The acquisition of a company is just another type of investment, albeit a large one. It will create value for the shareholders of the acquiring firm only if the present value of the future net cash flows that the assets of the target firm are expected to generate after the acquisition exceeds the price paid to acquire the target company’s assets (which is the same as the initial cash outlay). Applying the fundamental finance principle, we can write:

\[
\text{NPV(acquisition)} = -\text{Price paid to acquire the target company’s assets} + \text{Present value of the post-acquisition net cash flows from the target’s assets}
\]

If this net present value is positive, the acquisition is a value-creating investment. If it is negative, the acquisition is a value-destroying investment. Chapter 12 shows how the post-acquisition cash flows can be estimated, depending on the type of acquisition envisioned. For a pure conglomerate merger, one in which the business to be acquired is unrelated to the business of the acquiring firm, the relevant cash flows are those generated by the assets of the target company “standing-alone” or “as-is.”

Sometimes, an acquisition is expected to generate synergies that will raise sales or reduce costs beyond the sum of the two companies’ pre-acquisition sales and costs. In this case, we have to estimate the amounts by which the cash flows of the target company’s assets are expected to increase when the acquisition is achieved, taking into account any synergistic effects. (If the cash flows generated by the acquiring company’s assets are also affected by the acquisition, this effect must be taken into account, too). The discount rate that should be used to estimate the present value of these cash flows and the various steps required to determine whether an acquisition proposal will create value are the subjects of Chapter 12.

THE FOREIGN INVESTMENT DECISION

As for any other type of investment, investing abroad requires spending cash now with the expectation that the present value of the future net cash flows generated by the investment will be higher than the amount poured into the investment. Again, the fundamental finance principle is applicable. However, the implementation of the principle is somewhat more complicated than for a domestic investment because the cash flows from a cross-border investment are usually denominated in a different currency than the home currency and are exposed to additional risks, such as currency risk and political (or country) risk.

Currency risk refers to the risk associated with unanticipated changes in the value of the currency in which the investment cash flows are denominated; country risk refers to the risk associated with unexpected events, such as expropriation...
and exchange controls, that may adversely affect the project’s future cash-flow stream. Chapter 13 examines these risks in detail and shows how they should be taken into account in the analysis of a cross-border investment project. For example, Chapter 13 explains why you should not add a “fudge” factor to the cost of capital to reflect the added risks of a cross-border project, while leaving the project’s expected cash flows unchanged from what their value would be if the project were a domestic one. Instead, we suggest you investigate the nature of the particular country risk and adjust the project’s future cash flows accordingly, without modifying the cost of capital.

After an investment project is undertaken, currency and political risks must be managed on a day-to-day basis. Chapter 13 describes how managers can reduce their firm’s exposure to these risks. In particular, it explains how managers can use foreign exchange instruments, such as forward, futures, and options contracts, as well as currency swaps, to reduce the impact of currency movements on the cash flows generated by a foreign project.

THE ROLE OF FINANCIAL MARKETS

Financial markets play a key role in the process of business growth and value creation by performing two fundamental functions (see Exhibit 1.4). As primary markets, they provide the financing required to fund new business ventures and sustain business growth. They perform this function by acting as intermediaries between individuals and companies that have a cash surplus they wish to invest and companies that have a cash deficit they wish to eliminate by raising new capital through the issuance of securities (certificates that recognize the rights of

EXHIBIT 1.4 The Dual Function of Financial Markets.

<table>
<thead>
<tr>
<th>The financial markets</th>
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<tbody>
<tr>
<td>The primary market</td>
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<tr>
<td>The firm</td>
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<tr>
<td>newly issued securities</td>
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<tr>
<td>Investors</td>
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<td>outstanding securities</td>
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the holder). As secondary markets, they provide an efficient mechanism for trading outstanding (already issued) securities and translating the value-creating (or value destroying) decisions of firms into increases (or decreases) in shareholders’ wealth via higher (or lower) security prices.

These two functions are not independent of one another. The price of securities in the secondary markets is determined by the buying and selling carried out by traders in these markets. The price observed in the secondary market is then used by investment (or merchant) bankers as a benchmark against which they can set the price of newly issued securities in the primary market. (Investment bankers are intermediaries that help companies issue securities to raise funds in financial markets.) Thus, a well-functioning secondary market facilitates the pricing of new securities issued in the primary market. As a consequence, the two markets are closely related. The structure and organization of financial markets, the role played by investment bankers, and the determination of the price of the securities traded in these markets are examined in detail in Chapter 9. This section provides an overview of the role of financial markets in value creation and as a source of capital.

THE EQUITY MARKET

In an efficient equity market, the share price of firms adjusts instantly to new and relevant information as soon as it becomes available to market participants. Relevant information is any piece of news that is expected to affect a firm’s future cash-flow stream. In an efficient equity market, stock prices should rise instantly on favorable news and drop instantly on unfavorable news (assuming, of course, that the piece of news was unanticipated). You can see why efficient equity markets play a key role in the process of value creation. As soon as a company announces a business decision that market participants interpret as having a positive net present value, the company’s market value should rise by an amount equal to the market’s estimation of that decision’s positive net present value. Shareholders who wish to cash in do not have to wait for the firm to actually carry out its business decision. All they have to do is sell their shares to immediately receive their part of the value created by the firm’s positive announcement. The opposite is also true. If market participants believe the decision has a negative net present value, the company’s aggregate market value should fall by an amount equal to the market’s estimation of that decision’s negative net present value and shareholders will suffer an immediate loss.

Are equity markets efficient processors of information? And do they actually provide an efficient mechanism to determine reliable stock prices? The evidence indicates that on average most well-developed stock markets around the world can be described as sufficiently efficient to be relied on to provide unbiased estimates of share prices. The story that follows provides an illustration of how the stock markets react to firms’ announcements that could affect their future cash-flow streams.
WHAT IS BAD FOR GENERAL MOTORS IS GOOD FOR VOLKSWAGEN . . .
AND VICE VERSA

This is the story of Mr. Lopez and the New York and Frankfurt stock markets. Mr. Lopez was a powerful executive in charge of worldwide purchasing for General Motors (GM), a key position considering GM’s bloated cost structure and substandard profit margin. According to press reports, Mr. Lopez and his team were able to shave close to $1 billion off GM’s annual costs. This feat made him one of GM’s most valuable employees. But valuable employees attract competitors’ attention. In early 1993, Mr. Lopez was approached by Volkswagen (another car manufacturer with a bloated cost structure and a substandard profit margin) to join that company and apply his valuable cost-cutting talent to its operations. But GM could not afford to lose Mr. Lopez’s invaluable services. It offered him a big raise and promoted him to group vice-president. This seemed to settle the matter: Mr. Lopez was to stay with GM.

But on Thursday, March 11, 1993, a rumor began to spread around Detroit and Wall Street: Mr. Lopez was about to leave GM and join Volkswagen. On Friday, March 12, 1993, VW confirmed that Mr. Lopez would join the company. How did GM and VW share prices react to the news? On the New York Stock Exchange, the price of GM’s shares dropped 4.4 percent between Wednesday’s close and Friday’s close while the market (the Dow Jones Industrial Index) dropped only 1.4 percent over the same two-day period. At that time, a 1 percent drop in the stock price of GM corresponded to $280 million of value destruction. If we remove the 1.4 percent drop in the market from the 4.4 percent drop in the stock price of GM, the remaining 3 percent corresponds to $840 million of value destruction in 48 hours (3 times $280 million), the equivalent of almost one year’s cost-cutting efforts.

On the Frankfurt Stock Exchange, the price of VW’s shares rose 1.8 percent while the market (the DAX Index) fell 0.2 percent. Adjusted for market movement, the rise in price of VW’s shares was 2 percent and corresponded at the time to approximately $90 million of value creation.

Obviously, Mr. Lopez’s decision to move from GM to VW was a negative net present value proposition for GM and a positive one for VW. The prevailing consensus among financial analysts was that Mr. Lopez and his team, which was expected to follow him to VW, were not easily replaceable. Costs would no longer be under tight control at GM without the presence of Mr. Lopez and his team, and costs at VW would be significantly tightened up when they moved to VW. Note, however, that Mr. Lopez’s transfer from GM to VW resulted in a net value destruction of $750 million (GM’s loss of $840 million net of VW’s gain of $90 million). Given the size of GM, Mr. Lopez and his team were clearly more valuable to GM’s shareholders than they were to VW’s owners.

Then, over the weekend, GM made Mr. Lopez an offer he could not refuse: a promotion to executive vice-president responsible for all of GM’s North American auto operations. Mr. Lopez was staying with GM after all. On Monday, March 15, the stock
price of GM rose 1.3 percent on the news while the U.S. market was up 0.3 percent and the stock price of VW fell 2.5 percent while the German market dropped 0.3 percent. GM recovered a third of its lost value while VW lost all of its previous gains. The markets were not convinced that Mr. Lopez would stay with GM but also thought that he would most likely not join VW.

But hold on, the story is not finished yet. On Tuesday, March 16, VW announced that Mr. Lopez had definitely joined the company as the head of worldwide production and a member of its managing board. GM confirmed that Mr. Lopez had officially resigned and was leaving the company. Guess what? The share price of GM fell 1.3 percent on a flat U.S. market and that of VW rose 1.8 percent while the German market dropped 0.3 percent. VW recovered its previous 2 percent rise (after adjusting for the market movement) despite the fact that the same day the company announced a dramatic reduction in both its profits and dividends for 1992 in comparison to 1991.

Mr. Lopez's story clearly illustrates the role played by the U.S. and German stock markets as instantaneous processors of news and as translators of relevant information about companies into value creation when the news is favorable and value destruction when it is unfavorable.5

**EXTERNAL VERSUS INTERNAL FINANCING**

We now consider how financial markets function as primary markets. In this role, they act as a source of external financing to companies. Firms can raise equity capital by issuing shares of common stock in the equity market, or they can borrow by issuing debt securities in the debt markets. As mentioned earlier, to carry out this fund-raising task, they employ the services of investment bankers (as opposed to commercial bankers who extend loans). Short-term funds can be raised by issuing commercial paper in the money market, and long-term funds can be raised by issuing bonds in the corporate bond market. These markets, and the securities that are traded in them, are described in Chapter 9.

Debt financing is necessarily external. It is either borrowed from financial institutions, such as banks and insurance companies, or raised in the debt markets by issuing commercial paper or corporate bonds. Equity financing, however, can be either external (in the form of a new equity issue) or internal. Internal equity financing refers to retained earnings, the part of a firm’s profit that the firm’s owners decide to invest back into their company instead of withdrawing it in the form of a cash dividend. The percentage of profit retained within the firm is called the profit retention rate. The percentage paid out in the form of a cash dividend is known as the dividend payout ratio.

5Mr. Lopez's story had a follow-up. Immediately after he joined VW, GM alleged that he stole confidential documents and engaged in a legal battle with VW for financial damages. The dispute ended in January 1997 with an out-of-court settlement. The controversy had depressed VW share price, but, when the settlement was announced, VW share price went up 4 percent.
Companies retain part (and sometimes all) of their profit because, for most firms, regular access to external equity financing is often unavailable and, when it is available, is relatively expensive. For example, fees must be paid to investment bankers and numerous costs are incurred to comply with the rules and regulations that govern external equity funding. Hence, calling on existing and new shareholders to raise external equity through a new share issue is usually an infrequent event in the life of a company. Most firms rely primarily on internal equity financing, through profit retention, to build up their equity capital. Profit retention is the fuel of sustainable business expansion. No business can travel the road of long-term growth without retaining some of its profit on a continual basis.

**THE BUSINESS CYCLE**

Suppose you decide to start a firm that you will call New Manufacturing Company (NMC) and you want to understand the financial implications of this decision. The following dialogue will help explain the system that ties the various drivers of your new business to the financial outcome of your decision.

- “Why does NMC need capital?”
- “It has to acquire assets. Without the financing made available by equity and debt capital, NMC would not be able to buy assets.”
- “Of course, but why does NMC need assets?”
- “It has to generate sales. Without productive assets, such as equipment and machinery, NMC would not be able to manufacture goods for sale.”
- “Surely, but then why does NMC need sales?”
- “It has to make profits. Without sales revenues, how could NMC generate any profits?”
- “True, but then why does NMC need profits?”
- “It must reward you and your partners in the business (NMC shareholders) in the form of dividend payments and must build up its capital base. By retaining part of its profits, NMC will be able to increase its equity capital which, in turn, will allow it to increase the amount of cash it can borrow from creditors. For example, with a **debt-to-equity ratio** equal to one, NMC needs one dollar of additional equity to be able to borrow one extra dollar.”
- “I understand. One last question. Why does NMC need more capital?”
- “To acquire more assets, to generate more sales, to produce higher profits, to pay dividends, to increase retained earnings, to build up equity capital, to raise new debt, and to grow the business.”

This sequence of events is called the firm’s **business cycle** and is illustrated in Exhibit 1.5. With an initial capital, made of equity and debt, NMC can finance an equal amount of assets. These assets will be used by NMC to generate sales. The amount of sales will depend on the efficiency with which NMC manages its
assets. Usually, this efficiency is measured by the **sales-to-asset ratio** (also known as the firm’s **asset turns**, **asset rotation**, or **asset turnover**), which is the amount of sales made in one year divided by the amount of assets used to produce these sales.

**NMC** can increase its asset turns either by generating more than one dollar of sales per dollar of assets or by generating one dollar of sales with less than one dollar of assets. Whether NMC can increase its sales will depend on the structure and conditions of the market in which it operates and on its competitive position in its industry. Whether NMC can reduce the amount of assets needed to generate one dollar of sales will depend on the ability of NMC’s operations managers to manage assets, such as inventories and fixed assets, at their optimal level of efficiency.

Sales will generate a **net profit margin** (**net profit-to-sales ratio**). What will NMC do with the profit? Part will be reinvested in the business in the form of retained earnings and the remaining profit will be distributed to shareholders in the form of dividends. With additional equity capital (in the form of retained earnings), NMC will be able to borrow an amount that will depend upon the firm’s debt-to-equity ratio. With this added capital, NMC will start a new cycle with more capital
to fund more assets, which will produce more sales. The rate at which a company’s sales can grow under those circumstances, that is without issuing new equity capital, is called the **self-sustainable growth rate** (SGR).

The self-sustainable growth rate is an important indicator of business performance and an important component of a firm’s financial strategy. Chapter 5 shows how a firm can raise its self-sustainable growth rate, and Chapter 14 shows how the self-sustainable-growth-rate concept can be used to formulate an optimal financial strategy.

**HLC’S FINANCIAL STATEMENTS**

Financial statements, better known as **balance sheets** and **income statements**, are the end-products of the financial accounting process. This process, shown in Exhibit 1.6, records financial transactions between the firm and the rest of the world.

**EXHIBIT 1.6  A Simplified View of the Financial Accounting Process.**

- **The firm**
  - Financial transactions
  - The rest of the world
  - Financial accounting process
  - The balance sheet: Records assets and liabilities at the date of the balance sheet. Their difference is the book value of equity at that date.
  - The income statement: Records revenues and expenses over a period of time. Their difference, which represents an increase or a decrease in the book value of equity, is the profit or loss for the period.
THE BALANCE SHEET

The balance sheet is a statement that shows what a firm’s shareholders own, called assets (such as cash, inventories, plants, and equipment), and what they owe, called liabilities (such as money owed to banks and suppliers), at a specific date (usually at the end of a year or a quarter). The difference between a firm’s assets and its liabilities is an accounting estimate of the equity shareholders have invested in their firm; owners’ equity is also called the book value of equity. The book value of equity depends on the accounting conventions used in estimating the firm’s assets and liabilities. Thus, the book value of the same company may vary depending on whether it is estimated according to French accounting rules or American accounting conventions because French and American accounting standards are not the same.

As an introduction to the balance sheet, which is analyzed in detail in Chapter 2, we show in Exhibit 1.7 a simplified version of the balance sheet of Hologram Lighting Company (HLC)—a fictitious firm—on December 31, 1999, and December 31, 2000.

The upper part of the exhibit lists the firm’s assets with their corresponding accounting values at the date of the statement. The lower part lists the firm’s liabilities and shareholders’ equity with their corresponding accounting values at the same date.

The assets include cash, accounts receivable (also called trade receivables or trade debtors, these accounts represent cash owed to HLC by its customers for sales made on credit), inventories (raw materials, work-in-process, and finished goods not yet sold), and net fixed assets (long-term assets, such as equipment, machinery, and buildings). When estimating the net value of fixed

EXHIBIT 1.7 HLC’s Balance Sheets.
Figures in millions of dollars

<table>
<thead>
<tr>
<th></th>
<th>December 31, 1999</th>
<th>December 31, 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>$100</td>
<td>$110</td>
</tr>
<tr>
<td>Accounts receivable</td>
<td>150</td>
<td>165</td>
</tr>
<tr>
<td>Inventories</td>
<td>250</td>
<td>275</td>
</tr>
<tr>
<td>Net fixed assets</td>
<td>600</td>
<td>660</td>
</tr>
<tr>
<td><strong>Total assets</strong></td>
<td><strong>$1,100</strong></td>
<td><strong>$1,210</strong></td>
</tr>
<tr>
<td><strong>Liabilities and owners’ equity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short-term debt</td>
<td>$200</td>
<td>$220</td>
</tr>
<tr>
<td>Accounts payable</td>
<td>100</td>
<td>110</td>
</tr>
<tr>
<td>Long-term debt</td>
<td>300</td>
<td>330</td>
</tr>
<tr>
<td>Owners’ equity</td>
<td>500</td>
<td>550</td>
</tr>
<tr>
<td><strong>Total liabilities and owners’ equity</strong></td>
<td><strong>$1,100</strong></td>
<td><strong>$1,210</strong></td>
</tr>
</tbody>
</table>
assets, an accountant deducts from the purchase price of the assets the accumulated depreciation expenses to account for the loss in value due to the wear and tear of the assets.

How were these assets financed? According to the lower part of the balance sheet, they were financed with short-term borrowing from banks, accounts payable (also called trade payables or trade creditors, these accounts represent cash owed by HLC to its suppliers of raw material for purchases made on credit and not yet paid), long-term debt, and equity capital.

A VARIANT OF THE STANDARD BALANCE SHEET: THE MANAGERIAL BALANCE SHEET

Note that HLC’s balance sheet shows accounts receivables and inventories as assets, and account payables as liabilities. Although this presentation makes sense from an accounting point of view, it does not fit well with the traditional organization of a business where these three accounts are managed together by operating managers. For this reason we will often work with a variant of the traditional balance sheet, which we call the managerial balance sheet.

The Net Investment Required to Operate a Firm’s Fixed Assets

HLC must hold both trade receivables and inventories because sales are not paid immediately by customers and goods must be manufactured and stored before they can be sold. Without inventories and receivables, HLC would be unable to produce goods and sell them. However, these accounts represent required investments that HLC must finance. This financing is partly provided by trade payables because HLC does not have to pay its suppliers immediately. As a result, the net investment that HLC must make in order to support its production and sales activities is equal to the sum of its trade receivables and inventories less its trade payables. This net investment in operations, which is required to generate sales and profits from the firm’s fixed assets, is called working capital requirement (WCR).

HLC’s WCR on December 31, 1999 was equal to $300 millions ($150 millions of receivables plus $250 millions of inventories less $100 millions of payables). The optimal management of a firm’s working capital requirement, which is one of the most effective ways to create value through improved efficiency, is a major topic of Chapter 3.

HLC’s Managerial Balance Sheet

Exhibit 1.8 shows HLC’s managerial balance sheets on December 31, 1999, and on December 31, 2000. The upper part of the managerial balance sheet lists the firm’s invested capital or net assets: cash, working capital requirement, and net fixed assets. It is the invested capital, not the assets in the standard balance sheet, that must be financed by debt and equity capital. To finance its invested capital, HLC
EXHIBIT 1.8  HLC’s Managerial Balance Sheets.
All data from the balance sheets in Exhibit 1.7; figures in millions of dollars

<table>
<thead>
<tr>
<th></th>
<th>December 31, 1999</th>
<th>December 31, 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Invested capital or net assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>$100</td>
<td>$110</td>
</tr>
<tr>
<td>Working capital requirement¹</td>
<td>300</td>
<td>330</td>
</tr>
<tr>
<td>Net fixed assets</td>
<td>600</td>
<td>660</td>
</tr>
<tr>
<td><strong>Total invested capital or net assets</strong></td>
<td><strong>$1,000</strong></td>
<td><strong>$1,110</strong></td>
</tr>
</tbody>
</table>

| **Capital employed** |                   |                   |
| Short-term debt      | $200              | $220              |
| Long-term debt       | 300               | 330               |
| Owners’ equity       | 500               | 550               |
| **Total capital employed** | **$1,000**  | **$1,110**  |

¹WCR = (Accounts receivable + Inventories) – Accounts payable. These are given in Exhibit 1.7.

employed the capital listed on the lower part of the managerial balance sheet: short-term debt, long-term debt, and equity capital.

The managerial balance sheet gives a clearer picture of the structure of the firm’s investments and the capital it employs to finance them than a standard balance sheet does. Capital invested in cash, operations, and fixed assets is reported under the heading “invested capital” or “net assets.” And the sources of capital used to fund these net assets are reported under the heading “capital employed.” Chapter 3 shows why the managerial balance sheet is a better starting point for analyzing, interpreting, and evaluating the firm’s investing, operating, and financing strategies.

Is HLC’s capital structure optimal? We indicated earlier that a debt-to-equity ratio of one is the preferred (or optimal) capital structure for HLC. How a firm should establish an optimal capital structure is the topic of Chapter 11. Is that debt structure appropriate and, more generally, what should be the optimal term structure of a firm’s debt? These questions are addressed in Chapter 3.

THE INCOME STATEMENT

The purpose of the income statement, also called the profit and loss account, is to provide an estimate of the change in the book value of equity over a period of time (usually a year or a quarter). This change, called net profit when it is positive and net loss when it is negative, is the difference between the firm’s revenues and its expenses. A revenue is any transaction occurring during the accounting period that increases the book value of equity; an expense is any transaction that
decreases the book value of equity. As in the case of the balance sheet, the income statement is drawn according to accounting conventions that may differ from one country to another.

A detailed analysis of a firm’s income statement is presented in Chapter 2. In this section, we present a simplified version of HLC’s financial statement for year 2000, shown in Exhibit 1.9, and use it to show how this statement can provide valuable information about a firm’s financial performance.

To generate sales revenue, HLC had to incur several types of expenses. First, operating expenses, such as the cost of raw material used in the manufacturing of the firm’s products, and the production costs, including depreciation expenses; second, the interest expenses which are the amount of interest HLC must pay to its debtholders; and third, the tax expenses the firm must pay on its profits.

The difference between sales and operating expenses is called earnings before interest and tax or EBIT (also called pretax operating profit or trading profit). What is left of EBIT after interest expenses are paid is called earnings before tax or EBT. After accounting further for tax expenses, the remaining profit, which belongs to the firm’s shareholders, is referred to as earnings after tax or EAT (also called net profit). Then a portion of EAT is paid as dividends to the firm’s shareholders, with the remaining reinvested in the business as retained earnings.

Think of earnings before interest and tax as profit from HLC’s operations that will be shared by three categories of claimants in accordance with a legally established order. Debtholders are the first claimants. They are entitled to interest payments.

**EXHIBIT 1.9 HLC’s 2000 Income Statement.**

<table>
<thead>
<tr>
<th>Figures in millions of dollars</th>
<th>Year 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$1,000</td>
</tr>
<tr>
<td>Less operating expenses</td>
<td>(760)</td>
</tr>
<tr>
<td>Earnings before interest and tax (EBIT)</td>
<td>$240</td>
</tr>
<tr>
<td>Less interest expenses</td>
<td>(40)</td>
</tr>
<tr>
<td>Earnings before tax (EBT)</td>
<td>$200</td>
</tr>
<tr>
<td>Less tax expenses(^1)</td>
<td>(100)</td>
</tr>
<tr>
<td>Earnings after tax (EAT)</td>
<td>$100</td>
</tr>
<tr>
<td>Dividend payment = $50</td>
<td></td>
</tr>
<tr>
<td>Retained earnings = $50</td>
<td></td>
</tr>
</tbody>
</table>

\(^1\)The corporate tax rate is 50 percent of pretax profit.
They are followed by the tax authorities that have a claim on the firm’s profit, in the form of tax. Finally, the owners or shareholders are entitled to whatever is left. They, in effect, have a residual ownership of the firm’s pretax operating profit. This entitlement order for the firm’s earnings makes the remuneration of the suppliers of debt capital (interest payment) a tax-deductible expense. This is why the firm’s cost of debt should be measured net of the corporation tax the firm has saved. This is not the case for the firm’s owners. They are remunerated on an aftertax basis because their share of the firm’s operating profit is the firm’s earnings after tax.

**HOW PROFITABLE IS A FIRM?**

Information provided in a firm’s balance sheets and income statements can be combined to evaluate its financial performance, in particular the profitability of its equity capital and the profitability of its invested capital.

**THE PROFITABILITY OF EQUITY CAPITAL**

How profitable is a firm to its owners? The amount of the investment made by shareholders is, by definition, the firm’s equity capital. Since earnings after tax represents the shareholders’ claim on the firm’s profit, their return on investment is thus equal to earnings after tax divided by the equity capital. This return, is called **return on equity** (ROE):

\[
\text{Return on equity (ROE)} = \frac{\text{Earnings after tax (EAT)}}{\text{Owners’ equity}}
\]

**THE PROFITABILITY OF INVESTED CAPITAL**

To measure the aftertax profitability of HLC’s invested capital, we must use the aftertax profits generated by that investment. This is the firm’s aftertax operating profit which is equal to EBIT \((1 - \text{Tax rate})\). The tax rate is applied before interest expenses are deducted from earnings because we want to measure the profitability of the firm’s total capital which is provided by both shareholders and debtholders. Dividing the aftertax operating profit by the amount of capital that was used to generate that profit gives a measure of the firm’s **return on invested capital** (ROIC).

\[
\text{Return on invested capital (ROIC)} = \frac{\text{Aftertax operating profit}}{\text{Invested capital}}
\]

Return on invested capital (ROIC) is the same as **return on net assets (RONA)** or **return on capital employed (ROCE)** because invested capital is the same as net assets and both are equal to capital employed, as indicated in the
managerial balance sheet shown in Exhibit 1.8. Chapter 5 examines the relationship between a firm’s return on equity and its return on invested capital and analyzes in detail how managerial decisions can improve these two measures of profitability.

**HOW MUCH CASH DOES A FIRM GENERATE?**

The cash flows expected from a business proposal are a key factor in deciding whether the proposal will create or destroy value. Measuring the cash flows generated by the firm’s activities on a continuous basis is thus essential to verify that these activities indeed create value. How can a firm’s balance sheets and income statements be used to estimate how much cash its activities generate? Chapter 4 answers this question in detail and examines the managerial implications of running a business with a focus on generating cash and creating value. In this section, we just want to provide some insights on the issue of estimating cash flows from financial statements.

Note that profits generated by a firm such as earnings before interest and tax (EBIT), or earnings after tax (EAT), do not represent cash. To illustrate this point, just consider an increase in sales. Both EBIT and EAT will increase immediately, but the firm’s cash holdings will not increase until the customers pay for what they bought. We want to know how much cash there is behind EBIT and EAT over the same reporting period, that is, during the year when these profits are recorded.

One answer is provided by the firm’s balance sheets. By taking the difference between the firm’s cash account at the end and at the beginning of the year, we get the net outcome of all cash transactions (all cash payments and all cash receipts), or total net cash flow, generated by the firm during that year.

**SOURCES AND USES OF CASH**

A firm gets cash from three sources: (1) from its operations when customers pay the invoices that were sent to them; (2) from selling assets (an investment, or, more precisely, a divestment or asset disposal, decision); and (3) from borrowing or issuing new shares (a financing decision). A firm also spends cash from operating, investing, and financing activities: (1) from its operations when it pays its suppliers, its employees, and the tax authorities; (2) from making **capital expenditures**, such as investments in new equipment (an investment decision); and (3) from making interest payments, reimbursing debt, and paying dividends (all transactions related to the firm’s financing activity). We show in Chapter 4 how data from balance sheets and income statements can be used to measure the respective contributions of operating, investing, and financing activities to the firm’s total net cash flow. Of particular interest is the cash flow from operating
activities because operations are at the heart of the business. A firm that does not generate sufficient cash from its operations over a period of time may destroy value and be headed for trouble. It can buy time by borrowing or by selling assets, but these sources of cash will eventually dry up.

THE CASH FLOW STATEMENT

A firm’s cash transactions over the reporting period are summarized in its cash flow statement, which often accompanies balance sheets and income statements in financial reporting. As an example, we show in Exhibit 1.10 the cash flow statement of HLC for year 2000.

Note that the statement breaks down the firm’s total net cash flows into the three main corporate activities we have already mentioned: operations, investment, and financing. There are alternative ways to present the contribution of these activities to the firm’s cash flows. Most of them are presented in Chapter 4.

EXHIBIT 1.10 HLC’s 2000 Cash Flow Statement.
Figures in millions of dollars

<table>
<thead>
<tr>
<th>Year 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cash flows from operating activities</strong></td>
</tr>
<tr>
<td>Sales</td>
</tr>
<tr>
<td>Less operating expenses (which include depreciation expenses)</td>
</tr>
<tr>
<td>Less tax expense</td>
</tr>
<tr>
<td>Plus depreciation expenses</td>
</tr>
<tr>
<td>Less cash used to finance the growth of working capital requirement</td>
</tr>
<tr>
<td>A. New operating cash flow (NOCF)</td>
</tr>
</tbody>
</table>

| **Cash flows from investing activities** |
| Capital expenditures and acquisitions | (120) |
| B. New cash flow from investing activities | ($120) |

| **Cash flows from financing activities** |
| New borrowings | 50 |
| Interest payments | (40) |
| Dividend payments | (50) |
| C. Net cash flow from financing activities | ($40) |
| D. Total net cash flow (A + B + C) | $10 |

| E. Opening cash | $100 |
| F. Closing cash (E + D) | $110 |

1 This is the difference between the working capital requirement at the end of year 2000 and at the end of 1999.
HOW RISKY IS A FIRM?

A firm does not know for certain whether its projected sales figures will actually be achieved. The firm may sell more or less than what it expected to sell. This is risk. It originates from uncertain sales figures and works itself through the firm’s income statement until it finally hits the bottom line, that is, the firm’s net profit. We can examine this transmission mechanism using HLC’s 2000 income statement. At the beginning of the year, HLC does not know with certainty whether it will achieve its $1,000 target sales. The first column of Exhibit 1.11 reports expected sales of $1,000, which may or may not be achieved. Suppose that half of HLC’s total expenses are fixed ($380) and the other half are variable ($380). Deducting these expenses from the $1,000 of expected sales provides an expected earnings before interest and tax (EBIT) of $240. From this figure, $40 of fixed interest expenses and $100 of variable tax expenses are deducted to yield an expected net profit of $100.

Now suppose that sales, which are volatile, either fall short of their expected value by 10 percent (go down to $900 as shown in the second column in Exhibit 1.11) or exceed their expected value by 10 percent (go up to $1,100 as reported in the fourth column in Exhibit 1.11). How will this 10 percent variation in sales affect HLC’s pretax operating profit (EBIT)? A 10 percent change in sales induces a 10 percent change in variable costs but leaves fixed costs unaffected (by definition, if costs are fixed, their level does not change when sales vary). As a result, EBIT rises by 26 percent if sales go up by 10 percent and drops by 26 percent if sales go down by 10 percent, as indicated in Exhibit 1.11. EBIT fluctuates more widely than sales.

EXHIBIT 1.11 HLC Income Statement: Impact on EBIT, EBT, and EAT of a 10% Drop or Rise in Sales.
Figures in millions of dollars

<table>
<thead>
<tr>
<th></th>
<th>Expected¹</th>
<th>Sales Down 10%</th>
<th>Sales Up 10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$1,000</td>
<td>$900 –10%</td>
<td>$1,100 +10%</td>
</tr>
<tr>
<td>Less variable operating expenses²</td>
<td>(380)</td>
<td>(342) –10%</td>
<td>(418) +10%</td>
</tr>
<tr>
<td>Less fixed operating expenses³</td>
<td>(380)</td>
<td>(380) same</td>
<td>(380) same</td>
</tr>
<tr>
<td><strong>EBIT</strong> (earnings before interest and tax)</td>
<td>$240</td>
<td>$178 –26%</td>
<td>$302 +26%</td>
</tr>
<tr>
<td>Less fixed interest expenses</td>
<td>(40)</td>
<td>(40) same</td>
<td>(40) same</td>
</tr>
<tr>
<td><strong>EBT</strong> (earnings before tax)</td>
<td>$200</td>
<td>$138 –31%</td>
<td>$262 +31%</td>
</tr>
<tr>
<td>Less variable tax expenses (50%)</td>
<td>(100)</td>
<td>(69) –31%</td>
<td>(131) +31%</td>
</tr>
<tr>
<td><strong>EAT</strong> (earnings after tax)</td>
<td>$100</td>
<td>$69 –31%</td>
<td>$131 +31%</td>
</tr>
</tbody>
</table>

¹The expected income statement is the same as the one shown in Exhibit 1.9.
²One half of total operating expenses of $760 in Exhibit 1.9.
³One half of total operating expenses of $760 in Exhibit 1.9. Note that the $60 of depreciation expenses are fixed and, hence, included in the $380 of fixed operating expenses.
In other words, operating profits are more risky than sales. This occurs because some of the firm’s operating expenses are fixed. If they were all variable, then EBIT would fluctuate by 10 percent, exactly like sales, and sales and EBIT would incur the same risk (same degree of fluctuation). Notice that the presence of fixed interest expenses increases risk further. Indeed, net profits (EAT) fluctuate by 31 percent in response to the 10 percent fluctuation in sales.

The above example illustrates an important phenomenon: The higher the proportion of fixed expenses (both operational and financial) relative to total expenses, the riskier the firm’s net profits in comparison to the risk of its sales. The transmission of risk from sales to profits is illustrated in Exhibit 1.12. First, sales fluctuate because of the uncertain economic, political, social, and competitive environments in which firms operate. This is economic risk. This initial risk is then magnified by the presence of fixed operating expenses that create an operational risk. The cumulative effect of economic risk and operational risk is called business risk. Finally, business risk is further magnified by the presence of fixed interest expenses that create a financial risk. The cumulative effect of business risk and financial risk is transmitted to net profits, whose resulting fluctuations reflect the total risk.

Total risk is borne by the firm’s owners. Owners have a claim on the firm’s residual gains (the firm’s net profits) but they must bear any residual losses. While the remuneration of HLC’s lenders is fixed, the remuneration of HLC’s owners is the firm’s uncertain profits. Thus, equity capital, the owners’ investment, is riskier than debt capital, the lenders’ investment. For this reason, HLC’s owners require a higher rate of return on their equity investment than the return required by HLC’s lenders. Most shareholders dislike risk—they are risk averse—and they require a higher rate of return to compensate them for the higher level of risk attached to equity capital. The impact of risk on the firm’s profitability is examined in detail in Chapter 5. The relationship between risk and the rate of return required by the suppliers of capital is explored in Chapters 10 and 11.

**EXHIBIT 1.12 Sources of Risk that Interest Profit Volatility.**
The ultimate success of a firm is not measured only by its capacity to grow its sales, produce profits, or generate cash from its operations. In the final analysis, what really matters is whether the firm’s activities are creating value for its owners. How can we find out whether a firm is creating value?

We can answer that question by applying the fundamental finance principle to all the firm’s invested capital, instead of to just a single project as we did earlier. According to the fundamental finance principle, a firm is creating value if the net present value of all its investments is positive. We can measure this net present value by deducting the total amount of capital employed to finance the firm’s investments from the market value of the firm’s capital (the market value of its equity and debt capital):

$$\text{NPV(entire firm)} = \text{Market value of the firm’s capital} - \text{Total capital employed}$$

This net present value is usually referred to as the firm’s market value added or MVA. If MVA is positive, the firm is creating value because the market value of its capital exceeds the amount of capital invested in it. If MVA is negative, the firm is destroying value.

What drives value creation and MVA? A firm’s MVA is positive if the market expects the firm to generate positive economic value added, or EVA, in the future. What is EVA and how is it measured? A firm’s EVA is equal to the aftertax operating profit generated by the firm’s net assets less the dollar cost of the capital employed to finance these assets.

Let’s go back to HLC for an illustration. In year 2000, HLC’s net assets generated pretax operating profits of $240 million, as reported in its income statement in Exhibit 1.9. With a 50 percent corporate tax rate, aftertax operating profit was $120 million. To generate that profit in 2000, HLC used $1,000 million of capital as shown in the managerial balance sheet for December 31, 1999 (Exhibit 1.8). Let’s assume that HLC’s weighted average cost of capital (WACC) is 10 percent. Therefore, the dollar cost of the $1,000 million of capital employed is $100 million (10 percent of $1,000 million). We can now find HLC’s economic value added during 2000:

$$\text{EVA}_{2000} = \text{Aftertax operating profit} - \text{Dollar cost of capital employed}$$

$$\text{EVA}_{2000} = \text{Aftertax operating profit} - (\text{Capital employed } \times \text{WACC})$$

$$\text{EVA}_{2000} = \$120 \text{ million} - \$1,000 \text{ million } \times 10\%$$

$$\text{EVA}_{2000} = \$120 \text{ million} - \$100 \text{ million}$$

$$\text{EVA}_{2000} = \$20 \text{ million}$$

HLC generated $120 million of aftertax operating profit (sometimes referred to as NOPAT or net operating profit after tax) but “consumed” $100 million of capital in the process. Therefore, HLC generated a positive EVA of $20 million in year 2000. As long as HLC keeps generating positive EVAs, it will create value, a phenomenon discussed in Chapter 14.
Note that if we factor out the term “capital employed” we can rewrite the equation for finding economic value added:

\[
\text{EVA} = \text{Aftertax operating profit} - (\text{Capital employed} \times \text{WACC})
\]

\[
EVA = \left[ \frac{\text{Aftertax operating profit}}{\text{Capital employed}} - \text{WACC} \right] \times \text{Capital employed}
\]

Capital employed is equal to invested capital, as shown in the managerial balance sheets in Exhibit 1.8. Thus, the ratio in the brackets is the firm’s aftertax return on invested capital (ROIC), and EVA can be restated as:

\[
\text{EVA} = (\text{ROIC} - \text{WACC}) \times \text{Invested capital}
\]

HLC’s ROIC in year 2000 is 12 percent ($120 of aftertax operating profit divided by $1,000 of invested capital), so we have:

\[
\text{EVA}_{2000} = [12\% - 10\%] \times $1,000 million = 2\% \times $1,000 million = $20 million
\]

This alternative way of expressing economic value added says that EVA will be positive (negative) if the firm’s return on invested capital is higher (lower) than the cost of that capital, measured by the firm’s WACC. Chapter 14 examines in detail the concepts of market value added and economic value added as measures of value creation and tools for effective capital management.

**SUMMARY**

The ultimate objective of financial management is value creation. This simply means that before making a business decision, managers should always ask themselves the Key Question: Will the decision raise the market value of their firm? If, in light of existing information and proper analysis, they can confidently answer yes, then they should go ahead.

The Key Question can be answered with the help of the fundamental finance principle. This principle states that a business proposal, such as a new investment, the acquisition of another company, or a restructuring plan, will create value only if the present value of its expected future cash benefits exceeds the initial cash outlay required to undertake the proposal. In other words, a business proposal creates value only if its net present value is positive.

The fundamental finance principle can be applied to major corporate decisions, such as whether or not to invest in a new project, to modify the firm’s capital structure, to acquire another company, or to invest abroad. The implementation of the principle requires the estimation of the (1) future cash-flow stream the decision is expected to generate and (2) the cost of financing the proposal. In general, both inputs are not easy to determine. Several chapters in this book are devoted to the issue of how these two inputs can be estimated because they lie at the heart of all sound financial management systems.
Financial markets are not only a source of capital to finance corporate growth but also a processor of information and an indicator of value creation. Firms, however, do not go to the financial markets to raise fresh equity every time they need additional equity capital to finance their growth. They can retain a portion of their profits and use it to meet their funding needs. Profit retention is necessary for a firm to sustain long-term growth.

Despite the fact that a firm’s financial statements are prepared according to accounting conventions that generally do not reflect market values, these statements are often a useful source of information when evaluating a firm’s financial performance. The example of Hologram Lighting Company (HLC) provides preliminary answers to the following six questions:

2. How profitable is the firm? Look at return on equity and return on invested capital.
3. How much cash is the firm generating? Look at net operating cash flow.
4. How risky is the firm? Look at business and financial risks.
5. What is the firm’s cost of capital? Look at the weighted average cost of capital.
6. Is the firm creating value? Look at market value added and economic value added.

The last chapter in this book shows that these various measures of performance, together with the fundamental finance principle, form the basis of a comprehensive value-based management system.

FURTHER READING

REVIEW PROBLEMS

1.1. The fundamental finance principle.
The Pioneering Manufacturing Company (PMC) is considering the three
one-year projects whose estimated net cash flows are reported below. The
firm can borrow at 10 percent and is subject to a corporate tax rate of 25
percent. Its estimated cost of equity capital is 15 percent and its optimal
capital structure is reached when its debt-to-equity ratio is 2:3.

<table>
<thead>
<tr>
<th>Project</th>
<th>Initial Cash Outlay</th>
<th>Year-end Cash Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>$90,000</td>
<td>$112,000</td>
</tr>
<tr>
<td>B</td>
<td>$160,000</td>
<td>$168,000</td>
</tr>
<tr>
<td>C</td>
<td>$250,000</td>
<td>$280,000</td>
</tr>
</tbody>
</table>

a. Why is PMC’s cost of equity higher than its cost of debt?
b. What is PMC’s weighted average cost of capital?
c. Apply the net present rule to the three projects. Which have the potential
to create value if undertaken?
d. PMC’s current share price is $10 and the firm has 100,000 shares outstanding. If the company announces that it has decided to undertake all three projects, how would PMC’s share price react? What are the key assumptions regarding the market and the company behavior that will trigger this expected price reaction?
e. What are the three projects’ estimated internal rates of return? What do these rates indicate and what can you conclude?
f. Suppose PMC decides to issue debt and use the proceeds of the sale to repurchase some of its shares in the market. Is this action expected to create or destroy value? Explain why.
g. Suppose PMC decides to issue new shares and use the proceeds of the sale to repay part of its debt. Is this action expected to create or destroy value? Explain why and contrast your answer with that of the previous question.

1.2. Cash flow and profitability analysis; capacity to grow and create value.
The balance sheets of the General Electronics Company (GEC) on December 31, 1999, and December 31, 2000, and its 2000 income statement are given below.
Balance Sheets (in millions)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>$60</td>
<td>$75</td>
<td>$70</td>
<td>$100</td>
</tr>
<tr>
<td>Trade debtors</td>
<td>180</td>
<td>210</td>
<td>140</td>
<td>160</td>
</tr>
<tr>
<td>Inventories</td>
<td>120</td>
<td>145</td>
<td>195</td>
<td>185</td>
</tr>
<tr>
<td>Net fixed assets</td>
<td>450</td>
<td>460(^1)</td>
<td>405</td>
<td>445(^2)</td>
</tr>
<tr>
<td>Total assets</td>
<td>$810</td>
<td>$890</td>
<td>$810</td>
<td>$890</td>
</tr>
<tr>
<td>Total liabilities &amp; equity</td>
<td>$810</td>
<td>$890</td>
<td>$810</td>
<td>$890</td>
</tr>
</tbody>
</table>

\(^1\) New assets worth $40 million were acquired during 2000, and depreciation was $30 million. Thus, net fixed assets at year-end 2000 is $460 million, that is, ($450 + $40 – $30) million.

\(^2\) No new equity was issued in 2000. The increase in owners’ equity is due to $40 million of retained earnings.

Income Statement (in millions)

<table>
<thead>
<tr>
<th></th>
<th>Year 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$1,600</td>
</tr>
<tr>
<td>Operating expenses other than depreciation</td>
<td>(1,400)</td>
</tr>
<tr>
<td>Depreciation expenses</td>
<td>(30)</td>
</tr>
<tr>
<td><strong>Earnings before interest and tax (EBIT)</strong></td>
<td>170</td>
</tr>
<tr>
<td>Interest expenses</td>
<td>(30)</td>
</tr>
<tr>
<td><strong>Earnings before tax (EBT)</strong></td>
<td>140</td>
</tr>
<tr>
<td>Tax expenses (at 40% tax rate)</td>
<td>(56)</td>
</tr>
<tr>
<td><strong>Earnings after tax (EAT) or net profit</strong></td>
<td>$84</td>
</tr>
<tr>
<td>Dividends</td>
<td>$44</td>
</tr>
<tr>
<td>Retained earnings</td>
<td>$40</td>
</tr>
</tbody>
</table>

GEC can borrow at 10 percent and its estimated cost of equity is 16 percent. Its share price at year-end 2000 was $20 and the company had 30 million shares outstanding.

a. Restate GEC balance sheets in their managerial form. What does working capital requirement represent?
b. How much cash has been generated by operating activities during 2000? What is the cash flow from investment activities in 2000? From financing activities? Prepare a cash flow statement for the year 2000.
c. What is the company’s profitability from the perspective of its shareholders? Provide a profitability ratio based on each of the following: (i) beginning (1999) owners’ equity; (ii) average (1999 and 2000) owners’ equity; and (iii) ending (2000) owners’ equity. Compare the three ratios.
d. What is the company’s aftertax operating profitability measured by its return on invested capital? Use beginning (1999) invested capital.
e. What are the four key ratios driving GEC’s business cycle?

f. If GEC does not modify its operating and financing policies, what is the maximum growth rate it can sustain?

g. How should GEC modify its operating policy if it wants to grow its sales at a faster rate than its maximum sustainable rate found in question (6)?

h. How should GEC modify its financing policy if it wants to grow its sales at a faster rate than its maximum sustainable rate found in question (6)?

i. Assuming that the market value of GEC’s debt capital is the same as that of its reported book value, what is the company’s estimated weighted average cost of capital on December 2000 based on (i) its market value; and (ii) its book value? Is there a significant difference between the two estimated WACCs? Why?

j. Has GEC created value to its shareholders as of December 2000? Explain your answer.