Part 1 Overview of Corporate Finance

Chapter

1

Introduction to Corporate Finance

THE CONTROL of a corporation typically rests with its shareholders, who receive one vote for each share of stock they own. However, Alphabet (the parent company of Google) and Facebook are two well-known companies with unusual voting rights. Both companies originally had two classes of stock: Class A, with 1 vote per share, and Class B, with 10 votes per share. The B shares were mostly held by the founding shareholders, so the voting structure meant that Mark Zuckerberg (Facebook) and Sergey Brin and Larry Page (Alphabet) retained control of the companies they started.

In 2016, Facebook announced that it would create Class C shares, similar to what Google had done in 2014. The Class C shares would have the same economic benefit as Class A and B shares, but no voting rights. So why would these two companies create shares of stock with different voting rights, and in the case of Class C stock, no voting rights? The answer leads us to the corporate form of organization, corporate goals, and corporate control, all of which we discuss in this chapter.

Learning Objectives

After studying this chapter, you should be able to:

LO1 Define the basic types of financial management decisions and the role of the financial manager.

LO2 Explain the goal of financial management.

LO3 Articulate the financial implications of the different forms of business

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organization.

LO4 Explain the conflicts of interest that can arise between managers and owners.

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To begin our study of modern corporate finance and financial management, we need to address two central issues. First, what is corporate finance and what is the role of the financial manager in the corporation? Second, what is the goal of financial management? To describe the financial management environment, we consider the corporate form of organization and discuss some conflicts that can arise within the corporation. We also take a brief look at financial markets in the United States.

1.1 Corporate Finance and the Financial Manager

In this section, we discuss where the financial manager fits in the corporation. We start by defining *corporate finance* and the financial manager's job.

WHAT IS CORPORATE FINANCE?

Imagine that you were to start your own business. No matter what type you started, you would have to answer the following three questions in some form or another:

1. What long-term investments should you take on? That is, what lines of business will you be in and what sorts of buildings, machinery, and equipment will you need?
2. Where will you get the long-term financing to pay for your investment? Will you bring in other owners or will you borrow the money?
3. How will you manage your everyday financial activities such as collecting from customers and paying suppliers?

These are not the only questions by any means, but they are among the most important. Corporate finance, broadly speaking, is the study of ways to answer these three questions. Accordingly, we'll be looking at each of them in the chapters ahead.

THE FINANCIAL MANAGER

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A striking feature of large corporations is that the owners (the stockholders) are usually not directly involved in making business decisions, particularly on a day-to-day basis. Instead, the corporation employs managers to represent the owners' interests and make decisions on their behalf. In a large corporation, the financial manager would be in charge of answering the three questions we raised in the preceding section.

The financial management function is usually associated with a top officer of the firm, such as a vice president of finance or some other chief financial officer (CFO). Figure 1.1 is a simplified organizational chart that highlights the finance activity in a large firm. As shown, the vice president of finance coordinates the activities of the treasurer and the controller. The controller's office handles cost and financial accounting, tax payments, and management information systems. The treasurer's office is responsible for managing the firm's cash and credit, its financial planning, and its capital expenditures. These treasury activities are all related to the three general questions raised earlier, and the chapters ahead deal primarily with these issues. Our study thus bears mostly on activities usually associated with the treasurer's office.

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FINANCIAL MANAGEMENT DECISIONS

As the preceding discussion suggests, the financial manager must be concerned with three basic types of questions. We consider these in greater detail next.

Capital Budgeting

The first question concerns the firm's long-term investments. The process of planning and managing a firm's long-term investments is called **capital budgeting**. In capital budgeting, the financial manager tries to identify investment opportunities that are worth more to the firm than they cost to acquire. Loosely speaking, this means that the value of the cash flow generated by an asset exceeds the cost of that asset.

capital budgeting
The process of planning and managing a firm's long-term investments.

The types of investment opportunities that would typically be considered depend in part on the nature of the firm's business. For a large retailer such as Walmart, deciding whether to open another store would be an important capital budgeting decision. Similarly, for a

software company such as Oracle or Microsoft, the decision to develop and market a new spreadsheet program would be a major capital budgeting decision. Some decisions, such as what type of computer system to purchase, might not depend so much on a particular line of

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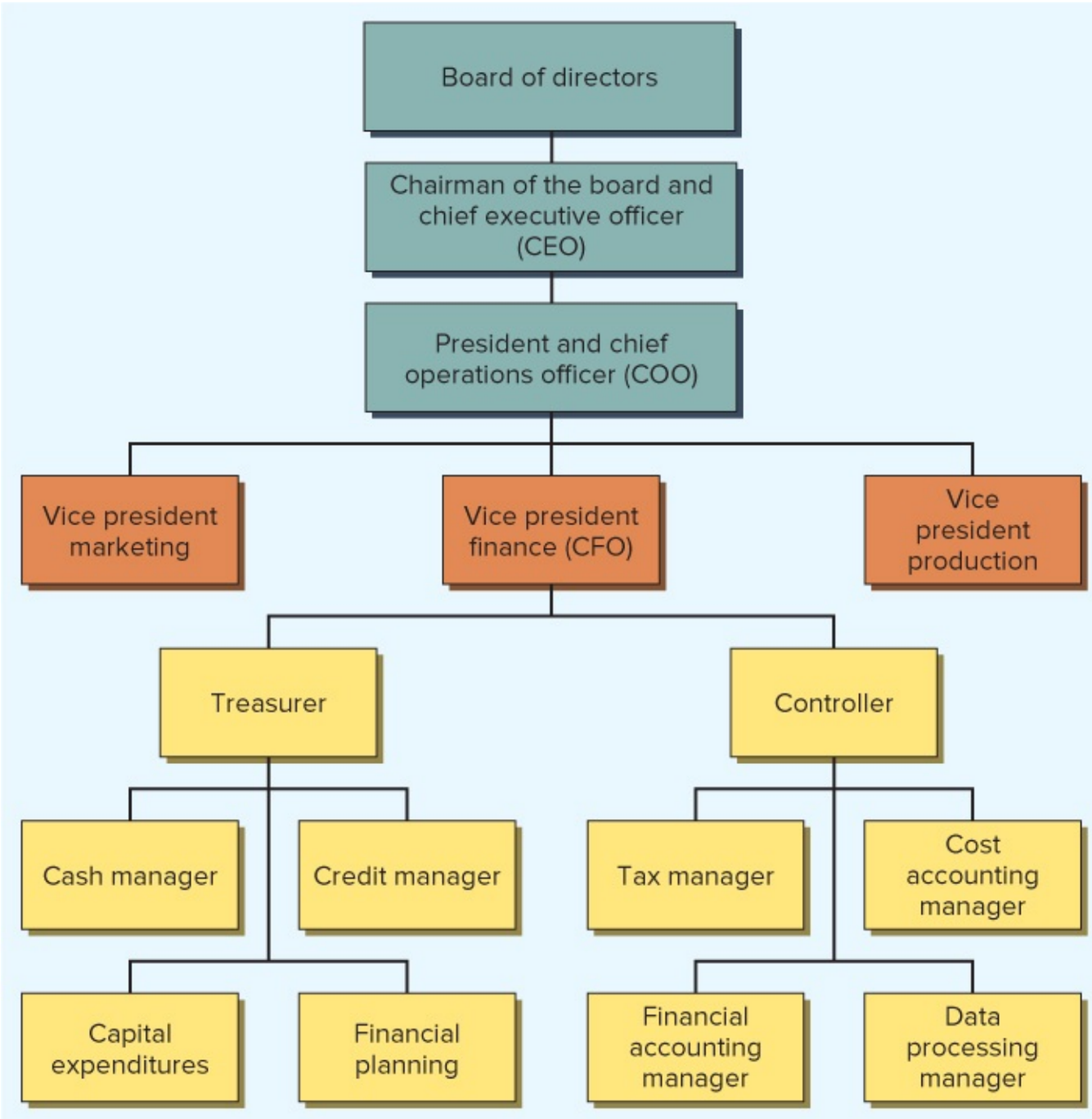
business.

FIGURE 1.1
A Sample Simplified Organizational Chart



Regardless of the specific nature of an opportunity under consideration, financial managers must be concerned not only with how much cash they expect to receive, but also with when they expect to receive it and how likely they are to receive it. Evaluating the *size*, *timing*, and *risk* of future cash flows is the essence of capital budgeting. In fact, as we will see in the chapters ahead, whenever we evaluate a business decision, the size, timing, and

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risk of the cash flows will be by far the most important things we will consider.

Capital Structure

The second question for the financial manager concerns ways in which the firm obtains and manages the long-term financing it needs to support its long-term investments. A firm's **capital structure** (or financial structure) is the specific mixture of long-term debt and equity the firm uses to finance its operations. The financial manager has two concerns in this area. First, how much should the firm borrow? That is, what mixture of debt and equity is best? The mixture chosen will affect both the risk and the value of the firm. Second, what are the least expensive sources of funds for the firm?

capital structure

The mixture of debt and equity maintained by a firm.

If we picture the firm as a pie, then the firm's capital structure determines how that pie is sliced—in other words, what percentage of the firm's cash flow goes to creditors and what percentage goes to shareholders. Firms have a great deal of flexibility in choosing a financial structure. The question of whether one structure is better than any other for a particular firm is the heart of the capital structure issue.

In addition to deciding on the financing mix, the financial manager has to decide exactly how and where to raise the money. The expenses associated with raising long-term financing can be considerable, so different possibilities must be carefully evaluated. Also, corporations borrow money from a variety of lenders in a number of different, and sometimes exotic, ways. Choosing among lenders and among loan types is another job handled by the financial manager.

Working Capital Management

The third question concerns **working capital** management. The term *working capital* refers to a firm's short-term assets, such as inventory, and its short-term liabilities, such as money owed to suppliers. Managing the firm's working capital is a day-to-day activity that ensures that the firm has sufficient resources to continue its operations and avoid costly interruptions. This involves a number of activities related to the firm's receipt and disbursement of cash.

working capital

A firm's short-term assets and liabilities.

Some questions about working capital that must be answered are the following: (1) How much cash and inventory should we keep on hand? (2) Should we sell on credit? If so, what terms will we offer, and to whom will we extend them? (3) How will we obtain any needed short-term financing? Will we purchase on credit, or will we borrow in the short term and

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pay cash? If we borrow in the short term, how and where should we do it? These are just a small sample of the issues that arise in managing a firm's working capital.

Conclusion

The three areas of corporate financial management we have described—capital budgeting, capital structure, and working capital management—are very broad categories. Each includes a rich variety of topics, and we have indicated only a few questions that arise in the different areas. The chapters ahead contain greater detail.

Concept Questions

1.1a What is the capital budgeting decision?

1.1b What do you call the specific mixture of long-term debt and equity that a firm chooses to use?

1.1c Into what category of financial management does cash management fall?

1.2 Forms of Business Organization

Large firms in the United States, such as Ford and Microsoft, are almost all organized as corporations. We examine the three different legal forms of business organization—sole proprietorship, partnership, and corporation—to see why this is so. Each form has distinct advantages and disadvantages for the life of the business, the ability of the business to raise cash, and taxes. A key observation is that as a firm grows, the advantages of the corporate form may come to outweigh the disadvantages.

SOLE PROPRIETORSHIP

A **sole proprietorship** is a business owned by one person. This is the simplest type of business to start and is the least regulated form of organization. Depending on where you live, you might be able to start a proprietorship by doing little more than getting a business

license and opening your doors. For this reason, there are more proprietorships than any other type of business, and many businesses that later become large corporations start out as small proprietorships.

sole proprietorship
A business owned by a single individual.

The owner of a sole proprietorship keeps all the profits. That's the good news. The bad

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news is that the owner has *unlimited liability* for business debts. This means that creditors can look beyond business assets to the proprietor's personal assets for payment. Similarly, there is no distinction between personal and business income, so all business income is taxed as personal income. However, with the passage of the Tax Cuts and Jobs Act of 2017, up to 20 percent of business income may be exempt from taxation (the specific rules are too complex to cover here).

The life of a sole proprietorship is limited to the owner's life span, and the amount of equity that can be raised is limited to the amount of the proprietor's personal wealth. This limitation often means that the business is unable to exploit new opportunities because of insufficient capital. Ownership of a sole proprietorship may be difficult to transfer because this transfer requires the sale of the entire business to a new owner.

PARTNERSHIP

A **partnership** is similar to a proprietorship except that there are two or more owners (partners). In a *general partnership*, all the partners share in gains or losses, and all have unlimited liability for *all* partnership debts, not just some particular share. The way partnership gains (and losses) are divided is described in the *partnership agreement*. This agreement can be an informal oral agreement, such as "let's start a lawn mowing business," or a lengthy, formal written document.

partnership

A business formed by two or more individuals or entities.

In a *limited partnership*, one or more *general partners* will run the business and have unlimited liability, but there will be one or more *limited partners* who will not actively participate in the business. A limited partner's liability for business debts is limited to the amount that partner contributes to the partnership. This form of organization is common in real estate ventures, for example.

The advantages and disadvantages of a partnership are basically the same as those of a proprietorship. Partnerships based on a relatively informal agreement are easy and inexpensive to form. General partners have unlimited liability for partnership debts, and the partnership terminates when a general partner wishes to sell out or dies. All income is taxed as personal income to the partners, and the amount of equity that can be raised is limited to the partners' combined wealth. As with sole proprietorships, beginning in 2018, up to 20 percent of a partner's income may be exempt depending on various rules spelled out in the Tax Cuts and Jobs Act of 2017. Ownership of a general partnership is not easily transferred because a transfer requires that a new partnership be formed. A limited partner's interest can be sold without dissolving the partnership, but finding a buyer may be difficult.

Because a partner in a general partnership can be held responsible for all partnership debts, having a written agreement is very important. Failure to spell out the rights and duties of the partners frequently leads to misunderstandings later on. Also, if you are a limited

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partner, you must not become deeply involved in business decisions unless you are willing to assume the obligations of a general partner. The reason is that if things go badly, you may be deemed to be a general partner even though you say you are a limited partner.

Based on our discussion, the primary disadvantages of sole proprietorships and partnerships as forms of business organization are (1) unlimited liability for business debts on the part of the owners, (2) limited life of the business, and (3) difficulty of transferring ownership. These three disadvantages add up to a single, central problem: The ability of such businesses to grow can be seriously limited by an inability to raise cash for investment.

CORPORATION

The **corporation** is the most important form (in terms of size) of business organization in the United States. A corporation is a legal "person," separate and distinct from its owners,

and it has many of the rights, duties, and privileges of an actual person. Corporations can borrow money and own property, sue and be sued, and enter into contracts. A corporation can even be a general partner or a limited partner in a partnership, and a corporation can own stock in another corporation.

corporation

A business created as a distinct legal entity composed of one or more individuals or entities.

Not surprisingly, starting a corporation is somewhat more complicated than starting the other forms of business organization. Forming a corporation involves preparing *articles of incorporation* (or a charter) and a set of *bylaws*. The articles of incorporation must contain a number of things, including the corporation's name, its intended life (which can be forever), its business purpose, and the number of shares that can be issued. This information must normally be supplied to the state in which the firm will be incorporated. For most legal purposes, the corporation is a "resident" of that state.

The bylaws are rules describing how the corporation regulates its existence. For example, the bylaws describe how directors are elected. These bylaws may be a simple statement of a few rules and procedures, or they may be quite extensive for a large corporation. The bylaws may be amended or extended from time to time by the stockholders.

In a large corporation, the stockholders and the managers are usually separate groups. The stockholders elect the board of directors, who then select the managers. Managers are charged with running the corporation's affairs in the stockholders' interests. In principle, stockholders control the corporation because they elect the directors.

As a result of the separation of ownership and management, the corporate form has several advantages. Ownership (represented by shares of stock) can be readily transferred, and the life of the corporation is therefore not limited. The corporation borrows money in its own name. As a result, the stockholders in a corporation have limited liability for corporate

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debts. The most they can lose is what they have invested.

The relative ease of transferring ownership, the limited liability for business debts, and the unlimited life of the business are why the corporate form is superior for raising cash. If a corporation needs new equity, for example, it can sell new shares of stock and attract new investors. Apple is an example. The company was a pioneer in the personal computer business. As demand for its products exploded, it had to convert to the corporate form of organization to raise the capital needed to fund growth and new product development. The number of owners can be huge; larger corporations have many thousands or even millions of stockholders. For example, in 2017, General Electric Company (better known as GE) had about 440,000 stockholders and about 8.7 billion shares outstanding. In such cases, ownership can change continuously without affecting the continuity of the business.

The corporate form has a significant disadvantage. Because a corporation is a legal person, it must pay taxes. Moreover, money paid out to stockholders in the form of dividends is taxed again as income to those stockholders. This is *double taxation*, meaning that corporate profits are taxed twice: First at the corporate level when they are earned and again at the personal level when they are paid out.[1]

Today, all 50 states have enacted laws allowing for the creation of a relatively new form of business organization, the limited liability company (LLC). The goal of this entity is to operate and be taxed like a partnership but retain limited liability for owners, so an LLC is essentially a hybrid of partnership and corporation. Although states have differing definitions for LLCs, the more important scorekeeper is the Internal Revenue Service (IRS). The IRS will consider an LLC a corporation, thereby subjecting it to double taxation, unless it meets certain specific criteria. In essence, an LLC cannot be too corporation-like, or it will be treated as one by the IRS. LLCs have become common. For example, Goldman, Sachs and Co., one of Wall Street's last remaining partnerships, decided to convert from a private

partnership to an LLC (it later "went public," becoming a publicly held corporation). Large accounting firms and law firms by the score have converted to LLCs.

TABLE 1.1
International Corporations

		Type of Company	
Company	**Country of Origin**	**In Original Language**	**Translated**
Bayerische Motoren Werke (BMW) AG	Germany	Aktiengesellschaft	Corporation
Dornier GmbH	Germany	Gesellschaft mit Beschränkter Haftung	Limited liability company
Rolls-Royce PLC	United Kingdom	Public limited company	Public limited company

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Shell UK Ltd.	United Kingdom	Limited	Corporation
Unilever NV	Netherlands	Naamloze Vennootschap	Joint stock company
Fiat SpA	Italy	Società per Azioni	Joint stock company
Volvo AB	Sweden	Aktiebolag	Joint stock company
Peugeot SA	France	Société Anonyme	Joint stock company

As the discussion in this section illustrates, because of their need for outside investors and creditors, the corporate form will generally be the best choice for large firms. We focus on corporations in the chapters ahead because of the importance of the corporate form in the United States and world economies. Also, a few important financial management issues, such as dividend policy, are unique to corporations. However, businesses of all types and sizes need financial management, so the majority of the subjects we discuss bear on any form of business.

A CORPORATION BY ANOTHER NAME . . .

The corporate form of organization has many variations around the world. The exact laws and regulations differ from country to country, of course, but the essential features of public ownership and limited liability remain. These firms are often called *joint stock companies*, *public limited companies*, or *limited liability companies*, depending on the specific nature of the firm and the country of origin.

Table 1.1 gives the names of a few well-known international corporations, their countries of origin, and a translation of the abbreviation that follows the company name.

Concept Questions

1.2a What are the three forms of business organization?

1.2b What are the primary advantages and disadvantages of sole proprietorships and partnerships?

1.2c What is the difference between a general and a limited partnership?

1.2d Why is the corporate form superior when it comes to raising cash?

1.3 The Goal of Financial Management

Assuming that we restrict ourselves to for-profit businesses, the goal of financial

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management is to make money or add value for the owners. This goal is a little vague, of course, so we examine some different ways of formulating it to come up with a more precise definition. Such a definition is important because it leads to an objective basis for making and evaluating financial decisions.

POSSIBLE GOALS

If we were to consider possible financial goals, we might come up with some ideas like the following:

Survive.

Avoid financial distress and bankruptcy.

Beat the competition.

Maximize sales or market share.

Minimize costs.

Maximize profits.

Maintain steady earnings growth.

These are only a few of the goals we could list. Furthermore, each of these possibilities presents problems as a goal for the financial manager.

For example, it's easy to increase market share or unit sales: All we have to do is lower our prices or relax our credit terms. Similarly, we can always cut costs simply by doing away with things such as research and development. We can avoid bankruptcy by never borrowing any money or never taking any risks, and so on. It's not clear that any of these actions are in the stockholders' best interests.

Profit maximization would probably be the most commonly cited goal, but even this is not a precise objective. Do we mean profits this year? If so, we should note that actions such as deferring maintenance, letting inventories run down, and taking other short-run cost-cutting measures will tend to increase profits now, but these activities aren't necessarily desirable.

The goal of maximizing profits may refer to some sort of "long-run" or "average" profits, but it's still unclear exactly what this means. First, do we mean something like accounting net income or earnings per share? As we will see in more detail in the next chapter, these accounting numbers may have little to do with what is good or bad for the firm. Second, what do we mean by the long run? As a famous economist once remarked, in the long run, we're all dead! More to the point, this goal doesn't tell us what the appropriate trade-off is between current and future profits.

The goals we've listed here are all different, but they tend to fall into two classes. The first of these relates to profitability. The goals involving sales, market share, and cost control all relate, at least potentially, to different ways of earning or increasing profits. The goals in

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the second group, involving bankruptcy avoidance, stability, and safety, relate in some way to controlling risk. Unfortunately, these two types of goals are somewhat contradictory. The pursuit of profit normally involves some element of risk, so it isn't really possible to maximize both safety and profit. What we need, therefore, is a goal that encompasses both factors.

THE GOAL OF FINANCIAL MANAGEMENT

The financial manager in a corporation makes decisions for the stockholders of the firm. Given this, instead of listing possible goals for the financial manager, we really need to answer a more fundamental question: From the stockholders' point of view, what is a good financial management decision?

If we assume that stockholders buy stock because they seek to gain financially, then the answer is obvious: Good decisions increase the value of the stock, and poor decisions decrease the value of the stock.

Given our observations, it follows that the financial manager acts in the shareholders' best interests by making decisions that increase the value of the stock. The appropriate goal for the financial manager can thus be stated quite easily:

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The goal of financial management is to maximize the current value per share of the existing stock.

The goal of maximizing the value of the stock avoids the problems associated with the different goals we listed earlier. There is no ambiguity in the criterion, and there is no short-run versus long-run issue. We explicitly mean that our goal is to maximize the *current* stock value.

If this goal seems a little strong or one-dimensional to you, keep in mind that the stockholders in a firm are residual owners. By this we mean that they are entitled to only what is left after employees, suppliers, and creditors (and anyone else with a legitimate claim) are paid their due. If any of these groups go unpaid, the stockholders get nothing. So, if the stockholders are winning in the sense that the leftover, residual portion is growing, it must be true that everyone else is winning also.

Because the goal of financial management is to maximize the value of the stock, we need to learn how to identify investments and financing arrangements that favorably impact the value of the stock. This is precisely what we will be studying. In fact, we could have defined *corporate finance* as the study of the relationship between business decisions and the value of the stock in the business.

A MORE GENERAL GOAL

Given our goal as stated in the preceding section (maximize the value of the stock), an

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obvious question comes up: What is the appropriate goal when the firm has no traded stock? Corporations are certainly not the only type of business; and the stock in many corporations rarely changes hands, so it's difficult to say what the value per share is at any given time.

As long as we are dealing with for-profit businesses, only a slight modification is needed. The total value of the stock in a corporation is simply equal to the value of the owners' equity. Therefore, a more general way of stating our goal is as follows: Maximize the market value of the existing owners' equity.

With this in mind, it doesn't matter whether the business is a proprietorship, a partnership, or a corporation. For each of these, good financial decisions increase the market value of the owners' equity and poor financial decisions decrease it. In fact, although we focus on corporations in the chapters ahead, the principles we develop apply to all forms of business. Many of them even apply to the not-for-profit sector.

Finally, our goal does not imply that the financial manager should take illegal or unethical actions in the hope of increasing the value of the equity in the firm. What we mean is that the financial manager best serves the owners of the business by identifying goods and services that add value to the firm because they are desired and valued in the free marketplace.

SARBANES-OXLEY

In response to corporate scandals at companies such as Enron, WorldCom, Tyco, and Adelphia, Congress enacted the Sarbanes-Oxley Act in 2002. The act, better known as "Sarbox," is intended to protect investors from corporate abuses. For example, one section of Sarbox prohibits personal loans from a company to its officers, such as the ones that were received by WorldCom CEO Bernie Ebbers.

One of the key sections of Sarbox took effect on November 15, 2004. Section 404 requires, among other things, that each company's annual report must have an assessment of the company's internal control structure and financial reporting. An independent auditor must then evaluate and attest to management's assessment of these issues.

Sarbox contains other key requirements. For example, the officers of the corporation must review and sign the annual reports. They must explicitly declare that the annual report does not contain any false statements or material omissions; that the financial statements fairly represent the financial results; and that they are responsible for all internal controls. Finally, the annual report must list any deficiencies in internal controls. In essence, Sarbox makes company management responsible for the accuracy of the company's financial statements.

Because of its extensive reporting requirements, compliance with Sarbox can be very costly, which has led to some unintended results. Since its implementation, hundreds of public firms have chosen to "go dark," meaning that their shares are no longer traded on the major stock exchanges, in which case Sarbox does not apply. Most of these companies stated that their reason was to avoid the cost of compliance. Ironically, in such cases, the law has had the effect of eliminating public disclosure instead of improving it.

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For more about Sarbanes-Oxley, visit **www.soxlaw.com**.

Concept Questions

1.3a What is the goal of financial management?

1.3b What are some shortcomings of the goal of profit maximization?

1.3c Can you give a definition of *corporate finance*?

1.4 The Agency Problem and Control of the Corporation

We've seen that the financial manager acts in the best interests of the stockholders by taking actions that increase the value of the stock. However, we've also seen that in large corporations ownership can be spread over a huge number of stockholders. This dispersion of ownership arguably means that management effectively controls the firm. In this case, will management necessarily act in the best interests of the stockholders? Put another way, might management choose to pursue its own goals at the stockholders' expense? In the following pages, we briefly consider some of the arguments relating to this question.

AGENCY RELATIONSHIPS

The relationship between stockholders and management is called an *agency relationship*. Such a relationship exists whenever someone (the principal) hires another (the agent) to represent his or her interests. For example, you might hire someone (an agent) to sell a car you own while you are away at school. In all such relationships, there is a possibility of conflict of interest between the principal and the agent. Such a conflict is called an **agency problem**.

agency problem
The possibility of conflict of interest between the stockholders and management of a firm.

Suppose you hire someone to sell your car and agree to pay that person a flat fee when he or she sells the car. The agent's incentive in this case is to make the sale, not necessarily to get you the best price. If you offer a commission of, say, 10 percent of the sales price instead of a flat fee, then this problem might not exist. This example illustrates that the way in which an agent is compensated is one factor that affects agency problems.

MANAGEMENT GOALS

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To see how management and stockholder interests might differ, imagine that the firm is considering a new investment. The new investment is expected to favorably impact the share value, but it is also a relatively risky venture. The owners of the firm will wish to

take the investment (because the stock value will rise), but management may not because there is the possibility that things will turn out badly and management jobs will be lost. If management does not take the investment, then the stockholders may lose a valuable opportunity. This is one example of an agency cost.

More generally, the term *agency costs* refers to the costs of the conflict of interest between stockholders and management. These costs can be indirect or direct. An indirect agency cost is a lost opportunity, such as the one we have just described.

Direct agency costs come in two forms. The first type is a corporate expenditure that benefits management but costs the stockholders. Perhaps the purchase of a luxurious and unneeded corporate jet would fall under this heading. The second type of direct agency cost is an expense that arises from the need to monitor management actions. Paying outside auditors to assess the accuracy of financial statement information could be one example.

It is sometimes argued that, left to themselves, managers would tend to maximize the amount of resources over which they have control or, more generally, corporate power or wealth. This goal could lead to an overemphasis on corporate size or growth. For example, cases in which management is accused of overpaying to buy another company just to increase the size of the business or to demonstrate corporate power are not uncommon. Obviously, if overpayment does take place, such a purchase does not benefit the stockholders of the purchasing company.

Our discussion indicates that management may tend to overemphasize organizational survival to protect job security. Also, management may dislike outside interference, so independence and corporate self-sufficiency may be important goals.

DO MANAGERS ACT IN THE STOCKHOLDERS' INTERESTS?

Whether managers will, in fact, act in the best interests of stockholders depends on two factors. First, how closely are management goals aligned with stockholder goals? This question relates, at least in part, to the way managers are compensated. Second, can managers be replaced if they do not pursue stockholder goals? This issue relates to control of the firm. As we will discuss, there are a number of reasons to think that even in the largest firms, management has a significant incentive to act in the interests of stockholders.

Managerial Compensation

Management will frequently have a significant economic incentive to increase share value for two reasons. First, managerial compensation, particularly at the top, is usually tied to financial performance in general and often to share value in particular. For example, managers are frequently given the option to buy stock at a bargain price. The more the stock is worth, the more valuable is this option. In fact, options are often used to motivate

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employees of all types, not just top managers. For example, in late 2016, Alphabet's more than 72,000 employees owned enough options to buy 3.3 million shares in the company. Many other corporations, large and small, have adopted similar policies.

The second incentive managers have relates to job prospects. Better performers within the firm will tend to get promoted. More generally, managers who are successful in pursuing stockholder goals will be in greater demand in the labor market and thus command higher salaries.

In fact, managers who are successful in pursuing stockholder goals can reap enormous rewards. For example, according to Equilar, the best-paid executive in 2016 was Thomas Rutledge, the CEO of Charter Communications, who made about $98 million. By way of comparison, Rutledge made less than performer Katy Perry ($135 million) and way less than boxer Floyd Mayweather ($300 million). Information about executive compensation, along with lots of other information, can be easily found on the web for almost any public company. Our nearby *Work the Web* box shows you how to get started.

WORK THE WEB

The web is a great place to learn more about individual companies, and there are a slew of sites available to help you. Try pointing your web browser to finance.yahoo.com. Once you get there, you should see a link for a "Quote Lookup".

To look up a company, you can use its "ticker symbol" (or just ticker for short), which is a unique one- to five-letter identifier. You can even type the company name into the lookup box and Yahoo Finance will show you the ticker symbol. We typed in "PZZA", which is the ticker for pizza maker Papa John's. Here is a portion of what we found:

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There's a lot of information here and many links for you to explore, so have at it. By the end of the term, we hope it all makes sense to you!

Questions

1. *Go to finance.yahoo.com and find the current stock prices for Southwest Airlines (LUV), Harley-Davidson (HOG), and Anheuser-Busch InBev (BUD).*
2. *Get a quote for American Express (AXP) and follow the "Statistics" link. What information is available on this link? What do mrq, ttm, yoy, and lfy mean?*

While the appropriate level of executive compensation can be debated, bonuses and other payments made to executives who receive payments due to illegal or unethical behavior are a problem. Recently, "clawbacks" and deferred compensation have been introduced to combat such questionable payments. With a clawback, a bonus can be reclaimed by the company for specific reasons, such as fraud. For example, in 2016, former Wells Fargo CEO John Stumpf was forced to forfeit $41 million and former retail banking head Carrie Tolstedt had to give up $19 million due to behavior while the two led the company. Then, in April 2017, Stumpf was forced to return another $28 million and Tolstedt was forced to return an additional $47.3 million. The use of deferred compensation has

also increased. Deferred compensation is money paid to an executive several years after it is earned. With a deferred compensation agreement, if circumstances warrant, the payment can

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be canceled.

Business ethics are considered at **www.business-ethics.com**.

Control of the Firm

Control of the firm ultimately rests with stockholders. They elect the board of directors, who in turn hire and fire managers. The fact that stockholders control the corporation was made abundantly clear by Steve Jobs's experience at Apple. Even though he was a founder of the corporation and was largely responsible for its most successful products, there came a time when shareholders, through their elected directors, decided that Apple would be better off without him, so out he went. Of course, he was later rehired and helped turn Apple around with great new products such as the iPod, iPhone, and iPad. Going back to the chapter opener, why would Facebook, specifically Mark Zuckerberg, want to create new shares of stock with no voting rights? The answer is that Zuckerberg had pledged to give away 99 percent of his shares in Facebook during his lifetime. The new C shares he received with no voting rights were to be given to the Chan Zuckerberg Initiative, a philanthropic entity that he created. Therefore, even in giving away these shares, he still retained control of Facebook. In Alphabet's case, Brin and Page had seen their voting power drop to about 56 percent of votes because of the number of Class A shares issued to fund acquisitions and employee stock awards. The new Class C shares were to be used to fund these areas going forward.

An important mechanism by which unhappy stockholders can act to replace existing management is called a *proxy fight*. A proxy is the authority to vote someone else's stock. A proxy fight develops when a group solicits proxies in order to replace the existing board and thereby replace existing managers. For example, in 2016, activist investor Starboard Value LP launched a proxy battle with Yahoo!, arguing that Yahoo! should sell its core business. In response, Yahoo! agreed to a deal that granted four seats on its board of directors to Starboard's nominees—and thus a long proxy fight was defused. Several months later, Yahoo! announced that it would be purchased by Verizon for $4.8 billion, although the acquisition price was reduced by $350 million due to a 2013 e-mail hack experienced by Yahoo! that had not been made public.

Another way that managers can be replaced is by takeover. Firms that are poorly managed are more attractive as acquisitions because a greater profit potential exists. Thus, avoiding a takeover gives management another incentive to act in the stockholders' interests. For example, in 2016, Marriott completed its takeover of Starwood Hotels. Marriott expected to save $250 million per year in operating the combined companies, with much of the savings coming from job cuts in the executive ranks at Starwood. In short, Marriott bought Starwood and fired most of its top executives, eliminating those salaries and saving money.

Conclusion

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The available theory and evidence are consistent with the view that stockholders control the firm and that stockholder wealth maximization is the relevant goal of the corporation. Even so, there will undoubtedly be times when management goals are pursued at the expense of the stockholders, at least temporarily.

STAKEHOLDERS

Our discussion thus far implies that management and stockholders are the only parties with an interest in the firm's decisions. This is an oversimplification, of course. Employees, customers, suppliers, and even the government all have a financial interest in the firm.

Taken together, these various groups are called **stakeholders** in the firm. In general, a stakeholder is someone other than a stockholder or creditor who potentially has a claim on the cash flows of the firm. Such groups will also attempt to exert control over the firm, perhaps to the detriment of the owners.

stakeholder
Someone other than a stockholder or creditor who potentially has a claim on the cash flows of the firm.

Concept Questions

1.4a What is an agency relationship?

1.4b What are agency problems and how do they come about? What are agency costs?

1.4c What incentives do managers in large corporations have to maximize share value?

1.5 Financial Markets and the Corporation

We've seen that the primary advantages of the corporate form of organization are that ownership can be transferred more quickly and easily than with other forms and that money can be raised more readily. Both of these advantages are significantly enhanced by the existence of financial markets, and financial markets play an extremely important role in corporate finance.

CASH FLOWS TO AND FROM THE FIRM

The interplay between the corporation and the financial markets is illustrated in Figure 1.2. The arrows in Figure 1.2 trace the passage of cash from the financial markets to the firm and

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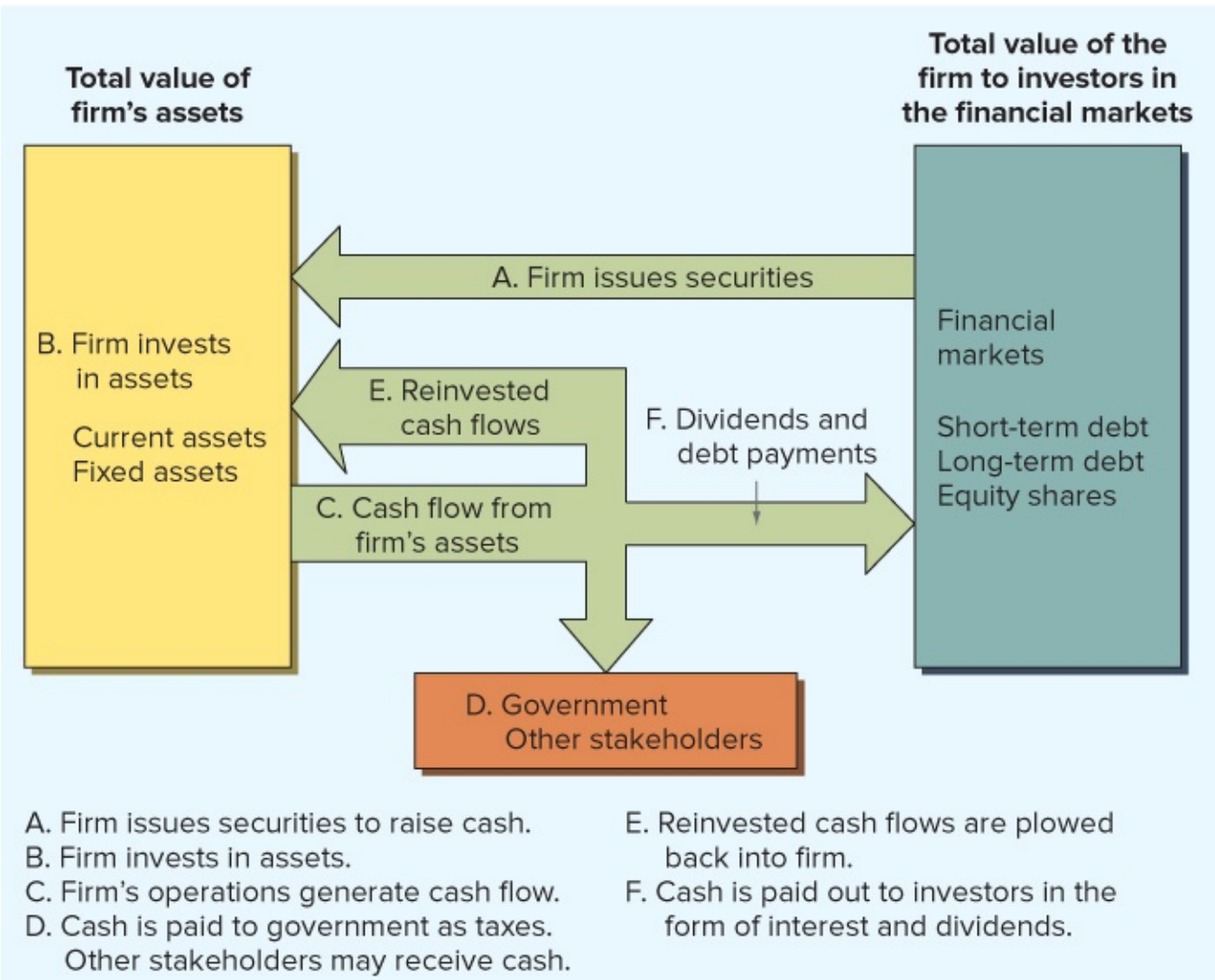
from the firm back to the financial markets.

Suppose we start with the firm selling shares of stock and borrowing money to raise cash. Cash flows to the firm from the financial markets (A). The firm invests the cash in current and fixed assets (B). These assets generate cash (C), some of which goes to pay corporate taxes (D). After taxes are paid, some of this cash flow is reinvested in the firm (E). The rest goes back to the financial markets as cash paid to creditors and shareholders (F).

FIGURE 1.2

Cash Flows between the Firm and the Financial Markets



A financial market, like any market, is just a way of bringing buyers and sellers together. In financial markets, it is debt and equity securities that are bought and sold. Financial markets differ in detail, however. The most important differences concern the types of securities that are traded, how trading is conducted, and who the buyers and sellers are. Some of these differences are discussed next.

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PRIMARY VERSUS SECONDARY MARKETS

Financial markets function as both primary and secondary markets for debt and equity securities. The term *primary market* refers to the original sale of securities by governments and corporations. The *secondary markets* are those in which these securities are bought and sold after the original sale. Equities are, of course, issued solely by corporations. Debt securities are issued by both governments and corporations. In the discussion that follows, we focus on corporate securities only.

Primary Markets

In a primary market transaction, the corporation is the seller, and the transaction raises money for the corporation. Corporations engage in two types of primary market transactions: public offerings and private placements. A public offering, as the name suggests, involves selling securities to the general public, whereas a private placement is a negotiated sale involving a specific buyer.

By law, public offerings of debt and equity must be registered with the Securities and Exchange Commission (SEC). Registration requires the firm to disclose a great deal of information before selling any securities. The accounting, legal, and selling costs of public offerings can be considerable.

Partly to avoid the various regulatory requirements and the expense of public offerings, debt and equity are often sold privately to large financial institutions such as life insurance companies or mutual funds. Such private placements do not have to be registered with the SEC and do not require the involvement of underwriters (investment banks that specialize in selling securities to the public).

To learn more about the SEC, visit **www.sec.gov**.

Secondary Markets

A secondary market transaction involves one owner or creditor selling to another. Therefore, the secondary markets provide the means for transferring ownership of corporate securities. Although a corporation is directly involved only in a primary market transaction (when it sells securities to raise cash), the secondary markets are still critical to large corporations. The reason is that investors are much more willing to purchase securities in a primary market transaction when they know that those securities can later be resold if desired.

Dealer versus Auction Markets

There are two kinds of secondary markets: *auction* markets and *dealer* markets. Generally speaking, dealers buy and sell for themselves, at their own risk. A car dealer, for example, buys and sells automobiles. In contrast, brokers and agents match buyers and sellers, but they

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do not actually own the commodity that is bought or sold. A real estate agent, for example, does not normally buy and sell houses.

Dealer markets in stocks and long-term debt are called *over-the-counter* (OTC) markets. Most trading in debt securities takes place over the counter. The expression *over the counter* refers to days of old when securities were literally bought and sold at counters in offices around the country. Today, a significant fraction of the market for stocks and almost all of the market for long-term debt have no central location; the many dealers are connected electronically.

Auction markets differ from dealer markets in two ways. First, an auction market or exchange has a physical location (like Wall Street). Second, in a dealer market, most of the buying

and selling is done by the dealer. The primary purpose of an auction market, on the other hand, is to match those who wish to sell with those who wish to buy. Dealers play a limited role.

Trading in Corporate Securities

The equity shares of most of the large firms in the United States trade in organized auction markets. The largest such market is the New York Stock Exchange (NYSE). There is also a large OTC market for stocks. In 1971, the National Association of Securities Dealers (NASD) made available to dealers and brokers an electronic quotation system called NASDAQ (which originally stood for NASD Automated Quotation system and is pronounced "naz-dak"). NASDAQ-listed companies tend to be smaller and trade less actively. There are exceptions, of course. Both Microsoft and Intel trade OTC, for example. Nonetheless, the total value of NASDAQ stocks is much less than the total value of NYSE stocks.

To learn more about the exchanges, visit **www.nyse.com** and **www.nasdaq.com**.

There are many large and important financial markets outside the United States, of course, and U.S. corporations are increasingly looking to these markets to raise cash. The Tokyo Stock Exchange and the London Stock Exchange (TSE and LSE, respectively) are two well-known examples. The fact that OTC markets have no physical location means that national borders do not present a great barrier, and there is now a huge international OTC debt market. Because of globalization, financial markets have reached the point where trading in many investments never stops; it just travels around the world.

Listing

Stocks that trade on an organized exchange are said to be *listed* on that exchange. To be

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listed, firms must meet certain minimum criteria concerning, for example, asset size and number of shareholders. These criteria differ from one exchange to another.

The NYSE has the most stringent requirements of the exchanges in the United States. For example, to be listed on the NYSE, a company is expected to have a market value for its publicly held shares of at least $100 million. There are additional minimums on earnings, assets, and number of shares outstanding.

Concept Questions

1.5a What is a dealer market? How do dealer and auction markets differ?

1.5b What does *OTC* stand for? What is the large OTC market for stocks called?

1.5c What is the largest auction market in the United States?

1.6 Summary and Conclusions

This chapter introduced you to some of the basic ideas in corporate finance:

1. Corporate finance has three main areas of concern:
   a. Capital budgeting: What long-term investments should the firm undertake?
   b. Capital structure: Where will the firm get the long-term financing to pay for its investments? In other words, what mixture of debt and equity should the firm use to fund operations?
   c. Working capital management: How should the firm manage its everyday financial activities?
2. The goal of financial management in a for-profit business is to make decisions that increase the value of the stock or, more generally, increase the market value of the equity.

3. The corporate form of organization is superior to other forms when it comes to raising money and transferring ownership interests, but it has the significant disadvantage of double taxation.
4. There is the possibility of conflicts between stockholders and management in a large corporation. We called these conflicts *agency problems* and discussed how they might be controlled and reduced.
5. The advantages of the corporate form are enhanced by the existence of financial markets. Financial markets function as both primary and secondary markets for

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corporate securities and can be organized as either dealer or auction markets.

Of the topics we've discussed thus far, the most important is the goal of financial management: Maximizing the value of the stock. Throughout the text, we will be analyzing many different financial decisions, but we will always ask the same question: How does the decision under consideration affect the value of the stock?

CONNECT TO FINANCE

connect *Connect Finance* offers you plenty of opportunities to practice mastering these concepts. Log on to connect.mheducation.com to learn more. If you like what you see, ask your professor about using *Connect Finance*!

Can you answer the following *Connect* Quiz questions?

Section 1.1 Deciding which fixed assets should be purchased is an example of what type of decision?

Section 1.2 What form of ownership is easiest to transfer?

Section 1.3 What best describes the goal of financial management?

Section 1.4 In a corporation, the primary agency conflict arises between which two parties?

CONCEPTS REVIEW AND CRITICAL THINKING QUESTIONS

1. **The Financial Management Decision Process [LO1]** What are the three types of financial management decisions? For each type of decision, give an example of a business transaction that would be relevant.
2. **Sole Proprietorships and Partnerships [LO3]** What are the four primary disadvantages of the sole proprietorship and partnership forms of business organization? What benefits are there to these types of business organization as opposed to the corporate form?
3. **Corporations [LO3]** What is the primary disadvantage of the corporate form of organization? Name at least two advantages of corporate organization.
4. **Sarbanes-Oxley [LO4]** In response to the Sarbanes-Oxley Act, many small firms

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in the United States have opted to “go dark” and delist their stock. Why might a company choose this route? What are the costs of “going dark”?

5. **Corporate Finance Organization [LO1]** In a large corporation, what are the two distinct groups that report to the chief financial officer? Which group is the focus of corporate finance?

6. **Goal of Financial Management [LO2]** What goal should always motivate the actions of a firm’s financial manager?
7. **Agency Problems [LO4]** Who owns a corporation? Describe the process whereby the owners control the firm’s management. What is the main reason that an agency relationship exists in the corporate form of organization? In this context, what kinds of problems can arise?
8. **Primary versus Secondary Markets [LO3]** You’ve probably noticed coverage in the financial press of an initial public offering (IPO) of a company’s securities. Is an IPO a primary market transaction or a secondary market transaction?
9. **Auction versus Dealer Markets [LO3]** What does it mean when we say the New York Stock Exchange is an auction market? How are auction markets different from dealer markets? What kind of market is NASDAQ?
10. **Not-for-Profit Firm Goals [LO2]** Suppose you were the financial manager of a not-for-profit business (a not-for-profit hospital, perhaps). What kinds of goals do you think would be appropriate?
11. **Goal of the Firm [LO2]** Evaluate the following statement: Managers should not focus on the current stock value because doing so will lead to an overemphasis on short-term profits at the expense of long-term profits.
12. **Ethics and Firm Goals [LO2]** Can our goal of maximizing the value of the stock conflict with other goals, such as avoiding unethical or illegal behavior? In particular, do you think subjects like customer and employee safety, the environment, and the general good of society fit in this framework, or are they essentially ignored? Think of some specific scenarios to illustrate your answer.
13. **International Firm Goal [LO2]** Would our goal of maximizing the value of the stock be different if we were thinking about financial management in a foreign country? Why or why not?
14. **Agency Problems [LO4]** Suppose you own stock in a company. The current price per share is $25. Another company has just announced that it wants to buy your company and will pay $35 per share to acquire all the outstanding stock. Your company’s management immediately begins fighting off this hostile bid. Is management acting in the shareholders’ best interests? Why or why not?
15. **Agency Problems and Corporate Ownership [LO4]** Corporate ownership varies around the world. Historically individuals have owned the majority of

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shares in public corporations in the United States. In Germany and Japan, however, banks, other large financial institutions, and other companies own most of the stock in public corporations. Do you think agency problems are likely to be more or less severe in Germany and Japan than in the United States? Why? Over the last few decades, large financial institutions such as mutual funds and pension funds have been becoming the dominant owners of stock in the United States, and these institutions are becoming more active in corporate affairs. What are the implications of this trend for agency problems and corporate control?

16. **Executive Compensation** [LO4] Critics have charged that compensation to top managers in the United States is simply too high and should be cut back. For example, focusing on large corporations, Mark Parker, CEO of Nike, earned about $47.6 million in 2016. Are such amounts excessive? In answering, it might be helpful to recognize that superstar athletes such as LeBron James, top entertainers such as Taylor Swift and Dwayne Johnson, and many others at the top of their respective fields earn at least as much, if not a great deal more.

MINICASE

The McGee Cake Company

In early 2013, Doc and Lyn McGee formed the McGee Cake Company. The company produced a full line of cakes, and its specialties included chess cake,* lemon pound cake, and double-iced, double-chocolate cake. The couple formed the company as an outside interest, and both continued to work at their current jobs. Doc did all the baking, and Lyn handled the marketing and distribution. With good product quality and a sound marketing plan, the company grew rapidly. In early 2016, the company was featured in a widely distributed entrepreneurial magazine. Later that year, the company was featured in *Gourmet Desserts*, a leading specialty food magazine. After the article appeared in *Gourmet Desserts*, sales exploded, and the company began receiving orders from all over the world.

Because of the increased sales, Doc left his other job, followed shortly by Lyn. The company hired additional workers to meet demand. Unfortunately, the fast growth experienced by the company led to cash flow and capacity problems. The company is currently producing as many cakes as possible with the assets it owns, but demand for its cakes is still growing. Further, the company has been approached by a national supermarket chain with a proposal to put four of its cakes in all of the chain's stores, and a national restaurant chain has contacted the company about selling McGee cakes in its restaurants. The restaurant would sell the cakes without a brand name.

Doc and Lyn have operated the company as a sole proprietorship. They have

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approached you to help manage and direct the company's growth. Specifically, they have asked you to answer the following questions.

QUESTIONS

1. What are the advantages and disadvantages of changing the company organization from a sole proprietorship to an LLC?
2. What are the advantages and disadvantages of changing the company organization from a sole proprietorship to a corporation?
3. Ultimately, what action would you recommend the company undertake? Why?

---

*Chess cake is quite delicious and distinct from cheesecake. The origin of the name is obscure.

---

[1]An S corporation is a special type of small corporation that is essentially taxed like a partnership and thus avoids double taxation. In 2017, the maximum number of shareholders in an S corporation was 100.

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Chapter

2

Financial Statements, Taxes, and Cash Flow

IN DECEMBER 2017, the Tax Cuts and Jobs Act was enacted into law beginning in 2018. The new law was a sweeping change to corporate taxes in the U.S. For example, rather than depreciating an asset over time for tax purposes, companies are allowed to depreciate the entire purchase price in the first year. Another change was a limit to the tax deductibility of interest expense. However, possibly the biggest change was the switch from a graduated corporate income tax structure, which ranged from 15 percent to 39 percent, to a flat 21 percent corporate tax rate.

While the change in the corporate tax rate affects net income, there is a more important impact. Because taxes are a key consideration in making investment decisions, the change in the tax rate could lead to a significant change in corporate behavior. Understanding why ultimately leads us to the main subject of this chapter: That all-important substance known as *cash flow*.

Learning Objectives

After studying this chapter, you should be able to:

LO1 Describe the difference between accounting value (or *book value*) and market value.

LO2 Describe the difference between accounting income and cash flow.

LO3 Describe the difference between average and marginal tax rates.

LO4 Determine a firm's cash flow from its financial statements.

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For updates on the latest happenings in finance, visit fundamentalsofcorporatefinance.blogspot.com.

In this chapter, we examine financial statements, taxes, and cash flow. Our emphasis is not on preparing financial statements. Instead, we recognize that financial statements are frequently a key source of information for financial decisions, so our goal is to briefly examine such statements and point out some of their more relevant features. We pay special attention to some of the practical details of cash flow.

As you read, pay particular attention to two important differences: (1) the difference between accounting value and market value and (2) the difference between accounting income and cash flow. These distinctions will be important throughout the book.

2.1 The Balance Sheet

The **balance sheet** is a snapshot of the firm. It is a convenient means of organizing and summarizing what a firm owns (its assets), what a firm owes (its liabilities), and the difference between the two (the firm's equity) at a given point in time. Figure 2.1 illustrates how the balance sheet is constructed. As shown, the left side lists the assets of the firm, and the right side lists the liabilities and equity.

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balance sheet
Financial statement showing a firm's accounting value on a particular date.

ASSETS: THE LEFT SIDE

Assets are classified as either *current* or *fixed* assets. A fixed asset is one that has a relatively long life. Fixed assets can be either *tangible*, such as a truck or a computer, or *intangible*, such as a trademark or patent. A current asset has a life of less than one year. This means that the asset will convert to cash within 12 months. For example, inventory would normally be purchased and sold within a year and is classified as a current asset. Obviously, cash itself is a current asset. Accounts receivable (money owed to the firm by its customers) are also

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current assets.

Three excellent sites for company financial information are **finance.yahoo.com**, **finance.google.com**, and **money.cnn.com**.

LIABILITIES AND OWNERS' EQUITY: THE RIGHT SIDE

The firm's liabilities are the first thing listed on the right side of the balance sheet. These are classified as either *current* or *long-term*. Current liabilities, like current assets, have a life of less than one year (meaning they must be paid within the year) and are listed before long-term liabilities. Accounts payable (money the firm owes to its suppliers) are one example of a current liability.

A debt that is not due in the coming year is classified as a long-term liability. A loan that the firm will pay off in five years is one such long-term debt. Firms borrow in the long term from a variety of sources. We will tend to use the terms *bond* and *bondholders* generically to refer to long-term debt and long-term creditors, respectively.

Finally, by definition, the difference between the total value of the assets (current and fixed) and the total value of the liabilities (current and long-term) is the *shareholders' equity*, also called *common equity* or *owners' equity*. This feature of the balance sheet is intended to reflect the fact that, if the firm were to sell all its assets and use the money to pay off its debts, then whatever residual value remained would belong to the shareholders. So, the balance sheet "balances" because the value of the left side always equals the value

of the right side. That is, the value of the firm's assets is equal to the sum of its liabilities and shareholders' equity:[1]

FIGURE 2.1

The Balance Sheet. Left Side: Total Value of Assets. Right Side: Total Value of Liabilities and Shareholders' Equity.

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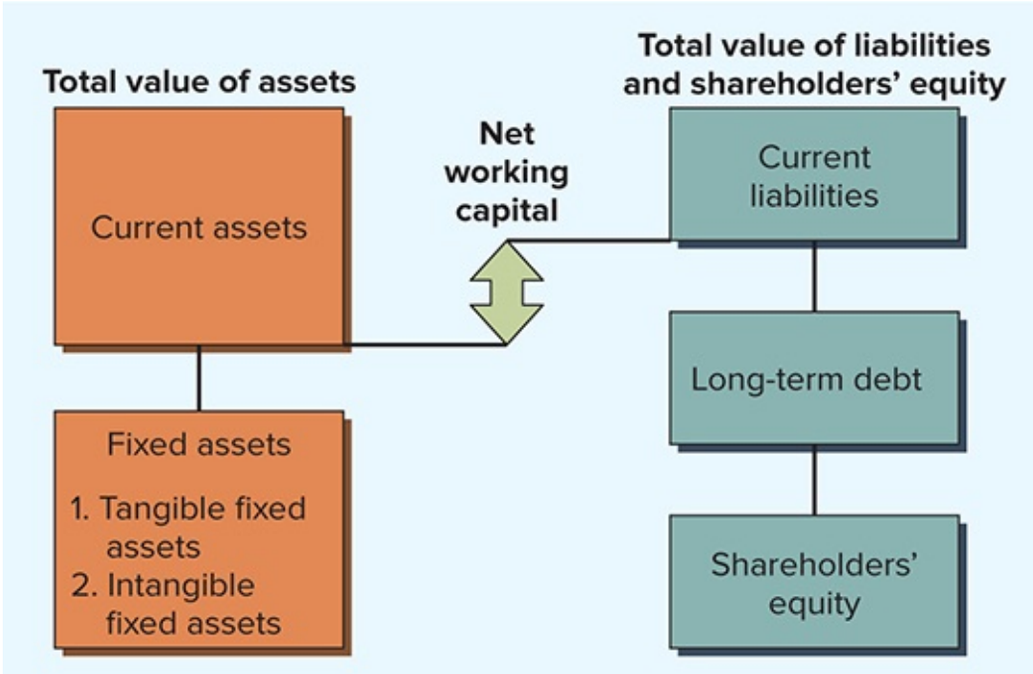

$$\text{Assets} = \text{Liabilities} + \text{Shareholders/equity} \quad (2.1)$$

This is the *balance sheet identity*, or equation, and it always holds because shareholders' equity is defined as the difference between assets and liabilities.

NET WORKING CAPITAL

As shown in Figure 2.1, the difference between a firm's current assets and its current liabilities is called **net working capital**. Net working capital is positive when current assets exceed current liabilities. Based on the definitions of current assets and current liabilities, this means the cash that will become available over the next 12 months exceeds the cash that must be paid over the same period. For this reason, net working capital is usually positive in a healthy firm.

net working capital

Current assets less current liabilities.

EXAMPLE 2.1 Building the Balance Sheet

A firm has current assets of $100, net fixed assets of $500, short-term debt of $70, and long-term debt of $200. What does the balance sheet look like? What is shareholders' equity? What is net working capital?

In this case, total assets are $100 + 500 = $600 and total liabilities are $70 + 200 = $270, so shareholders' equity is the difference: $600 − 270 = $330. The balance sheet would look like this:

Assets	Liabilities and Shareholders' Equity

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Current assets	$100	Current liabilities	$ 70
Net fixed assets	500	Long-term debt	200
		Shareholders' equity	330
Total assets	$600	Total liabilities and shareholders' equity	$600

Net working capital is the difference between current assets and current liabilities, or $100 − 70 = $30.

Table 2.1 shows simplified balance sheets for the fictitious U.S. Corporation. The assets on the balance sheet are listed in order of the length of time it takes for them to convert to cash in the normal course of business. Similarly, the liabilities are listed in the order in which they would normally be paid.

The structure of the assets for a particular firm reflects the line of business the firm is in, as well as managerial decisions regarding how much cash and inventory to have on hand, the firm's credit policy, fixed-asset acquisitions, and so on.

The liabilities side of the balance sheet primarily reflects managerial decisions about capital structure and the use of short-term debt. For example, in 2018, total long-term debt for U.S. Corporation was $454 and total equity was $640 + 1,690 = $2,330, so total long-term financing was $454 + 2,330 = $2,784. (Note that, throughout, all figures are in millions of dollars.) Of this amount, $454/$2,784 = 16.31 percent was long-term debt. This percentage reflects capital structure decisions made in the past by the management of U.S.

Disney has a good investor relations site at **thewaltdisneycompany.com/investors**.

TABLE 2.1
Balance Sheets

U.S. CORPORATION 2017 and 2018 Balance Sheets ($ in millions)					
Assets			**Liabilities and Owners' Equity**		
	2017	**2018**		**2017**	**2018**
Current assets			Current liabilities		
Cash	$ 104	$ 221	Accounts payable	$ 232	$ 266
Accounts receivable	455	688	Notes payable	196	123
Inventory	553	555	Total	$ 428	$ 389

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Total	$1,112	$1,464			
Fixed assets					
Net plant and equipment	$1,644	$1,709	Long-term debt	$ 408	$ 454
			Owners' equity		
			Common stock and paid-in surplus	600	640
			Retained earnings	1,320	1,690
			Total	$1,920	$2,330
Total assets	$2,756	$3,173	Total liabilities and owners' equity	$2,756	$3,173

There are three particularly important things to keep in mind when examining a balance sheet: liquidity, debt versus equity, and market value versus book value.

LIQUIDITY

Liquidity refers to the speed and ease with which an asset can be converted to cash. Gold is a relatively liquid asset; a custom manufacturing facility is not. Liquidity actually has two dimensions: Ease of conversion versus loss of value. Any asset can be converted to cash quickly if we cut the price enough. A highly liquid asset is therefore one that can be quickly sold without significant loss of value. An illiquid asset is one that cannot be quickly converted to cash without a substantial price reduction.

Assets are normally listed on the balance sheet in order of decreasing liquidity, meaning that the most liquid assets are listed first. Current assets are relatively liquid and include cash and assets we expect to convert to cash over the next 12 months. Accounts receivable, for example, represent amounts not yet collected from customers on sales already made. Naturally, we hope these will convert to cash in the near future. Inventory is probably the least liquid of the current assets, at least for many businesses.

Annual and quarterly financial statements (and lots more) for most public U.S. corporations can be found in the EDGAR database at **www.sec.gov**.

Fixed assets are, for the most part, relatively illiquid. These consist of tangible things such as buildings and equipment that don't convert to cash at all in normal business activity (they are, of course, used in the business to generate cash). Intangible assets, such as a trademark, have no physical existence but can be very valuable. Like tangible fixed assets, they won't ordinarily convert to cash and are generally considered illiquid.

Liquidity is valuable. The more liquid a business is, the less likely it is to experience

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financial distress (that is, difficulty in paying debts or buying needed assets). Unfortunately, liquid assets are generally less profitable to hold. Cash holdings are the most liquid of all investments, but they sometimes earn no return at all—they just sit there. There is therefore a trade-off between the advantages of liquidity and forgone potential profits.

DEBT VERSUS EQUITY

To the extent that a firm borrows money, it usually gives first claim to the firm's cash flow to creditors. Equity holders are entitled to only the residual value, the portion left after creditors are paid. The value of this residual portion is the shareholders' equity in the firm, which is just the value of the firm's assets less the value of the firm's liabilities:

$$\text{Shareholders/equity} = \text{Assets} - \text{Liabilities}$$

This is true in an accounting sense because shareholders' equity is defined as this residual portion. More important, it is true in an economic sense: If the firm sells its assets and pays its debts, whatever cash is left belongs to the shareholders.

The use of debt in a firm's capital structure is called *financial leverage*. The more debt a firm has (as a percentage of assets), the greater is its degree of financial leverage. As we discuss in later chapters, debt acts like a lever in the sense that using it can greatly magnify both gains and losses. So, financial leverage increases the potential reward to shareholders, but it also increases the potential for financial distress and business failure.

MARKET VALUE VERSUS BOOK VALUE

The values shown on the balance sheet for the firm's assets are *book values* and generally are not what the assets are actually worth. Under **Generally Accepted Accounting Principles (GAAP)**, audited financial statements in the United States mostly show assets at *historical cost*. In other words, assets are "carried on the books" at what the firm paid for them, no matter how long ago they were purchased or how much they are worth today.

Generally Accepted Accounting Principles (GAAP)

The common set of standards and procedures by which audited financial statements are prepared.

For current assets, market value and book value might be somewhat similar because current assets are bought and converted into cash over a relatively short span of time. In other circumstances, the two values might differ quite a bit. Moreover, for fixed assets, it would be purely a coincidence if the actual market value of an asset (what the asset could be sold for) were equal to its book value. For example, a railroad might own enormous tracts of land purchased a century or more ago. What the railroad paid for that land could be hundreds or thousands of times less than what the land is worth today. The balance sheet would

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nonetheless show the historical cost.

The home page for the Financial Accounting Standards Board (FASB) is **www.fasb.org**.

The difference between market value and book value is important for understanding the impact of reported gains and losses. For example, from time to time, accounting rule changes take place that lead to reductions in the book value of certain types of assets. However, a change in accounting rules all by itself has no effect on what the assets in question are really worth. Instead, the market value of an asset depends on things like its riskiness and cash flows, neither of which have anything to do with accounting.

The balance sheet is potentially useful to many different parties. A supplier might look at the size of accounts payable to see how promptly the firm pays its bills. A potential creditor would examine the liquidity and degree of financial leverage. Managers within the firm can track things like the amount of cash and the amount of inventory the firm keeps on hand. Uses such as these are discussed in more detail in Chapter 3.

Managers and investors will frequently be interested in knowing the value of the firm. This information is not on the balance sheet. The fact that balance sheet assets are listed at cost means that there is no necessary connection between the total assets shown and the value of the firm. Indeed, many of the most valuable assets a firm might have—good management, a good reputation, talented employees—don't appear on the balance sheet at all.

Similarly, the shareholders' equity figure on the balance sheet and the true value of the stock need not be related. For example, in late 2017, the book value of IBM's equity was about $18 billion, while the market value was $142 billion. At the same time, Alphabet's book value was $139 billion, while the market value was $731 billion.

For financial managers, then, the accounting value of the stock is not an especially important concern; it is the market value that matters. Henceforth, whenever we speak of the value of an asset or the value of the firm, we will normally mean its *market value*. So, for example, when we say the goal of the financial manager is to increase the value of the stock, we mean the market value of the stock.

EXAMPLE 2.2 Market Value versus Book Value

The Klingon Corporation has net fixed assets with a book value of $700 and an appraised market value of about $1,000. Net working capital is $400 on the books, but approximately $600 would be realized if all the current accounts were liquidated. Klingon has $500 in long-term debt, both book value and market value. What is the book value of the equity? What is the market value?

We can construct two simplified balance sheets, one in accounting (book

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value) terms and one in economic (market value) terms:

KLINGON CORPORATION Balance Sheets Market Value versus Book Value					
Assets			Liabilities and Shareholders' Equity		
	Book	Market		Book	Market
Net working capital	$ 400	$ 600	Long-term debt	$ 500	$ 500
Net fixed assets	700	1,000	Shareholders' equity	600	1,100
	$1,100	$1,600		$1,100	$1,600

In this example, shareholders' equity is actually worth almost twice as much as what is shown on the books. The distinction between book and market values is important precisely because book values can be so different from true economic value.

Concept Questions

2.1a What is the balance sheet identity?

2.1b What is liquidity? Why is it important?

2.1c What do we mean by financial leverage?

2.1d Explain the difference between book value and market value. Which is more important to the financial manager? Why?

2.2 The Income Statement

The **income statement** measures performance over some period of time, usually a quarter or a year. The income statement equation is:

income statement
Financial statement summarizing a firm's performance over a period of time.

$$\textbf{Revenues} - \textbf{Expenses} = \textbf{Income} \quad (2.2)$$

If you think of the balance sheet as a snapshot, then you can think of the income statement as a video recording covering the period between before and after pictures. Table 2.2 gives a simplified income statement for U.S. Corporation.

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TABLE 2.2
Income Statement

U.S. CORPORATION 2018 Income Statement ($ in millions)		
Net sales		$1,509
Cost of goods sold		750
Depreciation		65
Earnings before interest and taxes		$ 694
Interest paid		70
Taxable income		$ 624
Taxes (21%)		131
Net income		$ 493
Dividends	$123	
Addition to retained earnings	370	

The first thing reported on an income statement would usually be revenue and expenses from the firm's principal operations. Subsequent parts include, among other things, financing expenses such as interest paid. Taxes paid are reported separately. The last item is *net income* (the so-called bottom line). Net income is often expressed on a per-share basis and called *earnings per share* (EPS).

As indicated, U.S. Corporation paid cash dividends of $123. The difference between net income and cash dividends, $370, is the addition to retained earnings for the year. This amount is added to the cumulative retained earnings account on the balance sheet. If you look back at the two balance sheets for U.S. Corporation, you'll see that retained earnings did go up by this amount: $1,320 + 370 = $1,690.

EXAMPLE 2.3 Calculating Earnings and Dividends per Share

Suppose U.S. had 200 million shares outstanding at the end of 2018. Based on the income statement in Table 2.2, what was EPS? What were dividends per share?

From the income statement, we see that U.S. had a net income of $493 million for the year. Total dividends were $123 million. Because 200 million shares were

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outstanding, we can calculate earnings per share, or EPS, and dividends per share as follows:

$$\begin{aligned}\textbf{Earnings per share} &= \textbf{Net income/Total shares outstanding}\\ &= \$493/200 = \$2.46 \textbf{ per share}\\ \textbf{Dividends per share} &= \textbf{Total dividends/Total shares outstanding}\\ &= \$123/200 = \$.615 \textbf{ per share}\end{aligned}$$

When looking at an income statement, the financial manager needs to keep three things in mind: GAAP, cash versus noncash items, and time and costs.

GAAP AND THE INCOME STATEMENT

An income statement prepared using GAAP will show revenue when it accrues. This is not necessarily when the cash comes in. The general rule (the *recognition* or *realization principle*) is to recognize revenue when the earnings process is virtually complete and the value of an exchange of goods or services is known or can be reliably determined. In practice, this principle usually means that revenue is recognized at the time of sale, which need not be the same as the time of collection.

Expenses shown on the income statement are based on the *matching principle*. The basic idea here is to first determine revenues as described previously and then match those revenues with the costs associated with producing them. So, if we manufacture a product and then sell it on credit, the revenue is realized at the time of sale. The production and other costs associated with the sale of that product will likewise be recognized at that time. Once again, the actual cash outflows may have occurred at some different time.

As a result of the way revenues and expenses are realized, the figures shown on the income statement may not be at all representative of the actual cash inflows and outflows that occurred during a particular period.

NONCASH ITEMS

A primary reason that accounting income differs from cash flow is that an income statement contains **noncash items**. The most important of these is *depreciation*. Suppose a firm purchases an asset for $5,000 and pays in cash. Obviously, the firm has a $5,000 cash outflow at the time of purchase. However, instead of deducting the $5,000 as an expense, an accountant might depreciate the asset over a five-year period.

noncash items

Expenses charged against revenues that do not directly affect cash flow, such as depreciation.

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If the depreciation is straight-line and the asset is written down to zero over that period, then $5,000/5 = $1,000 will be deducted each year as an expense.[2] The important thing to recognize is that this $1,000 deduction isn't cash—it's an accounting number. The actual cash outflow occurred when the asset was purchased.

The depreciation deduction is another application of the matching principle in accounting. The revenues associated with an asset generally occur over some length of time. So, the accountant seeks to match the expense of purchasing the asset with the benefits produced from owning it.

As we will see, for the financial manager, the actual timing of cash inflows and outflows is critical in coming up with a reasonable estimate of market value. For this reason, we need to learn how to separate the cash flows from the noncash accounting entries. In reality, the difference between cash flow and accounting income can be pretty dramatic. For example, consider the case of U.S. Steel, which reported a net loss of $340 million for the first quarter of 2016. Sounds bad, but U.S. Steel also reported a *positive* cash flow of $113 million, a difference of about $453 million!

TIME AND COSTS

It is often useful to think of the future as having two distinct parts: The short run and the long run. These are not precise time periods. The distinction has to do with whether costs are fixed or variable. In the long run, all business costs are variable. Given sufficient time, assets can be sold, debts can be paid, and so on.

If our time horizon is relatively short, however, some costs are effectively fixed—they must be paid no matter what (property taxes, for example). Other costs, such as wages to laborers and payments to suppliers, are still variable. As a result, even in the short run, the firm can vary its output level by varying expenditures in these areas.

The distinction between fixed and variable costs is important, at times, to the financial manager, but the way costs are reported on the income statement is not a good guide to which costs are which. The reason is that, in practice, accountants tend to classify costs as either product costs or period costs.

WORK THE WEB

The U.S. Securities and Exchange Commission (SEC) requires that most public companies file regular reports, including annual and quarterly financial statements. The SEC has a public site named EDGAR that makes these free reports available at www.sec.gov. We went to "Search EDGAR" and looked up Alphabet:

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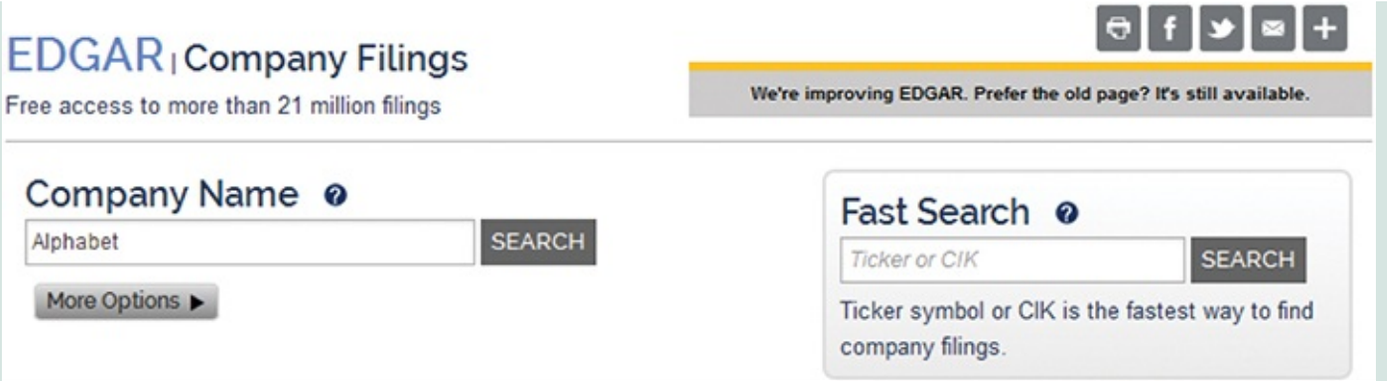

Here is a partial view of what we found:

The two reports we look at the most are the 10-K, which is the annual report filed with the SEC, and the 10-Q. The 10-K includes the list of officers and their salaries, financial statements for the previous fiscal year, and an explanation by the company of the financial results. The 10-Q is a smaller report that includes the financial statements for the quarter.

Questions

1. *As you can imagine, electronic filing of documents with the SEC has not been around for very long. Go to www.sec.gov and find the filings for General Electric. What is the date of the oldest 10-K available on the website for General Electric? Look up the 10-K forms for IBM and Apple to see if the year of the first electronic filing is the same for these companies.*
2. *Go to www.sec.gov and find out when the following forms are used: Form DEF 14A, Form 8-K, and Form 6-K.*

Product costs include such things as raw materials, direct labor expense, and manufacturing overhead. These are reported on the income statement as costs of goods sold, but they include both fixed and variable costs. Similarly, *period costs* are incurred during a

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particular time period and might be reported as selling, general, and administrative

expenses. Once again, some of these period costs may be fixed and others may be variable. The company president's salary, for example, is a period cost and is probably fixed, at least in the short run.

The balance sheets and income statement we have been using thus far are hypothetical. Our nearby *Work the Web* box shows how to find actual balance sheets and income statements online for almost any company. Also, with the increasing globalization of business, there is a clear need for accounting standards to become more comparable across countries. Accordingly, in recent years, U.S. accounting standards have become more closely tied to International Financial Reporting Standards (IFRS). In particular, the Financial Accounting Standards Board (FASB), which is in charge of U.S. GAAP policies, and the International Accounting Standards Board, which is in charge of IFRS policies, have been working toward a convergence of policies since 2002. Although GAAP and IFRS have become similar in important ways, as of early 2018, it appears that a full convergence of accounting policies is off the table, at least for now.

For more information about IFRS, check out the website **www.ifrs.org**.

Concept Questions

2.2a What is the income statement equation?

2.2b What are the three things to keep in mind when looking at an income statement?

2.2c Why is accounting income not the same as cash flow? Give two reasons.

2.3 Taxes

Taxes can be one of the largest cash outflows a firm experiences. For example, for the fiscal year 2016, JPMorgan Chase's earnings before taxes were about $34.54 billion. Its tax bill, including all taxes paid worldwide, was a whopping $9.8 billion, or about 28 percent of its pretax earnings. Also for fiscal year 2016, Walmart had a taxable income of $20.50 billion, and the company paid $6.2 billion in taxes—an average tax rate of 30 percent.

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The size of a company's tax bill is determined by the tax code, an often amended set of rules. In this section, we examine corporate tax rates and how taxes are calculated. If the various rules of taxation seem a little bizarre or convoluted to you, keep in mind that the tax code is the result of political, not economic, forces. As a result, there is no reason why it has to make economic sense.

CORPORATE TAX RATES

Corporate tax rates in effect for 2017 (but not 2018 and beyond) are shown in Table 2.3. As shown, corporate tax rates rise from 15 percent to 39 percent, but they drop back to 34 percent on income over $335,000. They then rise to 38 percent and subsequently fall to 35 percent.

The tax rate schedule in Table 2.3 was simplified considerably by the Tax Cuts and Jobs Act of 2017. Beginning in 2018, the corporate tax rate is 21 percent, and that rate applies regardless of the level of taxable income.

TABLE 2.3

Corporate Tax Rates for 2017

Taxable Income	Tax Rate
$ 0– 50,000	15%
50,001– 75,000	25
75,001– 100,000	34
100,001– 335,000	39
335,001–10,000,000	34
10,000,001–15,000,000	35
15,000,001–18,333,333	38
18,333,334+	35

AVERAGE VERSUS MARGINAL TAX RATES

In making financial decisions, it is frequently important to distinguish between average and marginal tax rates. Your **average tax rate** is your tax bill divided by your taxable income—in other words, the percentage of your income that goes to pay taxes. Your **marginal tax rate** is the rate of the extra tax you would pay if you earned one more dollar. The percentage tax rates shown in Table 2.3 are all marginal rates. Put another way, the tax rates in Table 2.3 applied to the part of income in the indicated range only, not all income.

average tax rate

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Total taxes paid divided by total taxable income.

marginal tax rate

Amount of tax payable on the next dollar earned.

The difference between average and marginal tax rates can best be illustrated with an example. Suppose our corporation had a taxable income of $200,000 in 2017. What was the tax bill? Using Table 2.3, we can figure our tax bill:

$$
\begin{aligned}
.15(\$50,000) &= \$7,500 \\
.25(\$75,000 - 50,000) &= 6,250 \\
.34(\$100,000 - 75,000) &= 8,500 \\
.39(\$200,000 - 100,000) &= \underline{39,000} \\
&= \underline{\underline{\$61,250}}
\end{aligned}
$$

Our total tax was $61,250.

In our example, what is the average tax rate? We had a taxable income of $200,000 and a tax bill of $61,250, so the average tax rate is $61,250/$200,000 = 30.625 percent. What is the marginal tax rate? If we made one more dollar, the tax on that dollar would be 39 cents, so our marginal rate is 39 percent.

The IRS has a great website! Check out **www.irs.gov**.

EXAMPLE 2.4 Deep in the Heart of Taxes

Algernon, Inc., has a taxable income of $85,000 for 2017. What is its tax bill? What is its average tax rate? Its marginal tax rate? What would these be in 2018 and beyond?

From Table 2.3, we see that the tax rate applied to the first $50,000 is 15 percent; the rate applied to the next $25,000 is 25 percent; and the rate applied after that up to $100,000 is 34 percent. So Algernon must pay .15 × $50,000 + .25 × $25,000 + .34 × ($85,000 − 75,000) = $17,150. The average tax rate is thus $17,150/$85,000 = 20.18 percent. The marginal rate is 34 percent because Algernon's taxes would rise by 34 cents if it had another dollar in taxable income.

In 2018 and beyond, the average rate and the marginal rate are the same, 21 percent. There is no need to do any calculations!

Table 2.4 summarizes some different taxable incomes, marginal tax rates, and average tax

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rates for corporations. Notice how the average and marginal tax rates come together at 35 percent.

TABLE 2.4
Corporate Taxes and Tax Rates

(1) Taxable Income	(2) Marginal Tax Rate	(3) Total Tax	(3)/(1) Average Tax Rate
$ 45,000	15%	$ 6,750	15.00%
70,000	25	12,500	17.86
95,000	34	20,550	21.63
250,000	39	80,750	32.30
1,000,000	34	340,000	34.00
17,500,000	38	6,100,000	34.86
50,000,000	35	17,500,000	35.00
100,000,000	35	35,000,000	35.00

With a *flat-rate* tax, there is only one tax rate, so the rate is the same for all income levels. The 21 percent corporate tax created by the Tax Cuts and Jobs Act of 2017 is such a tax. In this case, as Example 2.4 illustrates, the marginal tax rate is always the same as the average tax rate. As it stands now, corporate taxation in the United States shifted in 2018 from a modified flat-rate tax, which became a true flat rate for only the highest incomes, to a true flat rate.

Normally the marginal tax rate is relevant for financial decision making. The reason is that any new cash flows will be taxed at that marginal rate. Because financial decisions usually involve new cash flows or changes in existing ones, this rate will tell us the marginal effect of a decision on our tax bill.

We should note that we have simplified the U.S. tax code in our discussions. In reality, the tax code is much more complex and riddled with various tax deductions and loopholes allowed for certain industries. As a result, the average corporate tax rate may be far from 21 percent for many companies. Table 2.5 displays average tax rates for various industries. Note that these rates pre-date the 21 percent flat tax instituted for 2018, but we still expect to see a wide range of average tax rates in 2018 and beyond due to other features of the tax code.

Prior to 2018, with a tax rate of 35 percent for large, profitable companies, the U.S. corporate tax rate was the highest in the world among developed economies. As a result, several companies in recent years have undertaken a controversial reorganization called a tax inversion. In a tax inversion, a company transfers ownership of its U.S.-based operations to a corporation domiciled in a foreign country, typically by a merger. This maneuver allows the company to avoid paying taxes in the United States on earnings from outside the United

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TABLE 2.5
Average Tax Rates

Industry	Number of Companies	Average Tax Rate
Electric utilities (Eastern U.S.)	24	33.8%
Trucking	33	32.7
Railroad	15	27.4
Securities brokerage	30	20.5
Banking	481	17.5
Medical supplies	264	11.2
Internet	239	5.9
Pharmaceutical	337	5.6
Biotechnology	121	4.5

States. The 2017 reduction in the corporate tax rate to 21 percent puts the United States more-or-less in the middle relative to other developed economies, and a primary reason for the reduction was to eliminate the incentive for tax inversions and other strategies to avoid the U.S. corporate tax.

Before moving on, we should note that the tax rates we have discussed in this section relate to federal taxes only. Overall tax rates can be higher if state, local, and any other taxes are considered.

Concept Questions

2.3a What is the difference between a marginal and an average tax rate?

2.3b What was the impact of the Tax Cuts and Jobs Act of 2017 on corporate tax rates?

2.4 Cash Flow

At this point, we are ready to discuss perhaps one of the most important pieces of financial information that can be gleaned from financial statements: Cash flow. By *cash flow*, we mean the difference between the number of dollars that came in and the number of dollars that went out. For example, if you were the owner of a business, you might be very interested in how much cash you actually took out of your business in a given year. How to determine this amount is one of the things we discuss next.

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No standard financial statement presents this information in the way that we wish. We will therefore discuss how to calculate cash flow for U.S. Corporation and point out how the result differs from that of standard financial statement calculations. There is a standard financial accounting statement called the *statement of cash flows*, but it is concerned with a somewhat different issue that should not be confused with what is discussed in this section. The accounting statement of cash flows is discussed in Chapter 3.

From the balance sheet identity, we know that the value of a firm's assets is equal to the value of its liabilities plus the value of its equity. Similarly, the cash flow from the firm's assets must equal the sum of the cash flow to creditors and the cash flow to stockholders (or owners):

$$\text{Cash flow from assets} = \text{Cash flow to creditors} + \text{Cash flow to stockholders} \quad (2.3)$$

This is the *cash flow identity*. It says that the cash flow from the firm's assets is equal to the cash flow paid to suppliers of capital to the firm. What it reflects is the fact that a firm generates cash through its various activities, and that cash is either used to pay creditors or paid out to the owners of the firm. We discuss the various things that make up these cash flows next.

CASH FLOW FROM ASSETS

Cash flow from assets involves three components: operating cash flow, capital spending, and change in net working capital. **Operating cash flow** refers to the cash flow that results from the firm's day-to-day activities of producing and selling. Expenses associated with the firm's financing of its assets are not included because they are not operating expenses.

cash flow from assets
The total of cash flow to creditors and cash flow to stockholders, consisting of the following: operating cash flow, capital spending, and change in net working capital.

operating cash flow
Cash generated from a firm's normal business activities.

As we discussed in Chapter 1, some portion of the firm's cash flow is reinvested in the firm. *Capital spending* refers to the net spending on fixed assets (purchases of fixed assets less sales of fixed assets). Finally, *change in net working capital* is measured as the net

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change in current assets relative to current liabilities for the period being examined and

represents the amount spent on net working capital. The three components of cash flow are examined in more detail next.

Operating Cash Flow

To calculate operating cash flow (OCF), we want to calculate revenues minus costs, but we don't want to include depreciation because it's not a cash outflow, and we don't want to include interest because it's a financing expense. We do want to include taxes because taxes are (unfortunately) paid in cash.

If we look at U.S. Corporation's income statement (Table 2.2), we see that earnings before interest and taxes (EBIT) are $694. This is almost what we want because it doesn't include interest paid. However, we need to make two adjustments. First, recall that depreciation is a noncash expense. To get cash flow, we first add back the $65 in depreciation because it wasn't a cash deduction. The other adjustment is to subtract the $131 in taxes because these were paid in cash. The result is operating cash flow:

U.S. CORPORATION 2018 Operating Cash Flow	
Earnings before interest and taxes	$694
+ Depreciation	65
− Taxes	131
Operating cash flow	$628

U.S. Corporation had a 2018 operating cash flow of $628.

Operating cash flow is an important number because it tells us, on a very basic level, whether a firm's cash inflows from its business operations are sufficient to cover its everyday cash outflows. For this reason, a negative operating cash flow is often a sign of trouble.

There is an unpleasant possibility of confusion when we speak of operating cash flow. In accounting practice, operating cash flow is often defined as net income plus depreciation. For U.S. Corporation, this would amount to $493 + 65 = $558.

The accounting definition of operating cash flow differs from ours in one important way: Interest is deducted when net income is computed. Notice that the difference between the $628 operating cash flow we calculated and this $558 is $70, the amount of interest paid for the year. This definition of cash flow thus considers interest paid to be an operating expense. Our definition treats it properly as a financing expense. If there were no interest expense, the two definitions would be the same.

To finish our calculation of cash flow from assets for U.S. Corporation, we need to consider how much of the $628 operating cash flow was reinvested in the firm. We consider spending on fixed assets first.

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Capital Spending

Net capital spending is money spent on fixed assets less money received from the sale of fixed assets. At the end of 2017, net fixed assets for U.S. Corporation (Table 2.1) were $1,644. During the year, U.S. wrote off (depreciated) $65 worth of fixed assets on the income statement. So, if the firm didn't purchase any new fixed assets, net fixed assets would have been $1,644 − 65 = $1,579 at year's end. The 2018 balance sheet shows $1,709 in net fixed assets, so U.S. must have spent a total of $1,709 − 1,579 = $130 on fixed assets during the year:

This $130 is the net capital spending for 2018.

Ending net fixed assets	$1,709
− Beginning net fixed assets	1,644
+ Depreciation	65
Net capital spending	$ 130

Could net capital spending be negative? The answer is yes. This would happen if the firm sold more assets than it purchased. The *net* here refers to purchases of fixed assets net of any sales of fixed assets. You will often see capital spending called CAPEX, which is an acronym for capital expenditures. It usually means the same thing.

Change in Net Working Capital

In addition to investing in fixed assets, a firm will also invest in current assets. For example, going back to the balance sheets in Table 2.1, we see that, at the end of 2018, U.S. had current assets of $1,464. At the end of 2017, current assets were $1,112; so, during the year, U.S. invested $1,464 − 1,112 = $352 in current assets.

As the firm changes its investment in current assets, its current liabilities will usually change as well. To determine the change in net working capital, the easiest approach is to take the difference between the beginning and ending net working capital (NWC) figures. Net working capital at the end of 2018 was $1,464 − 389 = $1,075. Similarly, at the end of 2017, net working capital was $1,112 − 428 = $684. Given these figures, we have the following:

Ending NWC	$1,075
− Beginning NWC	684
Change in NWC	$ 391

Net working capital thus increased by $391. Put another way, U.S. Corporation had a net investment of $391 in NWC for the year. This change in NWC is often referred to as the "addition to" NWC.

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Conclusion

Given the figures we've come up with, we're ready to calculate cash flow from assets. The total cash flow from assets is given by operating cash flow less the amounts invested in fixed assets and net working capital. So, for U.S. Corporation, we have:

U.S. CORPORATION 2018 Cash Flow from Assets	
Operating cash flow	$628
− Net capital spending	130
− Change in NWC	391
Cash flow from assets	$ 107

From the cash flow identity given earlier, we know that this $107 cash flow from assets equals the sum of the firm's cash flow to creditors and its cash flow to stockholders. We consider these next.

It wouldn't be at all unusual for a growing corporation to have a negative cash flow. As we see next, a negative cash flow means that the firm raised more money by borrowing and selling stock than it paid out to creditors and stockholders during the year.

A Note about "Free" Cash Flow

Cash flow from assets sometimes goes by a different name, **free cash flow**. Of course, there is no such thing as "free" cash (we wish!). Instead the name refers to cash that the firm is free to distribute to creditors and stockholders because it is not needed for working capital or fixed asset investments. We will stick with "cash flow from assets" as our label for this important concept because, in practice, there is some variation in exactly how free cash flow is computed; different users calculate it in different ways. Nonetheless, whenever you hear the phrase "free cash flow," you should understand that what is being discussed is cash flow from assets or something quite similar.

free cash flow
Another name for cash flow from assets.

CASH FLOW TO CREDITORS AND STOCKHOLDERS

The cash flows to creditors and stockholders represent the net payments to creditors and owners during the year. Their calculation is similar to that of cash flow from assets. **Cash flow to creditors** is interest paid less net new borrowing; **cash flow to stockholders** is dividends paid less net new equity raised.

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cash flow to creditors
A firm's interest payments to creditors less net new borrowing.

cash flow to stockholders
Dividends paid out by a firm less net new equity raised.

Cash Flow to Creditors

Looking at the income statement in Table 2.2, we see that U.S. Corporation paid $70 in interest to creditors. From the balance sheets in Table 2.1, we see that long-term debt rose by $454 − 408 = $46. So U.S. Corporation paid out $70 in interest, but it borrowed an additional $46. Thus, net cash flow to creditors is:

U.S. CORPORATION 2018 Cash Flow to Creditors	
Interest paid	$70
− Net new borrowing	46
Cash flow to creditors	$24

Cash flow to creditors is sometimes called *cash flow to bondholders*; we will use these terms interchangeably.

Cash Flow to Stockholders

From the income statement, we see that dividends paid to stockholders amounted to $123. To get net new equity raised, we need to look at the common stock and paid-in surplus account. This account tells us how much stock the company has sold. During the year, this account rose by $40, so $40 in net new equity was raised. Given this, we have the following:

U.S. CORPORATION 2018 Cash Flow to Stockholders	
Dividends paid	$123
− Net new equity raised	40
Cash flow to stockholders	$ 83

The cash flow to stockholders for 2018 was $83.

The last thing we need to do is to verify that the cash flow identity holds to be sure we didn't make any mistakes. From the previous section, we know that cash flow from assets is $107. Cash flow to creditors and stockholders is $24 + 83 = $107, so everything checks out. Table 2.6 contains a summary of the various cash flow calculations for future reference.

As our discussion indicates, it is essential that a firm keep an eye on its cash flow. The following serves as an excellent reminder of why doing so is a good idea, unless the firm's

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owners wish to end up in the "Po' " house:

QUOTH THE BANKER, "WATCH CASH FLOW"

Once upon a midnight dreary as I pondered weak and weary
Over many a quaint and curious volume of accounting lore,
Seeking gimmicks (without scruple) to squeeze through some new tax loophole,
Suddenly I heard a knock upon my door, Only this, and nothing more.

Then I felt a queasy tingling and I heard the cash a-jingling
As a fearsome banker entered whom I'd often seen before.
His face was money-green and in his eyes there could be seen
Dollar-signs that seemed to glitter as he reckoned up the score.
"Cash flow," the banker said, and nothing more.

TABLE 2.6
Cash Flow Summary

I. The cash flow identity		
Cash flow from assets	=	Cash flow to creditors (bondholders)
	+	Cash flow to stockholders (owners)
II. Cash flow from assets		
Cash flow from assets	=	Operating cash flow
	−	Net capital spending
	−	Change in net working capital (NWC)
where:		
Operating cash flow	=	Earnings before interest and taxes (EBIT)
	+	Depreciation − Taxes
Net capital spending	=	Ending net fixed assets − Beginning net fixed as
	+	Depreciation
Change in NWC	=	Ending NWC − Beginning NWC
III. Cash flow to creditors (bondholders)		
Cash flow to creditors = Interest paid − Net new borrowing		
IV. Cash flow to stockholders (owners)		
[Math Processing Error]		

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I had always thought it fine to show a jet black bottom line.
But the banker sounded a resounding, “No.
Your receivables are high, mounting upward toward the sky;
Write-offs loom. What matters is cash flow.”
He repeated, “Watch cash flow.”

Then I tried to tell the story of our lovely inventory
Which, though large, is full of most delightful stuff.
But the banker saw its growth, and with a mighty oath
He waved his arms and shouted, “Stop! Enough!
Pay the interest, and don’t give me any guff!”

Next I looked for noncash items which could add ad infinitum
To replace the ever-outward flow of cash,
But to keep my statement black I’d held depreciation back,
And my banker said that I’d done something rash.
He quivered, and his teeth began to gnash.

When I asked him for a loan, he responded, with a groan,
That the interest rate would be just prime plus eight,
And to guarantee my purity he’d insist on some security—
All my assets plus the scalp upon my pate.
Only this, a standard rate.

Though my bottom line is black, I am flat upon my back,
My cash flows out and customers pay slow.
The growth of my receivables is almost unbelievable:
The result is certain—unremitting woe!
And I hear the banker utter an ominous low mutter,
“Watch cash flow.”

Herbert S. Bailey Jr.

“Quoth the Banker, ‘Watch Cash Flow,’” from *Publishers Weekly*, January 13, 1975. ©1975 by *Publishers Weekly*. All rights reserved. Used with permission.

To which we can only add, “Amen.”

AN EXAMPLE: CASH FLOWS FOR DOLE COLA

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This extended example covers the various cash flow calculations discussed in the chapter. It also illustrates a few variations that may arise.

Operating Cash Flow

During the year, Dole Cola, Inc., had sales and cost of goods sold of $600 and $300, respectively. Depreciation was $150 and interest paid was $30. Taxes were calculated at a straight 21 percent. Dividends were $36. (All figures are in millions of dollars.) What was operating cash flow for Dole? Why is this different from net income?

The easiest thing to do here is to create an income statement. We can then pick up the numbers we need. Dole Cola's income statement is given here:

DOLE COLA 2018 Income Statement		
Net sales		$600
Cost of goods sold		300
Depreciation		150
Earnings before interest and taxes		$150
Interest paid		30
Taxable income		$120
Taxes		25
Net income		$ 95
Dividends	$36	
Addition to retained earnings	59	

Net income for Dole was $95. We now have all the numbers we need. Referring back to the U.S. Corporation example and Table 2.6, we have this:

DOLE COLA 2018 Operating Cash Flow	
Earnings before interest and taxes	$150
+ Depreciation	150
− Taxes	25
Operating cash flow	$275

As this example illustrates, operating cash flow is not the same as net income because depreciation and interest are subtracted out when net income is calculated. If you recall our earlier discussion, we don't subtract these out in computing operating cash flow because depreciation is not a cash expense and interest paid is a financing expense, not an operating expense.

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Net Capital Spending

Suppose beginning net fixed assets were $500 and ending net fixed assets were $750. What was the net capital spending for the year?

From the income statement for Dole, we know that depreciation for the year was $150. Net fixed assets rose by $250. Dole thus spent $250 along with an additional $150, for a total of $400.

Change in NWC and Cash Flow from Assets

Suppose Dole Cola started the year with $2,130 in current assets and $1,620 in current liabilities, and the corresponding ending figures were $2,276 and $1,710. What was the change in NWC during the year? What was cash flow from assets? How does this compare to net income?

Net working capital started out as $2,130 − 1,620 = $510 and ended up at $2,276 − 1,710 = $566. The addition to NWC was $566 − 510 = $56. Putting together all the information for Dole, we have the following:

DOLE COLA 2018 Cash Flow from Assets	
Operating cash flow	$ 275
− Net capital spending	400
− Change in NWC	56
Cash flow from assets	−$181

Dole had a cash flow from assets of −$181. Net income was positive at $95. Is the fact that cash flow from assets was negative a cause for alarm? Not necessarily. The cash flow here is negative primarily because of a large investment in fixed assets. If these are good investments, the resulting negative cash flow is not a worry.

Cash Flow to Stockholders and Creditors

We saw that Dole Cola had cash flow from assets of −$181. The fact that this is negative means that Dole raised more money in the form of new debt and equity than it paid out for the year. For example, suppose we know that Dole didn't sell any new equity for the year. What was cash flow to stockholders? To creditors?

Because it didn't raise any new equity, Dole's cash flow to stockholders is equal to the cash dividend paid:

DOLE COLA 2018 Cash Flow to Stockholders	
Dividends paid	$36

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− Net new equity raised	0
Cash flow to stockholders	$36

Now, from the cash flow identity, we know that the total cash paid to creditors and stockholders was −$181. Cash flow to stockholders is $36, so cash flow to creditors must be equal to −$181 − 36 = −$217:

mathml

Because we know that cash flow to creditors is −$217 and interest paid is $30 (from the income statement), we can now determine net new borrowing. Dole must have borrowed $247 during the year to help finance the fixed asset expansion:

DOLE COLA 2018 Cash Flow to Creditors	
Interest paid	$ 30
− Net new borrowing	− 247
Cash flow to creditors	−$217

Concept Questions

2.4a What is the cash flow identity? Explain what it says.

2.4b What are the components of operating cash flow?

2.4c Why is interest paid not a component of operating cash flow?

2.5 Summary and Conclusions

This chapter has introduced some of the basics of financial statements, taxes, and cash flow:

1. The book values on an accounting balance sheet can be very different from market values. The goal of financial management is to maximize the market value of the stock, not its book value.
2. Net income as it is computed on the income statement is not cash flow. A primary reason is that depreciation, a noncash expense, is deducted when net income is computed.
3. Marginal and average tax rates can be different, and it is the marginal tax rate that is

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relevant for most financial decisions.

4. The tax rate paid by corporations is a flat tax of 21 percent, although state and local taxes can increase this rate.
5. There is a cash flow identity much like the balance sheet identity. It says that cash flow from assets equals cash flow to creditors and stockholders.

The calculation of cash flow from financial statements isn't difficult. Care must be taken in handling noncash expenses, such as depreciation, and operating costs must not be confused with financing costs. Most of all, it is important not to confuse book values with market values, or accounting income with cash flow.

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Can you answer the following *Connect* Quiz questions?

Section 2.1 What types of accounts are the most liquid?

Section 2.2 What is an example of a noncash expense?

Section 2.3 The marginal tax rate is the tax rate that _____.

Section 2.4 Interest expense is treated as what type of cash flow?

CONCEPTS REVIEW AND CRITICAL THINKING QUESTIONS

2.1 **Cash Flow for Mara Corporation** This problem will give you some practice working with financial statements and figuring cash flow. Based on the following information for Mara Corporation, prepare an income statement for 2018 and balance sheets for 2017 and 2018. Next, following our U.S. Corporation examples in the chapter, calculate cash flow from assets, cash flow to creditors, and cash flow to stockholders for Mara for 2018. Use a 21 percent tax rate throughout. You can check your answers against ours, found in the following section.

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	2017	2018
Sales	$4,203	$4,507
Cost of goods sold	2,422	2,633
Depreciation	785	952
Interest	180	196
Dividends	275	352
Current assets	2,205	2,429
Net fixed assets	7,344	7,650
Current liabilities	1,003	1,255
Long-term debt	3,106	2,085

ANSWER TO CHAPTER REVIEW AND SELF-TEST PROBLEM

2.1 In preparing the balance sheets, remember that shareholders' equity is the residual. With this in mind, Mara's balance sheets are as follows:

MARA CORPORATION
2017 and 2018 Balance Sheets

	2017	2018		2017	2018
Current assets	$2,205	$ 2,429	Current liabilities	$1,003	$ 1,255
Net fixed assets	7,344	7,650	Long-term debt	3,106	2,085
			Equity	5,440	6,739
Total assets	$9,549	$10,079	Total liabilities and shareholders' equity	$9,549	$10,079

The income statement is straightforward:

MARA CORPORATION
2018 Income Statement

Sales	$4,507
Cost of goods sold	2,633
Depreciation	952

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Earnings before interest and taxes		$ 922
Interest paid		196
Taxable income		$ 726
Taxes (21%)		152
Net income		$ 574
Dividends	$352	
Addition to retained earnings	222	

Notice that the addition to retained earnings is net income less cash dividends.

We can now pick up the figures we need to get operating cash flow:

MARA CORPORATION 2018 Operating Cash Flow	
Earnings before interest and taxes	$ 922
+ Depreciation	952
− Taxes	152
Operating cash flow	$1,722

Next, we get the net capital spending for the year by looking at the change in fixed assets, remembering to account for depreciation:

Ending net fixed assets	$7,650
− Beginning net fixed assets	7,344
+ Depreciation	952
Net capital spending	$1,258

After calculating beginning and ending NWC, we take the difference to get the change in NWC:

Ending NWC	$1,174
− Beginning NWC	1,202
Change in NWC	−$ 28

We now combine operating cash flow, net capital spending, and the change in net working capital to get the total cash flow from assets:

MARA CORPORATION Cash Flow from Assets

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Operating cash flow	$1,722
− Net capital spending	1,258
− Change in NWC	−28
Cash flow from assets	$ 492

To get cash flow to creditors, notice that long-term borrowing decreased by $1,021 during the year and that interest paid was $196:

MARA CORPORATION 2018 Cash Flow to Creditors	
Interest paid	$ 196
− Net new borrowing	−1,021
Cash flow to creditors	$ 1,217

Finally, dividends paid were $352. To get net new equity raised, we have to do some extra calculating. Total equity was up by $6,739 − 5,440 = $1,299. Of this

increase, $222 was from additions to retained earnings, so $1,077 in new equity was raised during the year. Cash flow to stockholders was thus:

MARA CORPORATION 2018 Cash Flow to Stockholders	
Dividends paid	$ 352
− Net new equity raised	1,077
Cash flow to stockholders	−$ 725

As a check, notice that cash flow from assets ($492) equals cash flow to creditors plus cash flow to stockholders ($1,217 − 725 = $492).

CONCEPTS REVIEW AND CRITICAL THINKING QUESTIONS

1. **Liquidity** [LO1] What does liquidity measure? Explain the trade-off a firm faces between high liquidity and low liquidity levels.
2. **Accounting and Cash Flows** [LO2] Why might the revenue and cost figures shown on a standard income statement not be representative of the actual cash inflows and outflows that occurred during a period?
3. **Book Values versus Market Values** [LO1] In preparing a balance sheet, why do

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you think standard accounting practice focuses on historical cost rather than market value?

4. **Operating Cash Flow** **[LO2]** In comparing accounting net income and operating cash flow, name two items you typically find in net income that are not in operating cash flow. Explain what each is and why it is excluded in operating cash flow.

5. **Book Values versus Market Values** **[LO1]** Under standard accounting rules, it is possible for a company's liabilities to exceed its assets. When this occurs, the owners' equity is negative. Can this happen with market values? Why or why not?

6. **Cash Flow from Assets** **[LO4]** Suppose a company's cash flow from assets is negative for a particular period. Is this necessarily a good sign or a bad sign?

7. **Operating Cash Flow** **[LO4]** Suppose a company's operating cash flow has been negative for several years running. Is this necessarily a good sign or a bad sign?

8. **Net Working Capital and Capital Spending** **[LO4]** Could a company's change in NWC be negative in a given year? (*Hint*: Yes.) Explain how this might come about. What about net capital spending?

9. **Cash Flow to Stockholders and Creditors** **[LO4]** Could a company's cash flow to stockholders be negative in a given year? (*Hint*: Yes.) Explain how this might come about. What about cash flow to creditors?

10. **Firm Values** **[LO1]** Referring back to the Boeing example used at the beginning of the chapter, note that we suggested that Boeing's stockholders probably didn't suffer as a result of the reported loss. What do you think was the basis for our conclusion?

11. **Enterprise Value** **[LO1]** A firm's *enterprise value* is equal to the market value of its debt and equity, less the firm's holdings of cash and cash equivalents. This figure is particularly relevant to potential purchasers of the firm. Why?

12. **Earnings Management** **[LO2]** Companies often try to keep accounting earnings growing at a relatively steady pace, thereby avoiding large swings in earnings from period to period. They also try to meet earnings targets. To do so, they use a variety of tactics. The simplest way is to control the timing of accounting revenues and costs, which all firms can do to at least some extent. For example, if earnings are looking too low this quarter, then some accounting costs can be deferred until next quarter. This practice is called *earnings management*. It is common, and it raises a lot of questions. Why do firms do it? Why are firms even allowed to do it under GAAP? Is it ethical? What are the implications for cash flow and shareholder wealth?

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QUESTIONS AND PROBLEMS

connect

BASIC

(Questions 1–10)

1. **Building a Balance Sheet** **[LO1]** Wims, Inc., has current assets of $4,900, net fixed assets of $27,300, current liabilities of $4,100, and long-term debt of $10,200. What is the value of the shareholders' equity account for this firm? How much is net working capital?

2. **Building an Income Statement** **[LO1]** Griffin's Goat Farm, Inc., has sales of $796,000, costs of $327,000, depreciation expense of $42,000, interest expense of $34,000, and a tax rate of 21 percent. What is the net income for this firm?

3. **Dividends and Retained Earnings** **[LO1]** Suppose the firm in Problem 2 paid out $95,000 in cash dividends. What is the addition to retained earnings?

4. **Per-Share Earnings and Dividends** **[LO1]** Suppose the firm in Problem 3 had 80,000 shares of common stock outstanding. What is the earnings per share, or EPS, figure? What is the dividends per share figure?

5. **Calculating OCF** **[LO4]** Pompeii, Inc., has sales of $46,200, costs of $23,100, depreciation expense of $2,200, and interest expense of $1,700. If the tax rate is 22 percent, what is the operating cash flow, or OCF?

6. **Calculating Net Capital Spending** **[LO4]** Logano Driving School's 2017 balance sheet showed net fixed assets of $2.4 million, and the 2018 balance sheet showed net fixed assets of $3.3 million. The company's 2018 income statement showed a depreciation expense of $319,000. What was net capital spending for 2018?

7. **Calculating Additions to NWC** **[LO4]** The 2017 balance sheet of Dream, Inc., showed current assets of $4,810 and current liabilities of $2,230. The 2018 balance sheet showed current assets of $5,360 and current liabilities of $2,970. What was the company's 2018 change in net working capital, or NWC?

8. **Cash Flow to Creditors** **[LO4]** The 2017 balance sheet of Kerber's Tennis Shop, Inc., showed long-term debt of $1.87 million, and the 2018 balance sheet showed long-term debt of $2.21 million. The 2018 income statement showed an interest expense of $255,000. What was the firm's cash flow to

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creditors during 2018?

9. **Cash Flow to Stockholders** [LO4] The 2017 balance sheet of Kerber's Tennis Shop, Inc., showed $650,000 in the common stock account and $3.98 million in the additional paid-in surplus account. The 2018 balance sheet showed $805,000 and $4.2 million in the same two accounts, respectively. If the company paid out $545,000 in cash dividends during 2018, what was the cash flow to stockholders for the year?

10. **Calculating Total Cash Flows** [LO4] Given the information for Kerber's Tennis Shop, Inc., in Problems 8 and 9, suppose you also know that the firm's net capital spending for 2018 was $1,250,000 and that the firm reduced its net working capital investment by $45,000. What was the firm's 2018 operating cash flow, or OCF?

INTERMEDIATE

(Questions 11–19)

11. **Market Values and Book Values** [LO1] Klingon Widgets, Inc., purchased new cloaking machinery three years ago for $6 million. The machinery can be sold to the Romulans today for $5.1 million. Klingon's current balance sheet shows net fixed assets of $3.4 million, current liabilities of $895,000, and net working capital of $235,000. If the current assets and current liabilities were liquidated today, the company would receive a total of $1.15 million cash. What is the book value of Klingon's total assets today? What is the sum of the market value of NWC and the market value of fixed assets?

12. **Calculating Total Cash Flows** [LO4] Square Hammer Corp. shows the following information on its 2018 income statement: Sales = $305,000; Costs = $176,000; Other expenses = $8,900; Depreciation expense = $18,700; Interest expense = $12,900; Taxes = $23,345; Dividends = $19,500. In addition, you're told that the firm issued $6,400 in new equity during 2018 and redeemed $4,900 in outstanding long-term debt.

    a. What is the 2018 operating cash flow?

    b. What is the 2018 cash flow to creditors?

    c. What is the 2018 cash flow to stockholders?

    d. If net fixed assets increased by $46,000 during the year, what was the addition to NWC?

13. **Using Income Statements** [LO1] Given the following information for Bowie Pizza Co., calculate the depreciation expense: Sales = $64,000; Costs =

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$30,700; Addition to retained earnings = $5,700; Dividends paid = $1,980; Interest expense = $4,400; Tax rate = 22 percent.

14. **Preparing a Balance Sheet [LO1]** Prepare a 2018 balance sheet for Rogers Corp. based on the following information: Cash = $127,000; Patents and copyrights = $660,000; Accounts payable = $210,000; Accounts receivable = $115,000; Tangible net fixed assets = $1,610,000; Inventory = $286,000; Notes payable = $155,000; Accumulated retained earnings = $1,368,000; Long-term debt = $830,000.

15. **Residual Claims [LO1]** Bishop, Inc., is obligated to pay its creditors $7,800 during the year.

    a. What is the market value of the shareholders' equity if assets have a market value of $9,400?

    b. What if assets equal $6,700?

16. **Net Income and OCF [LO2]** During 2018, Raines Umbrella Corp. had sales of $705,000. Cost of goods sold, administrative and selling expenses, and depreciation expenses were $445,000, $95,000, and $140,000, respectively. In addition, the company had an interest expense of $70,000 and a tax rate of 25 percent. (Ignore any tax loss carryforward provisions and assume interest expense is fully deductible.)

    a. What is the company's net income for 2018?

    b. What is its operating cash flow?

    c. Explain your results in (*a*) and (*b*).

17. **Accounting Values versus Cash Flows [LO2]** In Problem 16, suppose Raines Umbrella Corp. paid out $102,000 in cash dividends. Is this possible? If net capital spending and net working capital were both zero, and if no new stock was issued during the year, what do you know about the firm's long-term debt account?

18. **Calculating Cash Flows [LO2]** Cardinal Industries had the following operating results for 2018: Sales = $33,106; Cost of goods sold = $23,624; Depreciation expense = $5,877; Interest expense = $2,650; Dividends paid = $1,888. At the beginning of the year, net fixed assets were $19,820, current assets were $6,970, and current liabilities were $3,920. At the end of the year, net fixed assets were $24,394, current assets were $8,612, and current liabilities were $4,575. The tax rate for 2018 was 22 percent.

    a. What is net income for 2018?

    b. What is the operating cash flow for 2018?

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c. What is the cash flow from assets for 2018? Is this possible? Explain.

d. If no new debt was issued during the year, what is the cash flow to creditors? What is the cash flow to stockholders? Explain and interpret the positive and negative signs of your answers in (*a*) through (*d*).

19. Calculating Cash Flows [LO4] Consider the following abbreviated financial statements for Parrothead Enterprises:

PARROTHEAD ENTERPRISES 2017 and 2018 Partial Balance Sheets					
Assets			**Liabilities and Owners' Equity**		
	2017	**2018**		**2017**	**2018**
Current assets	$1,206	$1,307	Current liabilities	$ 482	$ 541
Net fixed assets	4,973	5,988	Long-term debt	2,628	2,795

PARROTHEAD ENTERPRISES 2018 Income Statement	
Sales	$15,301
Costs	7,135
Depreciation	1,363
Interest paid	388

a. What is owners' equity for 2017 and 2018?

b. What is the change in net working capital for 2018?

c. In 2018, Parrothead Enterprises purchased $2,496 in new fixed assets. How much in fixed assets did Parrothead Enterprises sell? What is the cash flow from assets for the year? The tax rate is 21 percent.

d. During 2018, Parrothead Enterprises raised $504 in new long-term debt. How much long-term debt must Parrothead Enterprises have paid off during the year? What is the cash flow to creditors?

CHALLENGE

(Questions 20–22)

20. Net Fixed Assets and Depreciation [LO4] On the balance sheet, the net fixed assets (NFA) account is equal to the gross fixed assets (FA) account (which records the acquisition cost of fixed assets) minus the accumulated depreciation (AD) account (which records the total depreciation taken by the firm against its fixed assets). Using the fact that NFA = FA − AD, show that

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the expression given in the chapter for net capital spending, $NFA_{end} - NFA_{beg} + D$ (where D is the depreciation expense during the year), is equivalent to $FA_{end} - FA_{beg}$.

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Use the following information for Taco Swell, Inc., for Problems 21 and 22 (assume the tax rate is 21 percent):

	2017	2018
Sales	$16,549	$18,498
Depreciation	2,376	2,484
Cost of goods sold	5,690	6,731
Other expenses	1,353	1,178
Interest	1,110	1,325
Cash	8,676	9,247
Accounts receivable	11,488	13,482
Short-term notes payable	1,674	1,641
Long-term debt	29,060	35,229
Net fixed assets	72,770	77,610
Accounts payable	6,269	6,640
Inventory	20,424	21,862
Dividends	1,979	2,314

21. **Financial Statements** [LO1] Draw up an income statement and balance sheet for this company for 2017 and 2018.

22. **Calculating Cash Flow** [LO4] For 2018, calculate the cash flow from assets, cash flow to creditors, and cash flow to stockholders.

EXCEL MASTER IT! PROBLEM

Using Excel to find the marginal tax rate can be accomplished using the VLOOKUP function. However, calculating the total tax bill is a little more difficult. Below we have shown a copy of the IRS tax table for an unmarried individual for 2018. Often, tax tables are presented in this format.

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If taxable income is over …	But not over …	The tax is:
$ 0	$ 9,525	10% of the amount over $0
9,526	38,700	$952.50 plus 15% of the amount over $9,525
38,701	93,700	$5,328.75 plus 25% of the amount over $38,700
93,701	195,450	$19,078.75 plus 28% of the amount over $93,700
195,451	424,950	$47,568.75 plus 33% of the amount over $195,450
424,951	426,700	$123,303.75 plus 35% of the amount over $424,950
426,701		$123,916.25 plus 39.6% of the amount over $426,700

In reading this table, the marginal tax rate for taxable income less than $9,525 is 10 percent. If the taxable income is between $9,525 and $38,700, the tax bill is $952.50 plus the marginal taxes. The marginal taxes are calculated as the taxable income minus $9,525 times the marginal tax rate of 15 percent.

Below, we have the corporate tax table that was applicable 2017 and as shown in Table 2.3.

Taxable income is greater than or equal to…	But less than…	Tax rate
$ 0	$ 50,000	15%
50,001	75,000	25
75,001	100,000	34
100,001	335,000	39
335,001	10,000,000	34
10,000,001	15,000,000	35
15,000,001	18,333,333	38
18,333,334		35

a. Create a tax table in Excel for corporate taxes similar to the individual tax table shown above. Your spreadsheet should then calculate the marginal tax rate, the average tax rate, and the tax bill for any level of taxable income input by a user.

b. For a taxable income of $1,350,000, what is the marginal tax rate?

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c. For a taxable income of $1,350,000, what is the total tax bill?

d. For a taxable income of $1,350,000, what is the average tax rate?

MINICASE

Cash Flows and Financial Statements at Sunset Boards, Inc.

Sunset Boards is a small company that manufactures and sells surfboards in Malibu. Tad Marks, the founder of the company, is in charge of the design and sale of the surfboards, but his background is in surfing, not business. As a result, the company's financial records are not well maintained.

The initial investment in Sunset Boards was provided by Tad and his friends and family. Because the initial investment was relatively small, and the company has made surfboards only for its own store, the investors haven't required detailed financial statements from Tad. But thanks to word of mouth among professional surfers, sales have picked up recently, and Tad is considering a major expansion. His plans include opening another surfboard store in Hawaii, as well as supplying his "sticks" (surfer lingo for boards) to other sellers.

Tad's expansion plans require a significant investment, which he plans to finance with a combination of additional funds from outsiders plus some money borrowed from banks. Naturally, the new investors and creditors require more organized and detailed financial statements than Tad has previously prepared. At the urging of his investors, Tad has hired financial analyst Christina Wolfe to evaluate the performance of the company over the past year.

After rooting through old bank statements, sales receipts, tax returns, and other records, Christina has assembled the following information:

	2017	2018
Cost of goods sold	$255,605	$322,742
Cash	36,884	55,725
Depreciation	72,158	81,559
Interest expense	15,687	17,980
Selling and administrative	50,268	65,610
Accounts payable	26,186	44,318
Net fixed assets	318,345	387,855
Sales	501,441	611,224
Accounts receivable	26,136	33,901
Notes payable	29,712	32,441

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Long-term debt	160,689	175,340
Inventory	50,318	67,674
New equity	0	19,500

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Sunset Boards currently pays out 40 percent of net income as dividends to Tad and the other original investors, and it has a 21 percent tax rate. You are Christina's assistant, and she has asked you to prepare the following:

1. An income statement for 2017 and 2018.
2. A balance sheet for 2017 and 2018.
3. Operating cash flow for each year.
4. Cash flow from assets for 2018.
5. Cash flow to creditors for 2018.
6. Cash flow to stockholders for 2018.

QUESTIONS

1. How would you describe Sunset Boards's cash flows for 2018? Write a brief discussion.
2. In light of your discussion in the previous question, what do you think about Tad's expansion plans?

---

[1]The terms *owners' equity*, *shareholders' equity*, and *stockholders' equity* are used interchangeably to refer to the equity in a corporation. The term *net worth* is also used. Variations exist in addition to these.

[2]By *straight-line*, we mean that the depreciation deduction is the same every year. By *written down to zero*, we mean that the asset is assumed to have no value at the end of five years. Depreciation is discussed in more detail in Chapter 10.

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