

Introduction to Corporate Finance

In July 1999, Carleton “Carly” Fiorina assumed the position of CEO of Hewlett-Packard (HP). Investors were pleased with her view of HP’s future: She promised 15 percent annual growth in sales and earnings, quite a goal for a company with five consecutive years of declining revenue. Ms. Fiorina also changed the way HP was run. Rather than continuing to operate as separate product groups, which essentially meant the company operated as dozens of minicompanies, Ms. Fiorina reorganized the company into just two divisions.

In 2002, HP announced that it would merge with Compaq Computers. However, in one of the more acrimonious recent corporate battles, a group led by Walter Hewlett, son of one of HP’s cofounders, fought the merger. Ms. Fiorina ultimately prevailed, and the merger took place. With Compaq in the fold, the company began

a two-pronged strategy. It would compete with Dell in the lower-cost, more commodity-like personal computer segment and with IBM in the more specialized, high-end computing market.

Unfortunately for HP’s shareholders, Ms. Fiorina’s strategy did not work out as planned; in February 2005, under pressure from HP’s board of directors, Ms. Fiorina resigned her position as CEO. Evidently investors also felt a change in direction was a good idea; HP’s stock price jumped almost 7 percent the day the resignation was announced.

Understanding Ms. Fiorina’s rise from corporate executive to chief executive officer, and finally to ex-employee, takes us into issues involving the corporate form of organization, corporate goals, and corporate control, all of which we discuss in this chapter.

1.1 What Is Corporate Finance?

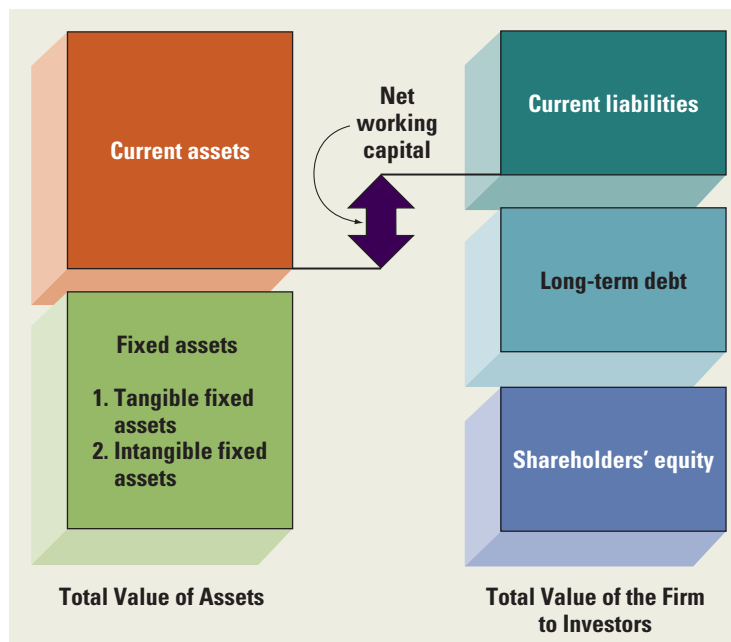
Suppose you decide to start a firm to make tennis balls. To do this you hire managers to buy raw materials, and you assemble a workforce that will produce and sell finished tennis balls. In the language of finance, you make an investment in assets such as inventory, machinery, land, and labor. The amount of cash you invest in assets must be matched by an equal amount of cash raised by financing. When you begin to sell tennis balls, your firm will generate cash. This is the basis of value creation. The purpose of the firm is to create value for you, the owner. The value is reflected in the framework of the simple balance sheet model of the firm.

The Balance Sheet Model of the Firm

Suppose we take a financial snapshot of the firm and its activities at a single point in time. Figure 1.1 shows a graphic conceptualization of the balance sheet, and it will help introduce you to corporate finance.

Figure 1.1

The Balance Sheet
Model of the Firm



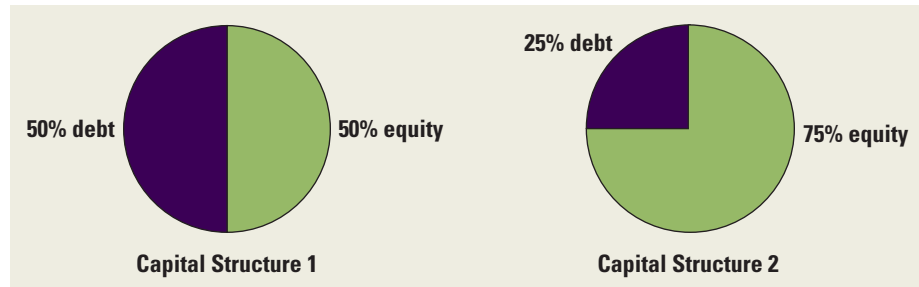
The assets of the firm are on the left side of the balance sheet. These assets can be thought of as current and fixed. *Fixed assets* are those that will last a long time, such as buildings. Some fixed assets are tangible, such as machinery and equipment. Other fixed assets are intangible, such as patents and trademarks. The other category of assets, *current assets*, comprises those that have short lives, such as inventory. The tennis balls that your firm has made, but has not yet sold, are part of its inventory. Unless you have overproduced, they will leave the firm shortly.

Before a company can invest in an asset, it must obtain financing, which means that it must raise the money to pay for the investment. The forms of financing are represented on the right side of the balance sheet. A firm will issue (sell) pieces of paper called *debt* (loan agreements) or *equity shares* (stock certificates). Just as assets are classified as long-lived or short-lived, so too are liabilities. A short-term debt is called a *current liability*. Short-term debt represents loans and other obligations that must be repaid within one year. Long-term debt is debt that does not have to be repaid within one year. Shareholders' equity represents the difference between the value of the assets and the debt of the firm. In this sense, it is a residual claim on the firm's assets.

From the balance sheet model of the firm, it is easy to see why finance can be thought of as the study of the following three questions:

1. In what long-lived assets should the firm invest? This question concerns the left side of the balance sheet. Of course the types and proportions of assets the firm needs tend to be set by the nature of the business. We use the term **capital budgeting** to describe the process of making and managing expenditures on long-lived assets.
2. How can the firm raise cash for required capital expenditures? This question concerns the right side of the balance sheet. The answer to this question involves the firm's **capital structure**, which represents the proportions of the firm's financing from current and long-term debt and equity.
3. How should short-term operating cash flows be managed? This question concerns the upper portion of the balance sheet. There is often a mismatch between the timing of

Figure 1.2
Two Pie Models of the Firm



cash inflows and cash outflows during operating activities. Furthermore, the amount and timing of operating cash flows are not known with certainty. Financial managers must attempt to manage the gaps in cash flow. From a balance sheet perspective, short-term management of cash flow is associated with a firm's **net working capital**. Net working capital is defined as current assets minus current liabilities. From a financial perspective, short-term cash flow problems come from the mismatching of cash inflows and outflows. This is the subject of short-term finance.

Capital Structure

Financing arrangements determine how the value of the firm is sliced up. The people or institutions that buy debt from (i.e., lend money to) the firm are called *creditors*.¹ The holders of equity shares are called *shareholders*.

Sometimes it is useful to think of the firm as a pie. Initially the size of the pie will depend on how well the firm has made its investment decisions. After a firm has made its investment decisions, it determines the value of its assets (e.g., its buildings, land, and inventories).

The firm can then determine its capital structure. The firm might initially have raised the cash to invest in its assets by issuing more debt than equity; now it can consider changing that mix by issuing more equity and using the proceeds to buy back (pay off) some of its debt. Financing decisions like this can be made independently of the original investment decisions. The decisions to issue debt and equity affect how the pie is sliced.

The pie we are thinking of is depicted in Figure 1.2. The size of the pie is the value of the firm in the financial markets. We can write the value of the firm, V , as

$$V = B + S$$

where B is the market value of the debt and S is the market value of the equity. The pie diagrams consider two ways of slicing the pie: 50 percent debt and 50 percent equity, and 25 percent debt and 75 percent equity. The way the pie is sliced could affect its value. If so, the goal of the financial manager will be to choose the ratio of debt to equity that makes the value of the pie—that is, the value of the firm, V —as large as it can be.

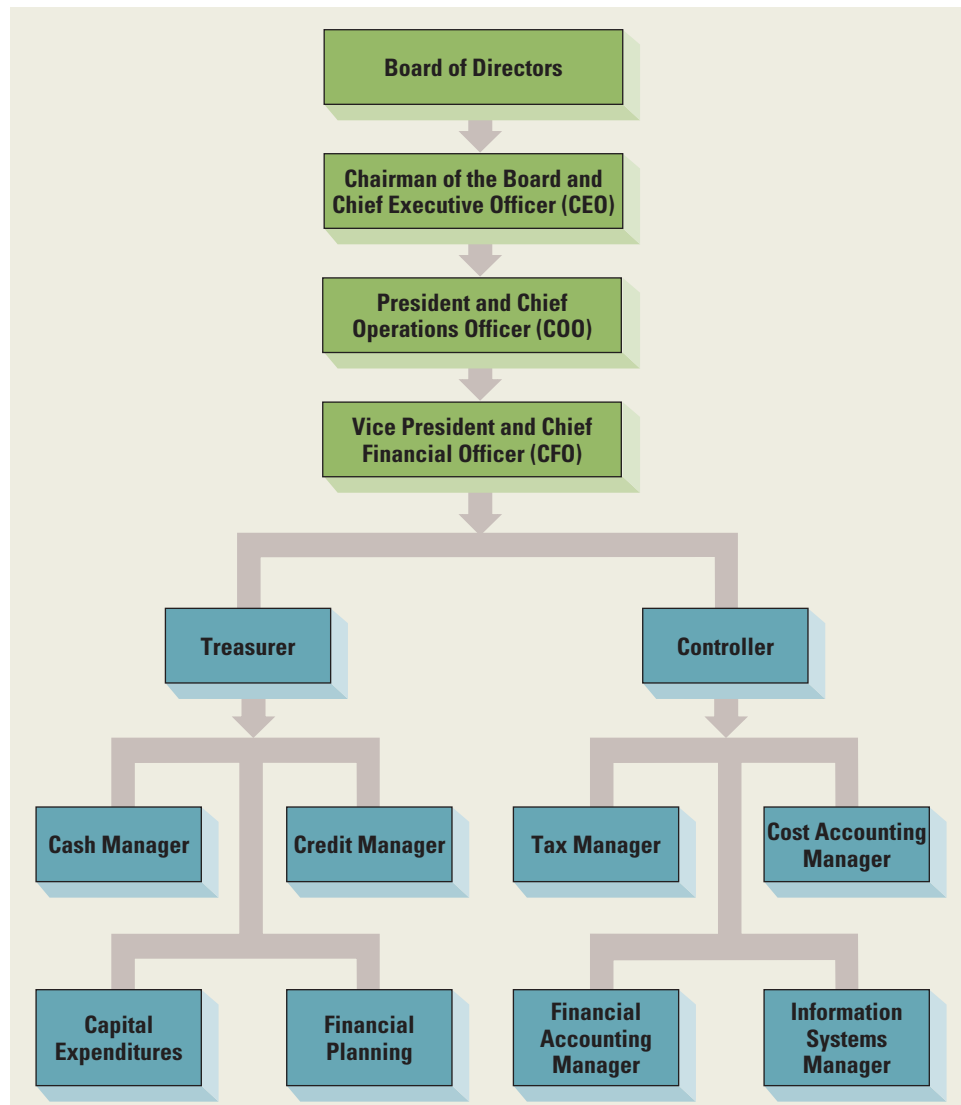
The Financial Manager

In large firms, the finance activity is usually associated with a top officer of the firm, such as the vice president and chief financial officer, and some lesser officers. Figure 1.3 depicts a general organizational structure emphasizing the finance activity within the firm. Reporting to the chief financial officer are the treasurer and the controller. The treasurer is

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¹We tend to use the words *creditors*, *debtholders*, and *bondholders* interchangeably. In later chapters we examine the differences among the kinds of creditors. In algebraic notation, we will usually refer to the firm's debt with the letter B (for bondholders).

Figure 1.3
Hypothetical
Organization Chart



responsible for handling cash flows, managing capital expenditure decisions, and making financial plans. The controller handles the accounting function, which includes taxes, cost and financial accounting, and information systems.

The most important job of a financial manager is to create value from the firm's capital budgeting, financing, and net working capital activities. How do financial managers create value? The answer is that the firm should:

1. Try to buy assets that generate more cash than they cost.
2. Sell bonds and stocks and other financial instruments that raise more cash than they cost.

Thus, the firm must create more cash flow than it uses. The cash flows paid to bondholders and stockholders of the firm should be greater than the cash flows put into the firm by the bondholders and stockholders. To see how this is done, we can trace the cash flows from the firm to the financial markets and back again.

In Their Own Words

SKILLS NEEDED FOR THE CHIEF FINANCIAL OFFICERS OF eFINANCE.COM

Chief strategist: CFOs will need to use real-time financial information to make crucial decisions fast.

Chief deal maker: CFOs must be adept at venture capital, mergers and acquisitions, and strategic partnerships.

Chief risk officer: Limiting risk will be even more important as markets become more global and hedging instruments become more complex.

Chief communicator: Gaining the confidence of Wall Street and the media will be essential.

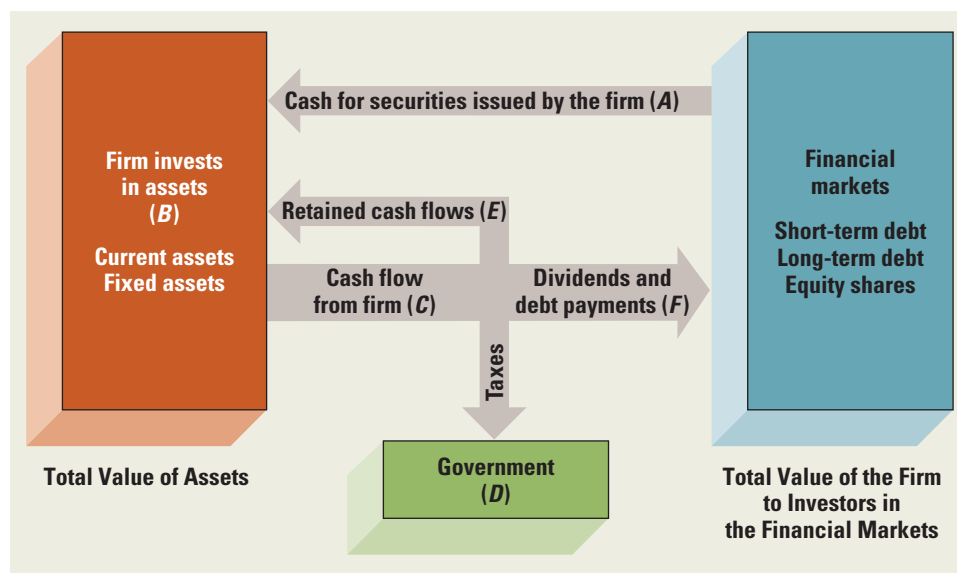
SOURCE: *BusinessWeek*, August 28, 2000, p. 120.

The interplay of the firm's activities with the financial markets is illustrated in Figure 1.4. The arrows in Figure 1.4 trace cash flow from the firm to the financial markets and back again. Suppose we begin with the firm's financing activities. To raise money, the firm sells debt and equity shares to investors in the financial markets. This results in cash flows from the financial markets to the firm (*A*). This cash is invested in the investment activities (assets) of the firm (*B*) by the firm's management. The cash generated by the firm (*C*) is paid to shareholders and bondholders (*F*). The shareholders receive cash in the form of dividends; the bondholders who lent funds to the firm receive interest and, when the initial loan is repaid, principal. Not all of the firm's cash is paid out. Some is retained (*E*), and some is paid to the government as taxes (*D*).

Over time, if the cash paid to shareholders and bondholders (*F*) is greater than the cash raised in the financial markets (*A*), value will be created.

Identification of Cash Flows Unfortunately, it is not easy to observe cash flows directly. Much of the information we obtain is in the form of accounting statements, and much of the work of financial analysis is to extract cash flow information from accounting statements. The following example illustrates how this is done.

Figure 1.4
Cash Flows between
the Firm and the
Financial Markets



EXAMPLE 1.1

Accounting Profit versus Cash Flows The Midland Company refines and trades gold. At the end of the year, it sold 2,500 ounces of gold for \$1 million. The company had acquired the gold for \$900,000 at the beginning of the year. The company paid cash for the gold when it was purchased. Unfortunately it has yet to collect from the customer to whom the gold was sold. The following is a standard accounting of Midland's financial circumstances at year-end:

The Midland Company Accounting View Income Statement Year Ended December 31	
Sales	\$1,000,000
- Costs	<u>-900,000</u>
Profit	\$ 100,000

By generally accepted accounting principles (GAAP), the sale is recorded even though the customer has yet to pay. It is assumed that the customer will pay soon. From the accounting perspective, Midland seems to be profitable. However, the perspective of corporate finance is different. It focuses on cash flows:

The Midland Company Financial View Income Statement Year Ended December 31	
Cash inflow	\$ 0
Cash outflow	<u>-900,000</u>
	-\$ 900,000

The perspective of corporate finance is interested in whether cash flows are being created by the gold trading operations of Midland. Value creation depends on cash flows. For Midland, value creation depends on whether and when it actually receives \$1 million.

Timing of Cash Flows The value of an investment made by a firm depends on the timing of cash flows. One of the most important principles of finance is that individuals prefer to receive cash flows earlier rather than later. One dollar received today is worth more than one dollar received next year.

EXAMPLE 1.2

Cash Flow Timing The Midland Company is attempting to choose between two proposals for new products. Both proposals will provide additional cash flows over a four-year period and will initially cost \$10,000. The cash flows from the proposals are as follows:

Year	New Product A	New Product B
1	\$ 0	\$ 4,000
2	0	4,000
3	0	4,000
4	<u>20,000</u>	<u>4,000</u>
Total	\$20,000	\$16,000

(continued)

At first it appears that new product A would be best. However, the cash flows from proposal B come earlier than those of A. Without more information, we cannot decide which set of cash flows would create the most value for the bondholders and shareholders. It depends on whether the value of getting cash from B up front outweighs the extra total cash from A. Bond and stock prices reflect this preference for earlier cash, and we will see how to use them to decide between A and B.

Risk of Cash Flows The firm must consider risk. The amount and timing of cash flows are not usually known with certainty. Most investors have an aversion to risk.

EXAMPLE 1.3

Risk The Midland Company is considering expanding operations overseas. It is evaluating Europe and Japan as possible sites. Europe is considered to be relatively safe, whereas operating in Japan is seen as very risky. In both cases the company would close down operations after one year.

After doing a complete financial analysis, Midland has come up with the following cash flows of the alternative plans for expansion under three scenarios—pessimistic, most likely, and optimistic:

	Pessimistic	Most Likely	Optimistic
Europe	\$75,000	\$100,000	\$125,000
Japan	0	150,000	200,000

If we ignore the pessimistic scenario, perhaps Japan is the best alternative. When we take the pessimistic scenario into account, the choice is unclear. Japan appears to be riskier, but it also offers a higher expected level of cash flow. What is risk and how can it be defined? We must try to answer this important question. Corporate finance cannot avoid coping with risky alternatives, and much of our book is devoted to developing methods for evaluating risky opportunities.

1.2 The Corporate Firm

The firm is a way of organizing the economic activity of many individuals. A basic problem of the firm is how to raise cash. The corporate form of business—that is, organizing the firm as a corporation—is the standard method for solving problems encountered in raising large amounts of cash. However, businesses can take other forms. In this section we consider the three basic legal forms of organizing firms, and we see how firms go about the task of raising large amounts of money under each form.

The Sole Proprietorship

A **sole proprietorship** is a business owned by one person. Suppose you decide to start a business to produce mousetraps. Going into business is simple: You announce to all who will listen, “Today, I am going to build a better mousetrap.”

Most large cities require that you obtain a business license. Afterward, you can begin to hire as many people as you need and borrow whatever money you need. At year-end all the profits and the losses will be yours.

Here are some factors that are important in considering a sole proprietorship:

1. The sole proprietorship is the cheapest business to form. No formal charter is required, and few government regulations must be satisfied for most industries.

For more about small business organization, see the “Business and Human Resources” section at www.nolo.com.

2. A sole proprietorship pays no corporate income taxes. All profits of the business are taxed as individual income.
3. The sole proprietorship has unlimited liability for business debts and obligations. No distinction is made between personal and business assets.
4. The life of the sole proprietorship is limited by the life of the sole proprietor.
5. Because the only money invested in the firm is the proprietor's, the equity money that can be raised by the sole proprietor is limited to the proprietor's personal wealth.

The Partnership

Any two or more people can get together and form a **partnership**. Partnerships fall into two categories: (1) general partnerships and (2) limited partnerships.

In a *general partnership* all partners agree to provide some fraction of the work and cash and to share the profits and losses. Each partner is liable for all of the debts of the partnership. A partnership agreement specifies the nature of the arrangement. The partnership agreement may be an oral agreement or a formal document setting forth the understanding.

Limited partnerships permit the liability of some of the partners to be limited to the amount of cash each has contributed to the partnership. Limited partnerships usually require that (1) at least one partner be a general partner and (2) the limited partners do not participate in managing the business. Here are some things that are important when considering a partnership:

1. Partnerships are usually inexpensive and easy to form. Written documents are required in complicated arrangements, including general and limited partnerships. Business licenses and filing fees may be necessary.
2. General partners have unlimited liability for all debts. The liability of limited partners is usually limited to the contribution each has made to the partnership. If one general partner is unable to meet his or her commitment, the shortfall must be made up by the other general partners.
3. The general partnership is terminated when a general partner dies or withdraws (but this is not so for a limited partner). It is difficult for a partnership to transfer ownership without dissolving. Usually all general partners must agree. However, limited partners may sell their interest in a business.
4. It is difficult for a partnership to raise large amounts of cash. Equity contributions are usually limited to a partner's ability and desire to contribute to the partnership. Many companies, such as Apple Computer, start life as a proprietorship or partnership, but at some point they choose to convert to corporate form.
5. Income from a partnership is taxed as personal income to the partners.
6. Management control resides with the general partners. Usually a majority vote is required on important matters, such as the amount of profit to be retained in the business.

It is difficult for large business organizations to exist as sole proprietorships or partnerships. The main advantage to a sole proprietorship or partnership is the cost of getting started. Afterward, the disadvantages, which may become severe, are (1) unlimited liability, (2) limited life of the enterprise, and (3) difficulty of transferring ownership. These three disadvantages lead to (4) difficulty in raising cash.

The Corporation

Of the forms of business enterprises, the **corporation** is by far the most important. It is a distinct legal entity. As such, a corporation can have a name and enjoy many of the legal powers of natural persons. For example, corporations can acquire and exchange property. Corporations can enter contracts and may sue and be sued. For jurisdictional purposes the corporation is a citizen of its state of incorporation (it cannot vote, however).

Starting a corporation is more complicated than starting a proprietorship or partnership. The incorporators must prepare articles of incorporation and a set of bylaws. The articles of incorporation must include the following:

1. Name of the corporation.
2. Intended life of the corporation (it may be forever).
3. Business purpose.
4. Number of shares of stock that the corporation is authorized to issue, with a statement of limitations and rights of different classes of shares.
5. Nature of the rights granted to shareholders.
6. Number of members of the initial board of directors.

The bylaws are the rules to be used by the corporation to regulate its own existence, and they concern its shareholders, directors, and officers. Bylaws range from the briefest possible statement of rules for the corporation's management to hundreds of pages of text.

In its simplest form, the corporation comprises three sets of distinct interests: the shareholders (the owners), the directors, and the corporation officers (the top management). Traditionally, the shareholders control the corporation's direction, policies, and activities. The shareholders elect a board of directors, who in turn select top management. Members of top management serve as corporate officers and manage the operations of the corporation in the best interest of the shareholders. In closely held corporations with few shareholders, there may be a large overlap among the shareholders, the directors, and the top management. However, in larger corporations, the shareholders, directors, and the top management are likely to be distinct groups.

The potential separation of ownership from management gives the corporation several advantages over proprietorships and partnerships:

1. Because ownership in a corporation is represented by shares of stock, ownership can be readily transferred to new owners. Because the corporation exists independently of those who own its shares, there is no limit to the transferability of shares as there is in partnerships.
2. The corporation has unlimited life. Because the corporation is separate from its owners, the death or withdrawal of an owner does not affect the corporation's legal existence. The corporation can continue on after the original owners have withdrawn.
3. The shareholders' liability is limited to the amount invested in the ownership shares. For example, if a shareholder purchased \$1,000 in shares of a corporation, the potential loss would be \$1,000. In a partnership, a general partner with a \$1,000 contribution could lose the \$1,000 plus any other indebtedness of the partnership.

Limited liability, ease of ownership transfer, and perpetual succession are the major advantages of the corporation form of business organization. These give the corporation an enhanced ability to raise cash.

Table 1.1 A Comparison of Partnerships and Corporations

	Corporation	Partnership
Liquidity and marketability	Shares can be exchanged without termination of the corporation. Common stock can be listed on a stock exchange.	Units are subject to substantial restrictions on transferability. There is usually no established trading market for partnership units.
Voting rights	Usually each share of common stock entitles the holder to one vote per share on matters requiring a vote and on the election of the directors. Directors determine top management.	Some voting rights by limited partners. However, general partners have exclusive control and management of operations.
Taxation	Corporations have double taxation: Corporate income is taxable, and dividends to shareholders are also taxable.	Partnerships are not taxable. Partners pay personal taxes on partnership profits.
Reinvestment and dividend payout	Corporations have broad latitude on dividend payout decisions.	Partnerships are generally prohibited from reinvesting partnership profits. All profits are distributed to partners.
Liability	Shareholders are not personally liable for obligations of the corporation.	Limited partners are not liable for obligations of partnerships. General partners may have unlimited liability.
Continuity of existence	Corporations may have a perpetual life.	Partnerships have limited life.

There is, however, one great disadvantage to incorporation. The federal government taxes corporate income (the states do as well). This tax is in addition to the personal income tax that shareholders pay on dividend income they receive. This is double taxation for shareholders when compared to taxation on proprietorships and partnerships. Table 1.1 summarizes our discussion of partnerships and corporations.

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.

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

To find out more about LLCs, visit www.corporate.com.

Table 1.2
International
Corporations

Company	Country of Origin	Type of Company	
		In Original Language	Interpretation
Bayerische Motorenwerke (BMW) AG	Germany	Aktiengesellschaft	Corporation
Dornier GmbH	Germany	Gesellschaft mit Baschraenkter Haftung	Limited liability company
Rolls-Royce PLC	United Kingdom	Public limited company	Public ltd. company
Shell UK Ltd.	United Kingdom	Limited	Corporation
Unilever NV	Netherlands	Naamloze Vennootschap	Joint stock company
Fiat SpA	Italy	Societa per Azioni	Joint stock company
Volvo AB	Sweden	Aktiebolag	Joint stock company
Peugeot SA	France	Société Anonyme	Joint stock company

1.3 The Goal of Financial Management

Assuming that we restrict our discussion to for-profit businesses, the goal of financial 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, then 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 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. So, 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.

From 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:

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 only to what is left after employees, suppliers, and creditors (and everyone else with legitimate claims) 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

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

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

corporations rarely changes hands, so it's difficult to say what the value per share is at any particular time.

As long as we are considering 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, we don't care 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 choose to 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.

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, 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 not management 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 that you own while you are away at school. In all such relationships there is a possibility of a conflict of interest between the principal and the agent. Such a conflict is called an **agency problem**.

Suppose you hire someone to sell your car and you 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

To see how management and stockholder interests might differ, imagine that a 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 up 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 employees of all types, not just top management.

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, the best-paid executive in 2005 was Terry Semel, the CEO of Yahoo; according to *Forbes* magazine, he made about \$231 million. By way of comparison, Semel made quite a bit more than George Lucas (\$180 million), but only slightly more than Oprah Winfrey (\$225 million), and way more than Judge Judy (\$28 million). Over the period 2001–2005, Oracle CEO Larry Ellison was the highest-paid executive, earning about \$868 million.

Control of the Firm Control of the firm ultimately rests with stockholders. They elect the board of directors, who, in turn, hire and fire management. The fact that stockholders control the corporation was made abundantly clear by Carly Fiorina's experience at HP, which we described to open the chapter. Even though she had reorganized the corporation,

there came a time when shareholders, through their elected directors, decided that HP would be better off without her, so out she went.

An important mechanism by which unhappy stockholders can 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 management. For example, the proposed merger between HP and Compaq, which we mentioned in our chapter opener, triggered one of the most widely followed, bitterly contested, and expensive proxy fights in history, with an estimated price tag of well over \$100 million.

Another way that management can be replaced is by takeover. Firms that are poorly managed are more attractive as acquisitions than well-managed firms because a greater profit potential exists. Thus, avoiding a takeover by another firm gives management another incentive to act in the stockholders' interests. For example, in 2004, Comcast, the cable television giant, announced a surprise bid to buy Disney when Disney's management was under close scrutiny for its performance. Not too surprisingly, Disney's management strongly opposed being acquired, and Comcast ultimately decided to withdraw, in part because of improvements in Disney's financial performance.

Conclusion 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.

1.5 Financial Markets

As indicated in Section 1.1, firms offer two basic types of securities to investors. *Debt securities* are contractual obligations to repay corporate borrowing. *Equity securities* are shares of common stock and preferred stock that represent noncontractual claims to the residual cash flow of the firm. Issues of debt and stock that are publicly sold by the firm are then traded in the financial markets.

The financial markets are composed of the **money markets** and the **capital markets**. Money markets are the markets for debt securities that will pay off in the short term (usually less than one year). Capital markets are the markets for long-term debt (with a maturity of over one year) and for equity shares.

The term *money market* applies to a group of loosely connected markets. They are dealer markets. Dealers are firms that make continuous quotations of prices for which they stand ready to buy and sell money market instruments for their own inventory and at their own risk. Thus, the dealer is a principal in most transactions. This is different from a stockbroker acting as an agent for a customer in buying or selling common stock on most stock exchanges; an agent does not actually acquire the securities.

At the core of the money markets are the money market banks (these are large banks mostly in New York), government securities dealers (some of which are the large banks), and many money brokers. Money brokers specialize in finding short-term money for borrowers and placing money for lenders. The financial markets can be classified further as the *primary market* and the *secondary markets*.

The Primary Market: New Issues

The primary market is used when governments and corporations initially sell securities. Corporations engage in two types of primary market sales of debt and equity: public offerings and private placements.

Most publicly offered corporate debt and equity come to the market underwritten by a syndicate of investment banking firms. The *underwriting* syndicate buys the new securities from the firm for the syndicate's own account and resells them at a higher price. Publicly issued debt and equity must be registered with the United States Securities and Exchange Commission (SEC). *Registration* requires the corporation to disclose any and all material information in a registration statement.

The legal, accounting, and other costs of preparing the registration statement are not negligible. In part to avoid these costs, privately placed debt and equity are sold on the basis of private negotiations to large financial institutions, such as insurance companies and mutual funds, and other investors. Private placements are not registered with the SEC.

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: *dealer* markets and *auction* 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 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 large firms in the United States trade in organized auction markets. The largest such market is the New York Stock Exchange (NYSE), which accounts for more than 85 percent of all the shares traded in

auction markets. Other auction exchanges include the American Stock Exchange (AMEX) and regional exchanges such as the Pacific Stock Exchange.

In addition to the stock exchanges, there is 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”). There are roughly two times as many companies on NASDAQ as there are on the NYSE, but they tend to be much 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.

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.

Exchange Trading of Listed Stocks

Auction markets are different from dealer markets in two ways. First, trading in a given auction exchange takes place at a single site on the floor of the exchange. Second, transaction prices of shares traded on auction exchanges are communicated almost immediately to the public by computer and other devices.

The NYSE is one of the preeminent securities exchanges in the world. All transactions in stocks listed on the NYSE occur at a particular place on the floor of the exchange called a *post*. At the heart of the market is the specialist. Specialists are members of the NYSE who *make a market* in designated stocks. Specialists have an obligation to offer to buy and sell shares of their assigned NYSE stocks. It is believed that this makes the market liquid because the specialist assumes the role of a buyer for investors if they wish to sell and a seller if they wish to buy.

Listing

Stocks that trade on an organized exchange are said to be *listed* on that exchange. To be listed, firms must meet certain minimum criteria concerning, for example, asset size and number of shareholders. These criteria differ from one exchange to another.

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. The listing requirements for non-U.S. companies are somewhat more stringent. Table 1.3 gives the market value of NYSE-listed stocks and bonds.

Listed companies face significant disclosure requirements. 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” or “SOX,” 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

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

To find out more about Sarbanes-Oxley, go to www.sarbanes-oxley.com.

Table 1.3
Market Value
of NYSE-Listed
Securities

End-of-Year	Number of Listed Companies	Market Value (\$ in trillions)
NYSE-listed stocks*		
2005	2,779	\$21.2
2004	2,768	19.8
2003	2,750	17.3
2002	2,783	13.4
2001	2,798	16.0
2000	2,862	17.1
End-of-Year	Number of Issues	Market Value (\$ in trillions)
NYSE-listed bonds†		
2005	971	\$1.0
2004	1,059	1.1
2003	1,273	1.4
2002	1,323	1.4
2001	1,447	1.7
2000	1,627	2.1

*Includes preferred stock and common stock.

†Includes bonds issued by U.S. companies, foreign companies, the U.S. government, international banks, foreign governments, and municipalities. The bond value shown is the face value.

SOURCE: Data from the NYSE Web site, www.nyse.com.

of the company's internal control structure and financial reporting. The 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.

Of course, as with any law, there are compliance costs, and Sarbox has increased the cost of corporate audits, sometimes dramatically. Estimates of the increase in company audit costs to comply with Sarbox range from \$500,000 to over \$5 million, which has led to some unintended consequences. For example, in 2004, 134 firms delisted their shares from exchanges, or "went dark." This was up from 30 delistings in 1999. Most of the companies that delisted stated that their reason was to avoid the cost of compliance with Sarbox. Some conservative estimates put the national Sarbox compliance tab at \$35 billion in the first year alone, which is roughly 20 times the amount originally estimated by the SEC. For a large multibillion-dollar-revenue company, the cost might be .05 percent of revenues; but it could be 4 percent or so for smaller companies, an enormous cost.

A company that goes dark does not have to file quarterly or annual reports. Annual audits by independent auditors are not required, and executives do not have to certify the accuracy of the financial statements, so the savings can be huge. Of course there are costs. Stock prices typically fall when a company announces it is going dark. Further, such companies will typically have limited access to capital markets and usually will pay higher interest on bank loans.

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 take?
 - b. *Capital structure*: Where will the firm get the long-term financing to pay for its investments? Also, what mixture of debt and equity should it 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 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?

Concept Questions

1. **Agency Problems** 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?
2. **Not-for-Profit Firm Goals** 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?
3. **Goal of the Firm** 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.
4. **Ethics and Firm Goals** Can the 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.
5. **International Firm Goal** Would the goal of maximizing the value of the stock differ for financial management in a foreign country? Why or why not?
6. **Agency Problems** 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?
7. **Agency Problems and Corporate Ownership** Corporate ownership varies around the world. Historically, individuals have owned the majority of 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?
8. **Agency Problems and Corporate Ownership** In recent years, large financial institutions such as mutual funds and pension funds have become 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?

9. **Executive Compensation** Critics have charged that compensation to top management in the United States is simply too high and should be cut back. For example, focusing on large corporations, Larry Ellison of Oracle has been one of the best-compensated CEOs in the United States, earning about \$41 million in 2004 alone and \$836 million over the 2000–2004 period. Are such amounts excessive? In answering, it might be helpful to recognize that superstar athletes such as Tiger Woods, top entertainers such as Mel Gibson and Oprah Winfrey, and many others at the top of their respective fields earn at least as much, if not a great deal more.
10. **Goal of Financial Management** Why is the goal of financial management to maximize the current share price of the company's stock? In other words, why isn't the goal to maximize the future share price?

S&P Problems

STANDARD
& POOR'S

www.mhhe.com/edumarketinsight

1. **Industry Comparison** On the Market Insight home page, follow the "Industry" link at the top of the page. You will be on the industry page. You can use the drop-down menu to select different industries. Answer the following questions for these industries: airlines, automobile manufacturers, biotechnology, computer hardware, homebuilding, marine, restaurants, soft drinks, and wireless telecommunications.
 - a. How many companies are in each industry?
 - b. What are the total sales for each industry?
 - c. Do the industries with the largest total sales have the most companies in the industry? What does this tell you about competition in the various industries?

Financial Statements and Cash Flow

In February 2006, CBS Records joined other companies in announcing operating results for the latest quarter. For CBS, the news was not good: Earnings amounted to a loss of \$6 per share. Included in the earnings figure was a charge of about \$9.4 billion to write down the value of the company's radio and television businesses. The write-off was nothing new to CBS. The company lost over \$18 billion (or about \$11 per share) in the same quarter of the previous year, due mostly to write-offs in its radio station and outdoor advertising businesses.

The write-offs by CBS were large, but they pale in comparison to those taken by Time Warner, which were

probably the largest in history. The media giant took a charge of \$45.5 billion in the fourth quarter of 2002. This enormous write-off followed an earlier, even larger charge of \$54 billion earlier in the year.

So did stockholders in CBS Records lose \$9.4 billion in one quarter as the result of the write-off? Fortunately for them, the answer is probably not. Understanding why leads us to the main subject of this chapter: that all-important substance known as *cash flow*.

2.1 The Balance Sheet

The **balance sheet** is an accountant's snapshot of a firm's accounting value on a particular date, as though the firm stood momentarily still. The balance sheet has two sides: On the left are the *assets* and on the right are the *liabilities* and *stockholders' equity*. The balance sheet states what the firm owns and how it is financed. The accounting definition that underlies the balance sheet and describes the balance is:

$$\text{Assets} \equiv \text{Liabilities} + \text{Stockholders' equity}$$

We have put a three-line equality in the balance equation to indicate that it must always hold, by definition. In fact, the stockholders' equity is *defined* to be the difference between the assets and the liabilities of the firm. In principle, equity is what the stockholders would have remaining after the firm discharged its obligations.

Table 2.1 gives the 2007 and 2006 balance sheet for the fictitious U.S. Composite Corporation. The assets in the balance sheet are listed in order by the length of time it normally would take an ongoing firm to convert them into cash. The asset side depends on the nature of the business and how management chooses to conduct it. Management must make decisions about cash versus marketable securities, credit versus cash sales, whether to make or buy commodities, whether to lease or purchase items, the types of business in which

Two excellent sources for company financial information are finance.yahoo.com and money.cnn.com.

Table 2.1 The Balance Sheet of the U.S. Composite Corporation

U.S. COMPOSITE CORPORATION					
Balance Sheet					
2007 and 2006					
(\$ in millions)					
Assets	2007	2006	Liabilities (Debt) and Stockholders' Equity	2007	2006
Current assets:			Current liabilities:		
Cash and equivalents	\$ 140	\$ 107	Accounts payable	\$ 213	\$ 197
Accounts receivable	294	270	Notes payable	50	53
Inventories	269	280	Accrued expenses	223	205
Other	58	50	Total current liabilities	<u>\$ 486</u>	<u>\$ 455</u>
Total current assets	<u>\$ 761</u>	<u>\$ 707</u>	Long-term liabilities:		
Fixed assets:			Deferred taxes	\$ 117	\$ 104
Property, plant, and equipment	\$1,423	\$1,274	Long-term debt*	471	458
Less accumulated depreciation	550	460	Total long-term liabilities	<u>\$ 588</u>	<u>\$ 562</u>
Net property, plant, and equipment	873	814	Stockholders' equity:		
Intangible assets and others	245	221	Preferred stock	\$ 39	\$ 39
Total fixed assets	<u>\$1,118</u>	<u>\$1,035</u>	Common stock (\$1 par value)	55	32
Total assets	<u>\$1,879</u>	<u>\$1,742</u>	Capital surplus	347	327
			Accumulated retained earnings	390	347
			Less treasury stock [†]	26	20
			Total equity	<u>\$ 805</u>	<u>\$ 725</u>
			Total liabilities and stockholders' equity [‡]	<u>\$1,879</u>	<u>\$1,742</u>

*Long-term debt rose by \$471 million – \$458 million = \$13 million. This is the difference between \$86 million new debt and \$73 million in retirement of old debt.

[†]Treasury stock rose by \$6 million. This reflects the repurchase of \$6 million of U.S. Composite's company stock.

[‡]U.S. Composite reports \$43 million in new equity. The company issued 23 million shares at a price of \$1.87. The par value of common stock increased by \$23 million, and capital surplus increased by \$20 million.

to engage, and so on. The liabilities and the stockholders' equity are listed in the order in which they would typically be paid over time.

The liabilities and stockholders' equity side reflects the types and proportions of financing, which depend on management's choice of capital structure, as between debt and equity and between current debt and long-term debt.

When analyzing a balance sheet, the financial manager should be aware of three concerns: liquidity, debt versus equity, and value versus cost.

Liquidity

Liquidity refers to the ease and quickness with which assets can be converted to cash (without significant loss in value). *Current assets* are the most liquid and include cash and assets that will be turned into cash within a year from the date of the balance sheet. *Accounts receivable* are amounts not yet collected from customers for goods or services sold to them (after adjustment for potential bad debts). *Inventory* is composed of raw materials to be used in production, work in process, and finished goods. *Fixed assets* are the least liquid kind of assets. Tangible fixed assets include property, plant, and equipment. These assets

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

do not convert to cash from normal business activity, and they are not usually used to pay expenses such as payroll.

Some fixed assets are not tangible. Intangible assets have no physical existence but can be very valuable. Examples of intangible assets are the value of a trademark or the value of a patent. The more liquid a firm's assets, the less likely the firm is to experience problems meeting short-term obligations. Thus, the probability that a firm will avoid financial distress can be linked to the firm's liquidity. Unfortunately, liquid assets frequently have lower rates of return than fixed assets; for example, cash generates no investment income. To the extent a firm invests in liquid assets, it sacrifices an opportunity to invest in more profitable investment vehicles.

Debt versus Equity

Liabilities are obligations of the firm that require a payout of cash within a stipulated period. Many liabilities involve contractual obligations to repay a stated amount and interest over a period. Thus, liabilities are debts and are frequently associated with nominally fixed cash burdens, called *debt service*, that put the firm in default of a contract if they are not paid. *Stockholders' equity* is a claim against the firm's assets that is residual and not fixed. In general terms, when the firm borrows, it gives the bondholders first claim on the firm's cash flow.¹ Bondholders can sue the firm if the firm defaults on its bond contracts. This may lead the firm to declare itself bankrupt. Stockholders' equity is the residual difference between assets and liabilities:

$$\text{Assets} - \text{Liabilities} \equiv \text{Stockholders' equity}$$

This is the stockholders' share in the firm stated in accounting terms. The accounting value of stockholders' equity increases when retained earnings are added. This occurs when the firm retains part of its earnings instead of paying them out as dividends.

Value versus Cost

The accounting value of a firm's assets is frequently referred to as the *carrying value* or the *book value* of the assets.² Under **generally accepted accounting principles (GAAP)**, audited financial statements of firms in the United States carry the assets at cost.³ Thus the terms *carrying value* and *book value* are unfortunate. They specifically say "value," when in fact the accounting numbers are based on cost. This misleads many readers of financial statements to think that the firm's assets are recorded at true market values. *Market value* is the price at which willing buyers and sellers would trade the assets. It would be only a coincidence if accounting value and market value were the same. In fact, management's job is to create value for the firm that exceeds its cost.

Many people use the balance sheet, but the information each may wish to extract is not the same. A banker may look at a balance sheet for evidence of accounting liquidity and working capital. A supplier may also note the size of accounts payable and therefore the general promptness of payments. Many users of financial statements, including managers and investors, want to know the value of the firm, not its cost. This information is not found

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

¹Bondholders are investors in the firm's debt. They are creditors of the firm. In this discussion, the term *bondholder* means the same thing as *creditor*.

²Confusion often arises because many financial accounting terms have the same meaning. This presents a problem with jargon for the reader of financial statements. For example, the following terms usually refer to the same thing: *assets minus liabilities*, *net worth*, *stockholders' equity*, *owners' equity*, *book equity*, and *equity capitalization*.

³Generally, GAAP requires assets to be carried at the lower of cost or market value. In most instances, cost is lower than market value. However, in some cases when a fair market value can be readily determined, the assets have their value adjusted to the fair market value.

on the balance sheet. In fact, many of the true resources of the firm do not appear on the balance sheet: good management, proprietary assets, favorable economic conditions, and so on. 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 2.1

Market Value versus Book Value The Cooney Corporation has 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. Cooney 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 value) terms and one in economic (market value) terms:

COONEY 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
	<u>\$1,100</u>	<u>\$1,600</u>		<u>\$1,100</u>	<u>\$1,600</u>

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.

2.2 The Income Statement

The **income statement** measures performance over a specific period—say a year. The accounting definition of income is:

$$\text{Revenue} - \text{Expenses} \equiv \text{Income}$$

If the balance sheet is like a snapshot, the income statement is like a video recording of what the people did between two snapshots. Table 2.2 gives the income statement for the U.S. Composite Corporation for 2007.

The income statement usually includes several sections. The operations section reports the firm's revenues and expenses from principal operations. One number of particular importance is earnings before interest and taxes (EBIT), which summarizes earnings before taxes and financing costs. Among other things, the nonoperating section of the income statement includes all financing costs, such as interest expense. Usually a second section reports as a separate item the amount of taxes levied on income. The last item on the income statement is the bottom line, or net income. Net income is frequently expressed per share of common stock—that is, earnings per share.

When analyzing an income statement, the financial manager should keep in mind GAAP, noncash items, time, and costs.

Table 2.2
The Income
Statement of the
U.S. Composite
Corporation

U.S. COMPOSITE CORPORATION	
Income Statement	
2007	
(\$ in millions)	
Total operating revenues	\$2,262
Cost of goods sold	1,655
Selling, general, and administrative expenses	327
Depreciation	90
Operating income	\$ 190
Other income	29
Earnings before interest and taxes (EBIT)	\$ 219
Interest expense	49
Pretax income	\$ 170
Taxes	84
Current: \$71	
Deferred: 13	
Net income	\$ 86
Addition to retained earnings:	\$ 43
Dividends:	43

Note: There are 29 million shares outstanding. Earnings per share and dividends per share can be calculated as follows:

$$\begin{aligned}
 \text{Earnings per share} &= \frac{\text{Net income}}{\text{Total shares outstanding}} \\
 &= \frac{\$86}{29} \\
 &= \$2.97 \text{ per share} \\
 \text{Dividends per share} &= \frac{\text{Dividends}}{\text{Total shares outstanding}} \\
 &= \frac{\$43}{29} \\
 &= \$1.48 \text{ per share}
 \end{aligned}$$

Generally Accepted Accounting Principles

Revenue is recognized on an income statement when the earnings process is virtually completed and an exchange of goods or services has occurred. Therefore, the unrealized appreciation from owning property will not be recognized as income. This provides a device for smoothing income by selling appreciated property at convenient times. For example, if the firm owns a tree farm that has doubled in value, then, in a year when its earnings from other businesses are down, it can raise overall earnings by selling some trees. The matching principle of GAAP dictates that revenues be matched with expenses. Thus, income is reported when it is earned, or accrued, even though no cash flow has necessarily occurred (for example, when goods are sold for credit, sales and profits are reported).

Noncash Items

The economic value of assets is intimately connected to their future incremental cash flows. However, cash flow does not appear on an income statement. There are several **noncash items** that are expenses against revenues but do not affect cash flow. The most important of these is *depreciation*. Depreciation reflects the accountant's estimate of the cost of equipment used up in the production process. For example, suppose an asset with a five-year life and no resale value is purchased for \$1,000. According to accountants, the \$1,000 cost must

be expensed over the useful life of the asset. If straight-line depreciation is used, there will be five equal installments, and \$200 of depreciation expense will be incurred each year. From a finance perspective, the cost of the asset is the actual negative cash flow incurred when the asset is acquired (that is, \$1,000, *not* the accountant's smoothed \$200-per-year depreciation expense).

Another noncash expense is *deferred taxes*. Deferred taxes result from differences between accounting income and true taxable income.⁴ Notice that the accounting tax shown on the income statement for the U.S. Composite Corporation is \$84 million. It can be broken down as current taxes and deferred taxes. The current tax portion is actually sent to the tax authorities (for example, the Internal Revenue Service). The deferred tax portion is not. However, the theory is that if taxable income is less than accounting income in the current year, it will be more than accounting income later on. Consequently, the taxes that are not paid today will have to be paid in the future, and they represent a liability of the firm. This shows up on the balance sheet as deferred tax liability. From the cash flow perspective, though, deferred tax is not a cash outflow.

In practice, the difference between cash flows and accounting income can be quite dramatic, so it is important to understand the difference. For example, through the first nine months of 2005, automobile interior supplier Lear Corporation had a total loss of almost \$779 million. That sounds bad, but Lear also reported a positive cash flow of about \$229 million for the same period.

Time and Costs

It is often useful to visualize all of future time as having two distinct parts, the *short run* and the *long run*. The short run is the period in which certain equipment, resources, and commitments of the firm are fixed; but the time is long enough for the firm to vary its output by using more labor and raw materials. The short run is not a precise period that will be the same for all industries. However, all firms making decisions in the short run have some fixed costs—that is, costs that will not change because of fixed commitments. In real business activity, examples of fixed costs are bond interest, overhead, and property taxes. Costs that are not fixed are variable. Variable costs change as the output of the firm changes; some examples are raw materials and wages for laborers on the production line.

In the long run, all costs are variable. Financial accountants do not distinguish between variable costs and fixed costs. Instead, accounting costs usually fit into a classification that distinguishes product costs from period costs. Product costs are the total production costs incurred during a period—raw materials, direct labor, and manufacturing overhead—and are reported on the income statement as cost of goods sold. Both variable and fixed costs are included in product costs. Period costs are costs that are allocated to a time period; they are called *selling, general, and administrative expenses*. One period cost would be the company president's salary.

2.3 Taxes

Taxes can be one of the largest cash outflows a firm experiences. For example, for the fiscal year 2005, ExxonMobil's earnings before taxes were about \$59.9 billion. Its tax bill, including all taxes paid worldwide, was a whopping \$23.3 billion, or about 38.9 percent

⁴One situation in which taxable income may be lower than accounting income is when the firm uses accelerated depreciation expense procedures for the IRS but uses straight-line procedures allowed by GAAP for reporting purposes.

Table 2.3
Corporate Tax Rates

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

of its pretax earnings. The size of the 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. To put the complexity of corporate taxation into perspective, General Electric's (GE's) 2006 tax return required 24,000 pages, far too much to print. The electronically filed return ran 237 megabytes.

Corporate Tax Rates

Corporate tax rates in effect for 2006 are shown in Table 2.3. A peculiar feature of taxation instituted by the Tax Reform Act of 1986 and expanded in the 1993 Omnibus Budget Reconciliation Act is that corporate tax rates are not strictly increasing. 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.

According to the originators of the current tax rules, there are only four corporate rates: 15 percent, 25 percent, 34 percent, and 35 percent. The 38 and 39 percent brackets arise because of “surcharges” applied on top of the 34 and 35 percent rates. A tax is a tax, however, so there are really six corporate tax brackets, as we have shown.

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 tax you would pay (in percent) 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 apply to the part of income in the indicated range only, not all income.

The difference between average and marginal tax rates can best be illustrated with a simple example. Suppose our corporation has a taxable income of \$200,000. What is the tax bill? Using Table 2.3, we can figure our tax bill like this:

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

Our total tax is thus \$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 $\$61,250/200,000 = 30.625\%$. 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.

EXAMPLE 2.2

Deep in the Heart of Taxes Algernon, Inc., has a taxable income of \$85,000. What is its tax bill? What is its average tax rate? Its marginal tax rate?

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 $.15 \times \$50,000 + .25 \times 25,000 + .34 \times (85,000 - 75,000) = \$17,150$. The average tax rate is thus $\$17,150/85,000 = 20.18\%$. The marginal rate is 34 percent because Algernon's taxes would rise by 34 cents if it had another dollar in taxable income.

Table 2.4 summarizes some different taxable incomes, marginal tax rates, and average tax rates for corporations. Notice how the average and marginal tax rates come together at 35 percent.

With a *flat-rate* tax, there is only one tax rate, so the rate is the same for all income levels. With such a tax, the marginal tax rate is always the same as the average tax rate. As it stands now, corporate taxation in the United States is based on a modified flat-rate tax, which becomes a true flat rate for the highest incomes.

In looking at Table 2.4, notice that the more a corporation makes, the greater is the percentage of taxable income paid in taxes. Put another way, under current tax law, the average tax rate never goes down, even though the marginal tax rate does. As illustrated, for corporations, average tax rates begin at 15 percent and rise to a maximum of 35 percent.

Normally, the marginal tax rate will be 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.

There is one last thing to notice about the tax code as it affects corporations. It's easy to verify that the corporate tax bill is just a flat 35 percent of taxable income if our taxable income is more than \$18.33 million. Also, for the many midsize corporations with taxable incomes in the range of \$335,000 to \$10,000,000, the tax rate is a flat 34 percent. Because we will usually be talking about large corporations, you can assume that the average and marginal tax rates are 35 percent unless we explicitly say otherwise.

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.

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

2.4 Net Working Capital

Net working capital is current assets minus current liabilities. Net working capital is positive when current assets are greater than current liabilities. This means the cash that will become available over the next 12 months will be greater than the cash that must be paid out. The net working capital of the U.S. Composite Corporation is \$275 million in 2007 and \$252 million in 2006:

	Current assets (\$ millions)	–	Current liabilities (\$ millions)	=	Net working capital (\$ millions)
2007	\$761	–	\$486	=	\$275
2006	707	–	455	=	252

In addition to investing in fixed assets (i.e., capital spending), a firm can invest in net working capital. This is called the **change in net working capital**. The change in net working capital in 2007 is the difference between the net working capital in 2007 and 2006—that is, \$275 million – \$252 million = \$23 million. The change in net working capital is usually positive in a growing firm.

2.5 Financial Cash Flow

Perhaps the most important item that can be extracted from financial statements is the actual **cash flow** of the firm. An official accounting statement called the *statement of cash flows* helps to explain the change in accounting cash and equivalents, which for U.S. Composite is \$33 million in 2007. (See Section 2.6.) Notice in Table 2.1 that cash and equivalents increase from \$107 million in 2006 to \$140 million in 2007. However, we will look at cash flow from a different perspective: the perspective of finance. In finance, the value of the firm is its ability to generate financial cash flow. (We will talk more about financial cash flow in a later chapter.)

The first point we should mention is that cash flow is not the same as net working capital. For example, increasing inventory requires using cash. Because both inventories and cash are current assets, this does not affect net working capital. In this case, an increase in inventory is associated with decreasing cash flow.

Just as we established that the value of a firm's assets is always equal to the combined value of the liabilities and the value of the equity, the cash flows received from the firm's assets (that is, its operating activities), $CF(A)$, must equal the cash flows to the firm's creditors, $CF(B)$, and equity investors, $CF(S)$:

$$CF(A) \equiv CF(B) + CF(S)$$

The first step in determining cash flows of the firm is to figure out the *cash flow from operations*. As can be seen in Table 2.5, operating cash flow is the cash flow generated by business activities, including sales of goods and services. Operating cash flow reflects tax payments, but not financing, capital spending, or changes in net working capital:

	\$ in millions
Earnings before interest and taxes	\$219
Depreciation	90
Current taxes	–71
Operating cash flow	<u>\$238</u>

Table 2.5
Financial Cash Flow
of the U.S. Composite
Corporation

U.S. COMPOSITE CORPORATION	
Financial Cash Flow	
2007	
(\$ in millions)	
Cash flow of the firm	
Operating cash flow	\$238
(Earnings before interest and taxes plus depreciation minus taxes)	
Capital spending	-173
(Acquisitions of fixed assets minus sales of fixed assets)	
Additions to net working capital	-23
Total	<u>\$ 42</u>
Cash flow to investors in the firm	
Debt	\$ 36
(Interest plus retirement of debt minus long-term debt financing)	
Equity	6
(Dividends plus repurchase of equity minus new equity financing)	
Total	<u>\$ 42</u>

Another important component of cash flow involves *changes in fixed assets*. For example, when U.S. Composite sold its power systems subsidiary in 2007, it generated \$25 million in cash flow. The net change in fixed assets equals the acquisition of fixed assets minus the sales of fixed assets. The result is the cash flow used for capital spending:

Acquisition of fixed assets	\$198	
Sales of fixed assets	-25	
Capital spending	<u>\$173</u>	(\$149 + 24 = Increase in property, plant, and equipment + Increase in intangible assets)

We can also calculate capital spending simply as:

$$\begin{aligned}
 \text{Capital spending} &= \text{Ending net fixed assets} - \text{Beginning net fixed assets} \\
 &\quad + \text{Depreciation} \\
 &= \$1,118 - 1,035 + 90 \\
 &= \$173
 \end{aligned}$$

Cash flows are also used for making investments in net working capital. In U.S. Composite Corporation in 2007, *additions to net working capital* are:

Additions to net working capital	\$23
----------------------------------	------

Note that this \$23 million is the change in net working capital we previously calculated.

Total cash flows generated by the firm's assets are then equal to:

Operating cash flow	\$238
Capital spending	– 173
Additions to net working capital	– 23
Total cash flow of the firm	<u>\$ 42</u>

The total outgoing cash flow of the firm can be separated into cash flow paid to creditors and cash flow paid to stockholders. The cash flow paid to creditors represents a re-grouping of the data in Table 2.5 and an explicit recording of interest expense. Creditors are paid an amount generally referred to as *debt service*. Debt service is interest payments plus repayments of principal (that is, retirement of debt).

An important source of cash flow is the sale of new debt. U.S. Composite's long-term debt increased by \$13 million (the difference between \$86 million in new debt and \$73 million in retirement of old debt).⁵ Thus, an increase in long-term debt is the net effect of new borrowing and repayment of maturing obligations plus interest expense:

Cash Flow Paid to Creditors (\$ in millions)	
Interest	\$ 49
Retirement of debt	<u>73</u>
Debt service	122
Proceeds from long-term debt sales	<u>–86</u>
Total	<u>\$ 36</u>

Cash flow paid to creditors can also be calculated as:

$$\begin{aligned}
 \text{Cash flow paid to creditors} &= \text{Interest paid} - \text{Net new borrowing} \\
 &= \text{Interest paid} - (\text{Ending long-term debt} \\
 &\quad - \text{Beginning long-term debt}) \\
 &= \$49 - (471 - 458) \\
 &= \$36
 \end{aligned}$$

Cash flow of the firm also is paid to the stockholders. It is the net effect of paying dividends plus repurchasing outstanding shares of stock and issuing new shares of stock:

Cash Flow to Stockholders (\$ in millions)	
Dividends	\$43
Repurchase of stock	<u>6</u>
Cash to stockholders	49
Proceeds from new stock issue	<u>–43</u>
Total	<u>\$ 6</u>

⁵New debt and the retirement of old debt are usually found in the “notes” to the balance sheet.

In general, cash flow to stockholders can be determined as:

$$\begin{aligned}\text{Cash flow to stockholders} &= \text{Dividends paid} - \text{Net new equity raised} \\ &= \text{Dividends paid} - (\text{Stock sold} \\ &\quad - \text{Stock repurchased})\end{aligned}$$

To determine stock sold, notice that the common stock and capital surplus accounts went up by a combined $\$23 + 20 = \43 , which implies that the company sold \$43 million worth of stock. Second, treasury stock went up by \$6, indicating that the company bought back \$6 million worth of stock. Net new equity is thus $\$43 - 6 = \37 . Dividends paid were \$43 million, so the cash flow to stockholders was:

$$\text{Cash flow to stockholders} = \$43 - (43 - 6) = \$6,$$

which is what we previously calculated.

Some important observations can be drawn from our discussion of cash flow:

1. Several types of cash flow are relevant to understanding the financial situation of the firm. **Operating cash flow**, defined as earnings before interest plus depreciation minus taxes, measures the cash generated from operations not counting capital spending or working capital requirements. It is usually positive; a firm is in trouble if operating cash flow is negative for a long time because the firm is not generating enough cash to pay operating costs. **Total cash flow of the firm** includes adjustments for capital spending and additions to net working capital. It will frequently be negative. When a firm is growing at a rapid rate, spending on inventory and fixed assets can be higher than operating cash flow.
2. Net income is not cash flow. The net income of the U.S. Composite Corporation in 2007 was \$86 million, whereas cash flow was \$42 million. The two numbers are not usually the same. In determining the economic and financial condition of a firm, cash flow is more revealing.

A firm's total cash flow 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 "total cash flow of the firm" as our label for this important concept because, in practice, there is some variation in exactly how free cash flow is computed. 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.

2.6 The Accounting Statement of Cash Flows

As previously mentioned, there is an official accounting statement called the *statement of cash flows*. This statement helps explain the change in accounting cash, which for U.S. Composite is \$33 million in 2007. It is very useful in understanding financial cash flow.

The first step in determining the change in cash is to figure out cash flow from operating activities. This is the cash flow that results from the firm's normal activities in producing and selling goods and services. The second step is to make an adjustment for cash flow from investing activities. The final step is to make an adjustment for cash flow from financing

activities. Financing activities are the net payments to creditors and owners (excluding interest expense) made during the year.

The three components of the statement of cash flows are determined next.

Cash Flow from Operating Activities

To calculate cash flow from operating activities we start with net income. Net income can be found on the income statement and is equal to \$86 million. We now need to add back noncash expenses and adjust for changes in current assets and liabilities (other than cash and notes payable). The result is cash flow from operating activities. Notes payable will be included in the financing activities section.

U.S. COMPOSITE CORPORATION	
Cash Flow from Operating Activities	
2007	
(\$ in millions)	
Net income	\$ 86
Depreciation	90
Deferred taxes	13
Change in assets and liabilities	
Accounts receivable	-24
Inventories	11
Accounts payable	16
Accrued expense	18
Other	-8
Cash flow from operating activities	<u>\$202</u>

Cash Flow from Investing Activities

Cash flow from investing activities involves changes in capital assets: acquisition of fixed assets and sales of fixed assets (i.e., net capital expenditures). The result for U.S. Composite is shown here:

U.S. COMPOSITE CORPORATION	
Cash Flow from Investing Activities	
2007	
(\$ in millions)	
Acquisition of fixed assets	-\$198
Sales of fixed assets	25
Cash flow from investing activities	<u>-\$173</u>

Cash Flow from Financing Activities

Cash flows to and from creditors and owners include changes in equity and debt:

U.S. COMPOSITE CORPORATION	
Cash Flow from Financing Activities	
2007	
(\$ in millions)	
Retirement of long-term debt	-\$73
Proceeds from long-term debt sales	86
Change in notes payable	-3
Dividends	-43
Repurchase of stock	-6
Proceeds from new stock issue	43
Cash flow from financing activities	<u>\$ 4</u>

The statement of cash flows is the addition of cash flows from operations, cash flows from investing activities, and cash flows from financing activities, and is produced in Table 2.6. When we add all the cash flows together, we get the change in cash on the balance sheet of \$33 million.

There is a close relationship between the official accounting statement called the statement of cash flows and the total cash flow of the firm used in finance. Going back to the previous section, you should note a slight conceptual problem here. Interest paid should really

Table 2.6
Statement of
Consolidated
Cash Flows of the
U.S. Composite
Corporation

U.S. COMPOSITE CORPORATION	
Statement of Cash Flows	
2007	
(\$ in millions)	
Operations	
Net income	\$ 86
Depreciation	90
Deferred taxes	13
Changes in assets and liabilities	
Accounts receivable	-24
Inventories	11
Accounts payable	16
Accrued expenses	18
Other	-8
Total cash flow from operations	<u>\$202</u>
Investing activities	
Acquisition of fixed assets	-\$198
Sales of fixed assets	25
Total cash flow from investing activities	<u>-\$173</u>
Financing activities	
Retirement of long-term debt	-\$ 73
Proceeds from long-term debt sales	86
Change in notes payable	-3
Dividends	-43
Repurchase of stock	-6
Proceeds from new stock issue	43
Total cash flow from financing activities	<u>\$ 4</u>
Change in cash (on the balance sheet)	<u>\$ 33</u>

go under financing activities, but unfortunately that is not how the accounting is handled. The reason is that interest is deducted as an expense when net income is computed. As a consequence, a primary difference between the accounting cash flow and the financial cash flow of the firm (see Table 2.5) is interest expense.

Summary and Conclusions

Besides introducing you to corporate accounting, the purpose of this chapter has been to teach you how to determine cash flow from the accounting statements of a typical company.

1. Cash flow is generated by the firm and paid to creditors and shareholders. It can be classified as:
 - a. Cash flow from operations.
 - b. Cash flow from changes in fixed assets.
 - c. Cash flow from changes in working capital.
2. Calculations of cash flow are not difficult, but they require care and particular attention to detail in properly accounting for noncash expenses such as depreciation and deferred taxes. It is especially important that you do not confuse cash flow with changes in net working capital and net income.

Concept Questions

1. **Liquidity** True or false: All assets are liquid at some price. Explain.
2. **Accounting and Cash Flows** Why might the revenue and cost figures shown on a standard income statement not represent the actual cash inflows and outflows that occurred during a period?
3. **Accounting Statement of Cash Flows** Looking at the accounting statement of cash flows, what does the bottom line number mean? How useful is this number for analyzing a company?
4. **Cash Flows** How do financial cash flows and the accounting statement of cash flows differ? Which is more useful for analyzing a company?
5. **Book Values versus Market Values** 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** Why is it not necessarily bad for the cash flow from assets to be negative for a particular period?
7. **Operating Cash Flow** Why is it not necessarily bad for the operating cash flow to be negative for a particular period?
8. **Net Working Capital and Capital Spending** Could a company's change in net working capital 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** 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** Referring back to the CBS Records example at the beginning of the chapter, note that we suggested that CBS Records' stockholders probably didn't suffer as a result of the reported loss. What do you think was the basis for our conclusion?

Questions and Problems

BASIC
(Questions 1–10)

1. **Building a Balance Sheet** Culligan, Inc., has current assets of \$5,000, net fixed assets of \$23,000, current liabilities of \$4,300, and long-term debt of \$13,000. What is the value of the shareholders' equity account for this firm? How much is net working capital?
2. **Building an Income Statement** Ragsdale, Inc., has sales of \$527,000, costs of \$280,000, depreciation expense of \$38,000, interest expense of \$15,000, and a tax rate of 35 percent.

What is the net income for the firm? Suppose the company paid out \$48,000 in cash dividends. What is the addition to retained earnings?



3. **Market Values and Book Values** Klingon Cruisers, Inc., purchased new cloaking machinery three years ago for \$7 million. The machinery can be sold to the Romulans today for \$3.2 million. Klingon's current balance sheet shows net fixed assets of \$4,000,000, current liabilities of \$2,200,000, and net working capital of \$900,000. If all the current assets were liquidated today, the company would receive \$2.8 million cash. What is the book value of Klingon's assets today? What is the market value?



4. **Calculating Taxes** The Herrera Co. had \$273,000 in taxable income. Using the rates from Table 2.3 in the chapter, calculate the company's income taxes. What is the average tax rate? What is the marginal tax rate?
5. **Calculating OCF** Ranney, Inc., has sales of \$13,500, costs of \$5,400, depreciation expense of \$1,200, and interest expense of \$680. If the tax rate is 35 percent, what is the operating cash flow, or OCF?
6. **Calculating Net Capital Spending** Gordon Driving School's 2006 balance sheet showed net fixed assets of \$4.2 million, and the 2007 balance sheet showed net fixed assets of \$4.7 million. The company's 2007 income statement showed a depreciation expense of \$925,000. What was Gordon's net capital spending for 2007?
7. **Building a Balance Sheet** The following table presents the long-term liabilities and stockholders' equity of Information Control Corp. one year ago:

Long-term debt	\$60,000,000
Preferred stock	18,000,000
Common stock (\$1 par value)	25,000,000
Capital surplus	49,000,000
Accumulated retained earnings	89,000,000

During the past year, Information Control issued 10 million shares of new stock at a total price of \$26 million, and issued \$8 million in new long-term debt. The company generated \$7 million in net income and paid \$4 million in dividends. Construct the current balance sheet reflecting the changes that occurred at Information Control Corp. during the year.



8. **Cash Flow to Creditors** The 2006 balance sheet of Anna's Tennis Shop, Inc., showed long-term debt of \$2.8 million, and the 2007 balance sheet showed long-term debt of \$3.1 million. The 2007 income statement showed an interest expense of \$340,000. What was the firm's cash flow to creditors during 2007?
9. **Cash Flow to Stockholders** The 2006 balance sheet of Anna's Tennis Shop, Inc., showed \$820,000 in the common stock account and \$6.8 million in the additional paid-in surplus account. The 2007 balance sheet showed \$855,000 and \$7.6 million in the same two accounts, respectively. If the company paid out \$600,000 in cash dividends during 2007, what was the cash flow to stockholders for the year?
10. **Calculating Cash Flows** Given the information for Anna's Tennis Shop, Inc., in the previous two problems, suppose you also know that the firm's net capital spending for 2007 was \$760,000 and that the firm reduced its net working capital investment by \$165,000. What was the firm's 2007 operating cash flow, or OCF?
11. **Cash Flows** Ritter Corporation's accountants prepared the following financial statements for year-end 2007:
- Explain the change in cash during 2007.
 - Determine the change in net working capital in 2007.
 - Determine the cash flow generated by the firm's assets during 2007.

RITTER CORPORATION	
Income Statement	
2007	
Revenue	\$500
Expenses	300
Depreciation	75
Net income	<u>\$125</u>
Dividends	<u>\$ 65</u>

RITTER CORPORATION		
Balance Sheets		
December 31		
	2007	2006
Assets		
Cash	\$ 45	\$ 10
Other current assets	145	120
Net fixed assets	<u>250</u>	<u>150</u>
Total assets	<u>\$440</u>	<u>\$280</u>
Liabilities and Equity		
Current liabilities	\$ 70	\$ 60
Long-term debt	90	0
Stockholders' equity	<u>280</u>	<u>220</u>
Total liabilities and equity	<u>\$440</u>	<u>\$280</u>

12. **Financial Cash Flows** The Stancil Corporation provided the following current information:

Proceeds from short-term borrowing	\$ 7,000
Proceeds from long-term borrowing	18,000
Proceeds from the sale of common stock	2,000
Purchases of fixed assets	3,000
Purchases of inventories	1,000
Payment of dividends	23,000

Determine the cash flows from the firm and the cash flows to investors of the firm.



13. **Building an Income Statement** During the year, the Senbet Discount Tire Company had gross sales of \$1 million. The firm's cost of goods sold and selling expenses were \$300,000 and \$200,000, respectively. Senbet also had notes payable of \$1 million. These notes carried an interest rate of 10 percent. Depreciation was \$100,000. Senbet's tax rate was 35 percent.
- What was Senbet's net income?
 - What was Senbet's operating cash flow?
14. **Calculating Total Cash Flows** Schwert Corp. shows the following information on its 2007 income statement: sales = \$145,000; costs = \$86,000; other expenses = \$4,900; depreciation expense = \$7,000; interest expense = \$15,000; taxes = \$12,840; dividends = \$8,700. In addition, you're told that the firm issued \$6,450 in new equity during 2007 and redeemed \$6,500 in outstanding long-term debt.
- What is the 2007 operating cash flow?
 - What is the 2007 cash flow to creditors?
 - What is the 2007 cash flow to stockholders?
 - If net fixed assets increased by \$5,000 during the year, what was the addition to net working capital (NWC)?



15. **Using Income Statements** Given the following information for O'Hara Marine Co., calculate the depreciation expense: sales = \$29,000; costs = \$13,000; addition to retained earnings = \$4,500; dividends paid = \$900; interest expense = \$1,600; tax rate = 35 percent.
16. **Preparing a Balance Sheet** Prepare a 2007 balance sheet for Jarrow Corp. based on the following information: cash = \$175,000; patents and copyrights = \$720,000; accounts payable = \$430,000; accounts receivable = \$140,000; tangible net fixed assets = \$2,900,000; inventory = \$265,000; notes payable = \$180,000; accumulated retained earnings = \$1,240,000; long-term debt = \$1,430,000.
17. **Residual Claims** Huang, Inc., is obligated to pay its creditors \$3,500 very soon.
- What is the market value of the shareholders' equity if assets have a market value of \$4,300?
 - What if assets equal \$3,200?
18. **Marginal versus Average Tax Rates** (Refer to Table 2.3.) Corporation Growth has \$85,000 in taxable income, and Corporation Income has \$8,500,000 in taxable income.
- What is the tax bill for each firm?
 - Suppose both firms have identified a new project that will increase taxable income by \$10,000. How much in additional taxes will each firm pay? Why is this amount the same?
19. **Net Income and OCF** During 2007, Raines Umbrella Corp. had sales of \$850,000. Cost of goods sold, administrative and selling expenses, and depreciation expenses were \$630,000, \$120,000, and \$130,000, respectively. In addition, the company had an interest expense of \$85,000 and a tax rate of 35 percent. (Ignore any tax loss carryback or carryforward provisions.)
- What is Raines's net income for 2007?
 - What is its operating cash flow?
 - Explain your results in (a) and (b).
20. **Accounting Values versus Cash Flows** In Problem 19, suppose Raines Umbrella Corp. paid out \$30,000 in cash dividends. Is this possible? If spending on net fixed assets and net working capital was zero, and if no new stock was issued during the year, what was the change in the firm's long-term debt account?
21. **Calculating Cash Flows** Cusic Industries had the following operating results for 2007: sales = \$12,800; cost of goods sold = \$10,400; depreciation expense = \$1,900; interest expense = \$450; dividends paid = \$500. At the beginning of the year, net fixed assets were \$9,100, current assets were \$3,200, and current liabilities were \$1,800. At the end of the year, net fixed assets were \$9,700, current assets were \$3,850, and current liabilities were \$2,100. The tax rate for 2007 was 34 percent.
- What is net income for 2007?
 - What is the operating cash flow for 2007?
 - What is the cash flow from assets for 2007? Is this possible? Explain.
 - 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).
22. **Calculating Cash Flows** Consider the following abbreviated financial statements for Weston Enterprises:



WESTON ENTERPRISES
2006 and 2007 Partial Balance Sheets

	Assets		Liabilities and Owners' Equity	
	2006	2007	2006	2007
Current assets	\$ 650	\$ 705	Current liabilities	\$ 265 \$ 290
Net fixed assets	2,900	3,400	Long-term debt	1,500 1,720

WESTON ENTERPRISES
2007 Income Statement

Sales	\$8,600
Costs	4,150
Depreciation	800
Interest paid	216

- a. What is owners' equity for 2006 and 2007?
- b. What is the change in net working capital for 2007?
- c. In 2007, Weston Enterprises purchased \$1,500 in new fixed assets. How much in fixed assets did Weston Enterprises sell? What is the cash flow from assets for the year? (The tax rate is 35 percent.)
- d. During 2007, Weston Enterprises raised \$300 in new long-term debt. How much long-term debt must Weston Enterprises have paid off during the year? What is the cash flow to creditors?

Use the following information for Ingersoll, Inc., for Problems 23 and 24 (assume the tax rate is 34 percent):

	2006	2007
Sales	\$ 4,018	\$ 4,312
Depreciation	577	578
Cost of goods sold	1,382	1,569
Other expenses	328	274
Interest	269	309
Cash	2,107	2,155
Accounts receivable	2,789	3,142
Short-term notes payable	407	382
Long-term debt	7,056	8,232
Net fixed assets	17,669	18,091
Accounts payable	2,213	2,146
Inventory	4,959	5,096
Dividends	490	539



- 23. **Financial Statements** Draw up an income statement and balance sheet for this company for 2006 and 2007.
- 24. **Calculating Cash Flow** For 2007, calculate the cash flow from assets, cash flow to creditors, and cash flow to stockholders.
- 25. **Cash Flows** You are researching Time Manufacturing and have found the following accounting statement of cash flows for the most recent year. You also know that the company paid \$110 million in current taxes and had an interest expense of \$57 million. Use the accounting statement of cash flows to construct the financial statement of cash flows.

CHALLENGE
(Questions 25–27)

TIME MANUFACTURING Statement of Cash Flows (\$ in millions)	
Operations	
Net income	\$192
Depreciation	105
Deferred taxes	21
Changes in assets and liabilities	
Accounts receivable	–31
Inventories	24
Accounts payable	19
Accrued expenses	–10
Other	2
Total cash flow from operations	<u><u>\$322</u></u>

(continued)

Investing activities	
Acquisition of fixed assets	−\$198
Sale of fixed assets	25
Total cash flow from investing activities	−\$173
Financing activities	
Retirement of long-term debt	−\$ 84
Proceeds from long-term debt sales	129
Change in notes payable	6
Dividends	−94
Repurchase of stock	−15
Proceeds from new stock issue	49
Total cash flow from financing activities	−\$ 9
Change in cash (on balance sheet)	\$140

26. **Net Fixed Assets and Depreciation** 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 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 $FA_{end} - FA_{beg}$.
27. **Tax Rates** Refer to the corporate marginal tax rate information in Table 2.3.
- Why do you think the marginal tax rate jumps up from 34 percent to 39 percent at a taxable income of \$100,001, and then falls back to a 34 percent marginal rate at a taxable income of \$335,001?
 - Compute the average tax rate for a corporation with exactly \$335,001 in taxable income. Does this confirm your explanation in part (a)? What is the average tax rate for a corporation with exactly \$18,333,334? Is the same thing happening here?
 - The 39 percent and 38 percent tax rates both represent what is called a tax “bubble.” Suppose the government wanted to lower the upper threshold of the 39 percent marginal tax bracket from \$335,000 to \$200,000. What would the new 39 percent bubble rate have to be?

S&P Problems

STANDARD
& POOR'S

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- Marginal and Average Tax Rates** Download the annual income statements for Sharper Image (SHRP). Looking back at Table 2.3, what is the marginal income tax rate for Sharper Image? Using the total income tax and the pretax income numbers, calculate the average tax rate for Sharper Image. Is this number greater than 35 percent? Why or why not?
- Net Working Capital** Find the annual balance sheets for American Electric Power (AEP) and HJ Heinz (HNZ). Calculate the net working capital for each company. Is American Electric Power's net working capital negative? If so, does this indicate potential financial difficulty for the company? What about Heinz?
- Per Share Earnings and Dividends** Find the annual income statements for Harley-Davidson (HDI), Hawaiian Electric Industries (HE), and Time Warner (TWX). What are the earnings per share (EPS Basic from operations) for each of these companies? What are the dividends per share for each company? Why do these companies pay out a different portion of income in the form of dividends?
- Cash Flow Identity** Download the annual balance sheets and income statements for Landry's Seafood Restaurants (LNY). Using the most recent year, calculate the cash flow identity for Landry Seafood. Explain your answer.

Cash Flows at Warf Computers, Inc.

Warf Computers, Inc., was founded 15 years ago by Nick Warf, a computer programmer. The small initial investment to start the company was made by Nick and his friends. Over the years, this same group has supplied the limited additional investment needed by the company in the form of both equity and short- and long-term debt. Recently the company has developed a virtual keyboard (VK). The VK uses sophisticated artificial intelligence algorithms that allow the user to speak naturally and have the computer input the text, correct spelling and grammatical errors, and format the document according to preset user guidelines. The VK even suggests alternative phrasing and sentence structure, and it provides detailed stylistic diagnostics. Based on a proprietary, very advanced software/hardware hybrid technology, the system is a full generation beyond what is currently on the market. To introduce the VK, the company will require significant outside investment.

Nick has made the decision to seek this outside financing in the form of new equity investments and bank loans. Naturally, new investors and the banks will require a detailed financial analysis. Your employer, Angus Jones & Partners, LLC, has asked you to examine the financial statements provided by Nick. Here are the balance sheet for the two most recent years and the most recent income statement:

WARF COMPUTERS					
Balance Sheet					
(\$ in thousands)					
	2007	2006		2007	2006
Current assets:			Current liabilities:		
Cash and equivalents	\$ 232	\$ 201	Accounts payable	\$ 263	\$ 197
Accounts receivable	367	342	Notes payable	68	53
Inventories	329	340	Accrued expenses	126	205
Other	47	40	Total current liabilities	<u>\$ 457</u>	<u>\$ 455</u>
Total current assets	<u>\$ 975</u>	<u>\$ 923</u>			
Fixed assets:			Long-term liabilities:		
Property, plant, and equipment	\$2,105	\$1,630	Deferred taxes	\$ 143	\$ 82
Less accumulated depreciation	687	560	Long-term debt	629	589
Net property, plant, and equipment	<u>\$1,418</u>	<u>\$1,070</u>	Total long-term liabilities	<u>\$ 772</u>	<u>\$ 671</u>
Intangible assets and others	406	363	Stockholders' equity:		
Total fixed assets	<u>\$1,824</u>	<u>\$1,433</u>	Preferred stock	\$ 10	\$ 10
			Common stock	72	64
			Capital surplus	438	399
			Accumulated retained earnings	1,147	822
			Less treasury stock	-97	-65
			Total equity	<u>\$1,570</u>	<u>\$1,230</u>
Total assets	<u>\$2,799</u>	<u>\$2,356</u>	Total liabilities and shareholders' equity	<u>\$2,799</u>	<u>\$2,356</u>

Nick has also provided the following information: During the year the company raised \$94,000 in new long-term debt and retired \$54,000 in long-term debt. The company also sold \$47,000 in new stock and repurchased \$32,000 in stock. The company purchased \$629,000 in fixed assets and sold \$111,000 in fixed assets.

WARF COMPUTERS	
Income Statement	
(\$ in thousands)	
Sales	\$3,875
Cost of goods sold	2,286
Selling, general, and administrative expense	434
Depreciation	127
Operating income	<u>\$1,028</u>
Other income	38
Earnings before interest and taxes (EBIT)	<u>\$1,066</u>
Interest expense	76
Pretax income	<u>\$ 990</u>
Taxes	347
Current: \$286	
Deferred: 61	
Net income	<u>\$ 643</u>
Addition to retained earnings	<u>\$ 325</u>
Dividends	<u>\$ 318</u>

Angus has asked you to prepare the financial statement of cash flows and the accounting statement of cash flows. He has also asked you to answer the following questions:

1. How would you describe Warf Computers' cash flows?
2. Which cash flow statement more accurately describes the cash flows at the company?
3. In light of your previous answers, comment on Nick's expansion plans.