

Financial Statements, Cash Flow, and Taxes

CHAPTER

3

WHOLE FOODS MARKET



Unlocking the Valuable Information in Financial Statements

In Chapter 1, we said that managers should make decisions that enhance long-term shareholder value, and they should be less concerned about short-term accounting measures such as earnings per share. With that important point in mind, you might reasonably wonder why are we now going to talk about accounting and financial statements. The simple answer is financial statements convey a lot of useful information that helps corporate managers assess the company's strengths and weaknesses and gauge the expected impact of various proposals. Good managers must have a solid understanding of the key financial statements. Outsiders also rely heavily on financial statements when deciding whether they want to buy the company's stock, lend money to the company, or enter into a long-term business relationship with the company.

At first glance, financial statements can be overwhelming—but if we know what we are

looking for, we can quickly learn a great deal about a company after a quick review of its financial statements. Looking at the balance sheet we can see how large a company is, the types of assets it holds, and how it finances those assets. Looking at the income statement, we can see if the company's sales increased or declined and whether the company made a profit. Glancing at the statement of cash flows, we can see if the company made any new investments, if it raised funds through financing, repurchased debt or equity, or paid dividends.

For example, in early 2015, Whole Foods released its first quarter financial statements. The news was good. The company announced higher than expected earnings per share, and the stock market responded positively. Its reported sales were \$4.7 billion, which was nearly 10% higher than the \$4.2 billion reported a year earlier. During the first quarter, Whole Foods also

announced a 4.5% increase in same-store sales, and that it had opened nine new stores. Reviewing the company's 2014 annual report at the end of its fiscal year (September 28, 2014), Whole Foods showed total assets of \$5.7 billion and total liabilities of \$1.9 billion on its balance sheet. Finally, looking at the statement of cash flows, we see that the cash generated from its operating activities (\$1.088 billion) exceeded the \$484 million spent on investing activities. However, Whole Foods' overall cash position declined by \$100 million because of the cash the company used to pay dividends and to repurchase common stock.

While we can learn a lot from a quick tour of the financial statements, a good financial analyst does not just

accept these numbers at face value. The analyst digs deeper to see what's really driving the numbers and uses his or her intuition and knowledge of the industry to help assess the company's future direction. Keep in mind that just because a company reports great numbers doesn't mean that you should purchase the stock. In the case of Whole Foods, its stock price did rise after it announced its better-than-expected financial numbers for the first quarter. However, as is always the case, analysts have mixed feelings about the stock's future direction. It's these types of disagreements that make finance interesting, and as always, time will tell whether the optimists (the bulls) or the pessimists (the bears) are correct.



PUTTING THINGS IN PERSPECTIVE

A manager's primary goal is to maximize shareholder value, which is based on the firm's future cash flows. But how do managers decide which actions are most likely to increase those flows, and how do investors estimate future cash flows? The answers to both questions lie in a study of financial statements that publicly traded firms must provide to investors. Here *investors* include both institutions (banks, insurance companies, pension funds, and the like) and individuals like you.

Much of the material in this chapter deals with concepts you covered in a basic accounting course. However, the information is important enough to warrant a review. Also, in accounting you probably focused on how accounting statements are made; the focus here is on how investors and managers *interpret* and *use* them. Accounting is the basic language of business, so everyone engaged in business needs a good working knowledge of it. It is used to "keep score"; and if investors and managers do not know the score, they won't know whether their actions are appropriate. If you took midterm exams but were not told your scores, you would have a difficult time knowing whether you needed to improve. The same idea holds in business. If a firm's managers—whether they work in marketing, human resources, production, or finance—do not understand financial statements, they will not be able to judge the effects of their actions, which will make it hard for the firm to survive, much less to have a maximum value.

When you finish this chapter you should be able to:

- List each of the key financial statements and identify the kinds of information they provide to corporate managers and investors.
- Estimate a firm's free cash flow and explain why free cash flow has such an important effect on firm value.
- Discuss the major features of the federal income tax system.

Annual Report

A report issued annually by a corporation to its stockholders. It contains basic financial statements as well as management's analysis of the firm's past operations and future prospects.

3-1 Financial Statements and Reports

The **annual report** is the most important report that corporations issue to stockholders, and it contains two types of information.¹ First, there is a verbal section, often presented as a letter from the chairperson, which describes the firm's operating results during the past year and discusses new developments that will affect future operations. Second, the report provides these four basic financial statements:

1. The *balance sheet*, which shows what assets the company owns and who has claims on those assets as of a given date—for example, December 31, 2016.
2. The *income statement*, which shows the firm's sales and costs (and thus profits) during some past period—for example, 2016.
3. The *statement of cash flows*, which shows how much cash the firm began the year with, how much cash it ended up with, and what it did to increase or decrease its cash.
4. The *statement of stockholders' equity*, which shows the amount of equity the stockholders had at the start of the year, the items that increased or decreased equity, and the equity at the end of the year.

These statements are related to one another; and taken together they provide an accounting picture of the firm's operations and financial position.

The quantitative and verbal materials are equally important. The firm's financial statements report *what has actually happened* to its assets, earnings, and dividends over the past few years, whereas management's verbal statements attempt to explain why things turned out the way they did and what might happen in the future.

For discussion purposes, we use data for Allied Food Products, a processor and distributor of a wide variety of food products, to illustrate the basic financial statements. Allied was formed in 1985, when several regional firms merged; it has grown steadily while earning a reputation as one of the best firms in its industry. Allied's earnings dropped from \$121.8 million in 2015 to \$117.5 million in 2016. Management reported that the drop resulted from losses associated with a drought as well as increased costs due to a three-month strike. However, management then went on to describe a more optimistic picture for the future, stating that full operations had been resumed, that several unprofitable businesses had been eliminated, and that 2017 profits were expected to rise sharply. Of course, an increase in profitability may not occur; and analysts should compare management's past statements with subsequent results. In any event, *the information contained in the annual report can be used to help forecast future earnings and dividends*. Therefore, investors are very interested in this report.

We should note that Allied's financial statements are relatively simple and straightforward; we also omitted some details often shown in the statements. Allied finances with only debt and common stock—it has no preferred stock, convertibles, or complex derivative securities. Also, the firm has made no acquisitions that resulted in goodwill that must be carried on the balance sheet. Finally, all of its assets are used in its basic business operations; hence, no non-operating assets must be pulled out when we evaluate its operating performance. We deliberately chose such a company because this is an introductory text; as such, we want to explain the basics of financial analysis, not wander into arcane accounting matters that are best left to accounting and security analysis courses. We do point out some of the pitfalls that can be encountered when trying to interpret accounting statements, but we leave it to advanced courses to cover the intricacies of accounting.

¹Firms also provide quarterly reports, but these are much less comprehensive than the annual report. In addition, larger firms file even more detailed statements with the Securities and Exchange Commission (SEC), giving breakdowns for each major division or subsidiary. These reports, called *10-K reports*, are made available to stockholders upon request to a company's corporate secretary. In this chapter, we focus on annual data—balance sheets at the ends of years and income statements for entire years rather than for shorter time periods.



GLOBAL PERSPECTIVES

Global Accounting Standards: Will It Ever Happen?

For the past decade, global accounting standards to improve financial reporting to investors and users of that information seemed all but certain. In 2005, the EU required the adoption of International Financial Reporting Standards (IFRS), and in 2007, the SEC eliminated the requirement for companies reporting under IFRS to reconcile their financial statements to U.S. Generally Accepted Accounting Principles (GAAP). To date, 120 countries have adopted IFRS. However, on July 13, 2012, the SEC staff issued a report that failed to recommend IFRS for U.S. adoption. The ultimate decision will be up to the SEC commission. On December 6, 2014, at an AICPA (American Institute of Certified Public Accountants) national conference, SEC chief accountant, James Schnurr, stated that he was open to dialogue about the best way to achieve high-quality financial information and comparability.

The effort to internationalize accounting standards began in 1973 with the formation of the International Accounting Standards Committee. However, in 1998, it became apparent that a full-time rule-making body with global representation was necessary; so the International Accounting Standards Board (IASB) was established. The IASB was charged with the responsibility for creating a set of IFRS. The "convergence" process began in earnest in September 2002 with the "Norwalk Agreement," in which the Financial Accounting Standards Board (FASB) and IASB undertook a short-term project to remove individual differences between the FASB's U.S. GAAP and IFRS and agreed to coordinate their activities. The process was meant to narrow gaps between the two standards, with the intention of making the transition for companies simpler and less expensive.

Obviously, the globalization of accounting standards is a huge endeavor—one that involves compromises between the IASB and FASB. However, in recent years the momentum behind this goal has diminished. Despite the best of intentions, progress toward consolidation was slowed by the 2007–2008 financial crisis and the resulting global recession. In addition, the leasing and financial instruments impairment projects progressed slowly, and the chairs of both the FASB and IASB left their positions. It has become apparent that the cost to companies, both large and small, for switching from GAAP to IFRS will be significant. Finally, the SEC has been given the task of implementing the Dodd-Frank financial reform law—limiting its ability to focus on adopting global accounting standards. However, despite the slow progress, in May 2014, the IASB and FASB issued a converged standard on revenue recognition from contracts with customers, sending a signal to capital markets that converged standards are possible. In addition, the SEC chief accountant expressed his desire to see a converged lease accounting standard in the not so distant future, since the basic lease model used by the IASB and FASB is similar.

The United States is an important economy, and without its participation it will be difficult to truly have global accounting standards. Although this report is a setback, many CFOs and accounting professionals still expect the SEC to come out with an American version of IFRS to coexist with GAAP. The FASB and IASB remain committed to improving U.S. GAAP and IFRS and achieving their convergence. Global accounting standards are probably inevitable—it's just a question of time.

Sources: Lee Berton, "All Accountants Soon May Speak the Same Language," *The Wall Street Journal*, August 29, 1995, p. A15; James Turley (CEO, Ernst & Young), "Mind the GAAP," *The Wall Street Journal*, November 9, 2007, p. A18; David M. Katz "The Path to Global Standards?" CFO.com, January 28, 2011; "Global Accounting Standards: Closing the GAAP," *The Economist* (economist.com), vol. 404, July 21, 2012; Joe Adler, "Is Effort to Unify Accounting Regimes Falling Apart?" *American Banker*, vol. 177, no. 145, July 30, 2012; Kathleen Hoffelder, "SEC Report Backs Away from Convergence," *CFO Magazine* (cfo.com/magazine), September 1, 2012; Ken Tysiac, "Still in Flux: Future of IFRS in U.S. Remains Unclear after SEC Report," *Journal of Accountancy* (journalofaccountancy.com), September 2012; and Tammy Whitehouse, "Ten Years on, Convergence Movement Starting to Wane," *Compliance Week* (complianceweek.com), October 2, 2012.

Self Test



- What is the annual report, and what two types of information does it provide?
- What four financial statements are typically included in the annual report?
- Why is the annual report of great interest to investors?

3-2 The Balance Sheet

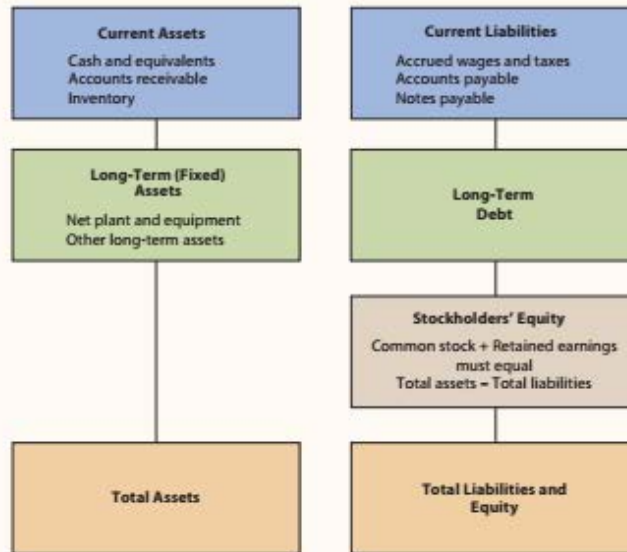
The balance sheet is a "snapshot" of a firm's position at a specific point in time. Figure 3.1 shows the layout of a typical balance sheet. The left side of the statement shows the assets that the company owns, and the right side shows the firm's liabilities and *stockholders' equity*, which are claims against the firm's assets. As Figure 3.1 shows, assets are divided into two major categories: current assets and fixed, or long-term,

Balance Sheet

A statement of a firm's financial position at a specific point in time.

FIGURE 3.1

A Typical Balance Sheet



Note: This is the typical layout of a balance sheet for one year. When balance sheets for two or more years are shown, assets are listed in the top section; liabilities and equity, in the bottom section. See Table 3.1 for an illustration.

assets. Current assets consist of assets that should be converted to cash within one year, and they include cash and cash equivalents, accounts receivable, and inventory.² Long-term assets are assets expected to be used for more than one year; they include plant and equipment in addition to intellectual property such as patents and copyrights. Plant and equipment is generally reported net of accumulated depreciation. Allied's long-term assets consist entirely of net plant and equipment, and we often refer to them as "net fixed assets."

Stockholders' Equity

It represents the amount that stockholders paid the company when shares were purchased and the amount of earnings the company has retained since its origination.

The claims against assets are of two basic types—liabilities (or money the company owes to others) and stockholders' equity. Current liabilities consist of claims that must be paid off within one year, including accounts payable, accruals (total of accrued wages and accrued taxes), and notes payable to banks and other short-term lenders that are due within one year. Long-term debt includes bonds that mature in more than a year.

Stockholders' equity can be thought of in two ways. First, it is the amount that stockholders paid to the company when they bought shares the company

²Allied and most other companies hold some currency in addition to a bank checking account. They may also hold short-term interest-bearing securities that can be sold and thus converted to cash immediately with a simple telephone call. These securities are called "cash equivalents," and they are generally included with checking account balances for financial reporting purposes. If a company owns stocks or other marketable securities that it regards as short-term investments, these items will be shown separately on the balance sheet. Allied does not hold any marketable securities other than cash equivalents.

sold to raise capital, in addition to all of the earnings the company has retained over the years:³

$$\text{Stockholders' equity} = \text{Paid-in capital} + \text{Retained earnings}$$

The **retained earnings** are not just the earnings retained in the latest year—they are the cumulative total of all of the earnings the company has earned and retained during its life.

Stockholders' equity can also be thought of as a residual:

$$\text{Stockholders' equity} = \text{Total assets} - \text{Total liabilities}$$

If Allied had invested surplus funds in bonds backed by subprime mortgages and the bonds' value fell below their purchase price, the true value of the firm's assets would have declined. The amount of its liabilities would not have changed—the firm would still owe the amount it had promised to pay its creditors. Therefore, the reported value of the common equity must decline. The accountants would make a series of entries, and the result would be a reduction in retained earnings—and thus in common equity. In the end, assets would equal liabilities and equity, and the balance sheet would balance. This example shows why common stock is more risky than bonds—any mistake that management makes has a big impact on the stockholders. Of course, gains from good decisions also go to the stockholders; so with risk come possible rewards.

Assets on the balance sheet are listed by the length of time before they will be converted to cash (inventories and accounts receivable) or used by the firm (fixed assets). Similarly, claims are listed in the order in which they must be paid: Accounts payable must generally be paid within a few days, accruals must also be paid promptly, notes payable to banks must be paid within one year, and so forth, down to the stockholders' equity accounts, which represent ownership and need never be "paid off."

Retained Earnings

They represent the cumulative total of all earnings kept by the company during its life.

3-2A ALLIED'S BALANCE SHEET

Table 3.1 shows Allied's year-end balance sheets for 2016 and 2015. From the 2016 statement, we see that Allied had \$2 billion of assets—half current and half long term. These assets were financed with \$310 million of current liabilities, \$750 million of long-term debt, and \$940 million of common equity. Comparing the balance sheets for 2016 and 2015, we see that Allied's assets grew by \$320 million and its liabilities and equity necessarily grew by that same amount. Assets must, of course, equal liabilities and equity; otherwise, the balance sheet does not balance.

Several additional points about the balance sheet should be noted:

1. **Cash versus other assets.** Although assets are reported in dollar terms, only the cash and equivalents account represents actual spendable money. Accounts receivable represent credit sales that have not yet been collected. Inventories show the cost of raw materials, work in process, and finished goods. Net fixed assets represent the cost of the buildings and equipment used in operations minus the depreciation that has been taken on these assets. At the end of 2016, Allied has \$10 million of cash; hence, it could write checks totaling that amount. The noncash assets should generate cash over time, but they do not represent cash in hand. And the cash they would bring in if they were sold today could be higher or lower than the values reported on the balance sheet.

³On Allied's balance sheet, we simply show a common stock line representing the "paid-in" capital of stockholders when they purchased common shares of stock.

TABLE 3.1 Allied Food Products: December 31 Balance Sheets (Millions of Dollars)

	2016	2015
Assets		
Current assets:		
Cash and equivalents	\$ 10	\$ 80
Accounts receivable	375	315
Inventories	615	415
Total current assets	<u>\$1,000</u>	<u>\$ 810</u>
Net fixed assets:		
Net plant and equipment (cost minus depreciation)	1,000	870
Other assets expected to last more than a year	0	0
Total assets	<u>\$2,000</u>	<u>\$1,680</u>
Liabilities and Equity		
Current liabilities:		
Accounts payable	\$ 60	\$ 30
Accruals	140	130
Notes payable	110	60
Total current liabilities	<u>\$ 310</u>	<u>\$ 220</u>
Long-term bonds	750	580
Total liabilities	<u>\$1,060</u>	<u>\$ 800</u>
Common equity:		
Common stock (50,000,000 shares)	\$ 130	\$ 130
Retained earnings	810	750
Total common equity	<u>\$ 940</u>	<u>\$ 880</u>
Total liabilities and equity	<u>\$2,000</u>	<u>\$1,680</u>

Notes:

- Inventories can be valued by several different methods, and the method chosen can affect both the balance sheet value and the cost of goods sold, and thus net income, as reported on the income statement. Similarly, companies can use different depreciation methods. The methods used must be reported in the notes to the financial statements, and security analysts can make adjustments when they compare companies if they think the differences are material.
- Book value per share: Total common equity/Shares outstanding = $\$940/50 = \18.80 .
- A relatively few firms use preferred stock, which we discuss in Chapter 9. Preferred stock can take several different forms, but it is generally like debt because it pays a fixed amount each year. However, it is like common stock because a failure to pay the preferred dividend does not expose the firm to bankruptcy. If a firm does use preferred stock, it is shown on the balance sheet between total debt and common stock. There is no set rule on how preferred stock should be treated when financial ratios are calculated—it could be considered as debt or as equity. Bondholders often think of it as equity, while stockholders think of it as debt because it is a fixed charge. In truth, preferred stock is a hybrid, somewhere between debt and common equity.

Working Capital

Current assets.

- Working capital.** Current assets are often called **working capital** because these assets “turn over”; that is, they are used and then replaced throughout the year. When Allied buys inventory items on credit, its suppliers, in effect, lend it the money used to finance the inventory items. Allied could have borrowed from its bank or sold stock to obtain the money, but it received the funds from its suppliers. These loans are shown as accounts payable, and they typically are “free” in the sense that they do not bear interest. Similarly, Allied pays its workers every two weeks and pays taxes quarterly; so Allied’s labor force and taxing authorities provide it with loans equal to its accrued wages and taxes. In addition to these “free” sources of short-term credit, Allied borrows from its bank on a short-term basis. These bank loans are shown as notes payable. Although accounts payable and accruals do not bear interest, Allied pays interest on funds obtained from the bank. The total of accounts payable, accruals, and

notes payable represent current liabilities on its balance sheet. If we subtract current liabilities from current assets, the difference is called **net working capital**:

$$\begin{aligned}\text{Net working capital} &= \text{Current assets} - \text{Current liabilities} \\ &= \$1,000 - \$310 = \$690 \text{ million}\end{aligned}$$

Current liabilities include accounts payable, accruals, and notes payable to the bank. Financial analysts often make an important distinction between the “free” liabilities (accruals and accounts payable) and interest-bearing notes payable (which incur interest expense that is included as a financing cost on the firm’s income statement). With this distinction in mind, analysts often focus on **net operating working capital (NOWC)** which differs from net working capital because interest-bearing notes payable are subtracted from current liabilities:

$$\begin{aligned}\text{Net operating working capital (NOWC)} &= \text{Current assets} - \left(\text{Current liabilities} - \text{Notes payable} \right) \\ &= \$1,000 - (\$310 - \$110) = \$800 \text{ million}\end{aligned}$$

Net Working Capital

Current assets minus current liabilities.

Net Operating Working Capital (NOWC)

Current assets minus non-interest-bearing current liabilities.

Note that Allied’s “free,” or non-interest-bearing, current liabilities in 2016 total \$200 million (\$310 million in current liabilities less the \$110 million in interest-bearing notes payable).

quick question



QUESTION:

Refer to Allied’s balance sheets shown in Table 3.1 to answer the following questions:

- What was Allied’s net working capital on December 31, 2015?
- What was Allied’s net operating working capital on December 31, 2015?

ANSWER:

- Net working capital₂₀₁₅ = Current assets₂₀₁₅ – Current liabilities₂₀₁₅

$$\text{Net working capital}_{2015} = \$810 - \$220 = \$590 \text{ million}$$

- Net operating working capital₂₀₁₅ = Current assets₂₀₁₅ – (Current liabilities₂₀₁₅ – Notes payable₂₀₁₅)

$$\text{Net operating working capital}_{2015} = \$810 - (\$220 - \$60)$$

$$\text{Net operating working capital}_{2015} = \$810 - \$160 = \$650 \text{ million}$$

- Total debt versus total liabilities.** A company’s total debt includes both its short-term and long-term interest-bearing liabilities. Total liabilities equal total debt plus the company’s “free” (non-interest bearing) liabilities. Allied’s short-term debt is shown as notes payable on its balance sheet:⁴

$$\begin{aligned}\text{Total debt} &= \text{Short-term debt} + \text{Long-term debt} \\ &= \$110 + \$750 = \$860 \text{ million}\end{aligned}$$

$$\begin{aligned}\text{Total liabilities} &= \text{Total debt} + (\text{Accounts payable} + \text{Accruals}) \\ &= \$860 + (\$60 + \$140) = \$1,060 \text{ million} = \$1.06 \text{ billion}\end{aligned}$$

⁴Companies also include the portion of their long-term bonds that is currently due as part of short-term debt.


quick question
QUESTION:

Refer to Allied's balance sheets shown in Table 3.1. What was Allied's total debt on December 31, 2015?

ANSWER:

Total debt₂₀₁₅ = Short-term debt₂₀₁₅ + Long-term debt₂₀₁₅

Total debt₂₀₁₅ = \$60 + \$580 = **\$640 million**

4. *Other sources of funds.* Most companies (including Allied) finance their assets with a combination of short-term debt, long-term debt, and common equity. Some companies also use "hybrid" securities such as preferred stock, convertible bonds, and long-term leases. Preferred stock is a hybrid between common stock and debt, while convertible bonds are debt securities that give the bondholder an option to exchange their bonds for shares of common stock. In the event of bankruptcy, debt is paid off first, and then preferred stock. Common stock is last, receiving a payment only when something remains after the debt and preferred stock are paid off.⁵
5. *Depreciation.* Most companies prepare two sets of financial statements—one is based on Internal Revenue Service (IRS) rules and is used to calculate taxes; the other is based on GAAP and is used for reporting to investors. Firms often use accelerated depreciation for tax purposes but straight-line depreciation for stockholder reporting. Allied uses accelerated depreciation for both.⁶
6. *Market values versus book values.* Companies generally use GAAP to determine the values reported on their balance sheets. In most cases, these accounting numbers (or "book values") are different from what the assets would sell for if they were offered for sale (or "market values"). For example, Allied purchased its headquarters in Chicago in 1991. Under GAAP, the company must report the value of this asset at its historical cost (what it originally paid for the building in 1991) less accumulated depreciation. Given that Chicago real estate prices have increased over the last 24 years (even considering the impact of the recent recession on real estate values), the market value of the building is higher than its book value. Other assets' market values also differ from their book values.

⁵These other forms of financing are discussed in greater detail in Chapter 20, "Hybrid Financing: Preferred Stock, Warrants, and Convertibles," from Brigham and Daves, *Intermediate Financial Management*, 12th edition (Mason, OH: Cengage Learning, 2016).

⁶Depreciation over an asset's life is equal to the asset's cost, but accelerated depreciation results in higher initial depreciation charges—and thus lower taxable income—than straight line. Due to the time value of money, it is better to delay taxes; so most companies use accelerated depreciation for tax purposes. Either accelerated or straight line can be used for stockholder reporting. Allied is a relatively conservative company; hence, it uses accelerated depreciation for stockholder reporting. Had Allied elected to use straight line for stockholder reporting, its 2016 depreciation expense would have been \$25 million lower, the \$1 billion shown for "net plant" on its balance sheet would have been \$25 million higher, and its reported income would also have been higher.

Depreciation is also important in capital budgeting, where we make decisions regarding new investments in fixed assets. We will have more to say about depreciation in Chapter 12, when we discuss capital budgeting.

We can also see from Table 3.1 that the book value of Allied's common equity at the end of 2016 was \$940 million. Because 50 million shares were outstanding, the book value per share was $\$940/50 = \18.80 . However, the market value of the common stock was \$23.06. As is true for most companies in 2016, shareholders are willing to pay more than book value for Allied's stock. This occurs in part because the values of assets have increased due to inflation and in part because shareholders expect earnings to grow. Allied, like most other companies, has learned how to make investments that will increase future profits.

Apple provides an example of a company with very strong future prospects, and as a result, in early 2015 its market value was more than six times its book value. On the other hand, if a company has problems, its market value can fall below its book value. For example, SkyWest, a regional airline that has struggled in recent years, saw its stock trading around \$15 a share at a time early in 2015 when its book value per share exceeded \$27.

7. *Time dimension.* The balance sheet is a snapshot of the firm's financial position at a point in time—for example, on December 31, 2016. Thus, we see that on December 31, 2015, Allied had \$80 million of cash; but that balance fell to \$10 million by year-end 2016. The balance sheet changes every day as inventories rise and fall, as bank loans are increased or decreased, and so forth. A company such as Allied, whose business is seasonal, experiences especially large balance sheet changes during the year. Its inventories are low just before the harvest season but high just after the fall crops have been harvested and processed. Similarly, most retailers have large inventories just before Christmas but low inventories (and high accounts receivable) just after Christmas. We will examine the effects of these changes in Chapter 4, when we compare companies' financial statements and evaluate their performance.

CASH HOLDINGS AND NET OPERATING WORKING CAPITAL: A CLOSER LOOK

To help keep things simple, our definition of net operating working capital (NOWC) assumes that all of the firm's current assets (including cash) are used for normal operating purposes. Although this assumption may be reasonable, there are clear instances where firms hold more cash than they need to run their day-to-day operations. For example, at December 31, 2014, Microsoft had more than \$90.2 billion in cash and short-term investments!

In practice, if a financial analyst believes that some of the firm's cash is being held for non-operating purposes, he or she would subtract these excess cash holdings from the firm's current assets when calculating net operating working capital, as follows:

$$\text{NOWC} = (\text{Current assets} - \text{"Excess" cash}) \\ - (\text{Current liabilities} - \text{Notes payable})$$

To illustrate, if we make the extreme assumption that all of Allied's \$10 million in cash is held for non-operating purposes, then this \$10 million in excess cash would be subtracted from its current assets, and its NOWC would be calculated as \$790 million instead of the \$800 million calculated earlier. Although the difference for Allied is fairly small, assumptions about the level of excess cash become much more important when analyzing companies with very large cash holdings. However, unless otherwise noted, throughout this text we will assume that a firm's cash balance is used solely for operating purposes.

THE BALANCE SHEET OF AN AVERAGE AMERICAN HOUSEHOLD

Balance sheets are not unique to corporations. Every entity—including state and local governments, nonprofit agencies, and individual households—has a balance sheet.

We can learn a lot about a household's financial well-being by looking at its balance sheet. Although obviously every household is different, economists can use available data to estimate the balance sheet of an average American household.

For example, in 2009, James Kwak posted his calculations of the average household balance sheet on his popular website *The Baseline Scenario* (baselinescenario.com), which provides interesting commentary on a variety of current economic and financial issues. The underlying data for his calculations came from the Federal Reserve Board's *Survey of Consumer Finances*.

A summary of Kwak's calculations for 2004, 2007, and 2009 are shown below. Although his calculations were only meant to give a broad picture of recent trends, they produce some interesting findings:

- The largest asset of the average household is its primary residence.
- The average American household does not have a large amount of savings in place for retirement.
- Perhaps somewhat surprisingly, average household debt levels have not increased dramatically in recent years.

- Average household net worth increased slightly from 2004 to 2007, but declined sharply from 2007 to 2009. The decline in net worth was due to two reasons: The sharp decline in the housing market reduced the value of the average home and the sharp decline in the stock market reduced the value of the average amount of retirement savings.

Likewise, a Federal Reserve study (*2010 Survey of Consumer Finances*) highlighted the deterioration in household finances due to the financial crisis and resulting recession. The average family's pre-tax income fell 5.6%, and the average family's net worth dropped nearly 40% during the period 2007–2010. Indeed, at the end of 2010, the average family's net worth stood at the same level that was observed in 1992—so in effect, the recent decline wiped out about 18 years' worth of savings and investment.

Although not broken down on a per-household level, updated information on aggregate household finances is on the Federal Reserve website. For example, numbers released in March 2015 indicate that aggregate household balance sheets have strengthened somewhat since 2010. Indeed, household net worth from 2010 through 2014 increased by almost 33%. These improvements reflect that many households have made progress in reducing their debt level. Household levels of net worth have also improved because of the surge in home prices and the large run-up in the stock market during this time period.⁷

	2004	2007	2009
Income	\$ 47,500	\$ 47,300	\$ 47,300
Assets			
Bank accounts	3,300	2,700	2,700
Retirement savings	19,000	23,900	17,900
Vehicles	14,400	14,600	14,600
Primary residence	148,300	150,000	125,400
Total assets	<u>\$185,000</u>	<u>\$191,200</u>	<u>\$160,600</u>
Liabilities			
Mortgage on primary residence	\$ 84,800	\$ 88,700	\$ 88,700
Installment loans	11,800	12,800	12,800
Credit cards	2,400	2,400	2,400
Total liabilities	<u>\$ 99,000</u>	<u>\$103,900</u>	<u>\$103,900</u>
Net worth	<u>\$ 86,000</u>	<u>\$ 87,300</u>	<u>\$ 56,700</u>

Note: See Kwak's posting on *The Baseline Scenario* for more details about the methods that he used in his calculations.

Sources: James Kwak, "Tracking the Household Balance Sheet," *The Baseline Scenario* (baselinescenario.com), February 15, 2009; William R. Emmons and Bryan J. Noeth, "Unsteady Progress: Income Trends in the Federal Reserve's Survey of Consumer Finances," Federal Reserve Bank of St. Louis, *In the Balance*, no. 2, 2012 (www.stlouisfed.org); Charles Riley, "Family Net Worth Plummets Nearly 40%," *CNN Money* (money.cnn.com), June 12, 2012; and "Financial Accounts of the United States," *Federal Reserve Statistical Release*, March 12, 2015.

⁷Refer to www.federalreserve.gov/releases/z1/current/z1r-5.pdf, Table B.101 "Balance Sheet of Households and Nonprofit Organizations (1)," March 12, 2015.

SelfTest



What is the balance sheet, and what information does it provide?

How is the order in which items are shown on the balance sheet determined?

Explain in words the difference between net working capital and net operating working capital.

Explain in words the difference between total debt and total liabilities.

What items on Allied's December 31 balance sheet would probably be different from its June 30 values? Would these differences be as large if Allied were a grocery chain rather than a food processor? Explain.

3-3 The Income Statement

Table 3.2 shows Allied's 2015 and 2016 **income statements**. Net sales are shown at the top of the statement; then operating costs, interest, and taxes are subtracted to obtain the net income available to common shareholders. We also show earnings and dividends per share, in addition to some other data, at the bottom of Table 3.2. Earnings per share (EPS) is often called "the bottom line," denoting that of all items on the income statement, EPS is the one that is most important to stockholders. Allied earned \$2.35 per share in 2016, down from \$2.44 in 2015. In spite of the decline in earnings, the firm still increased the dividend from \$1.06 to \$1.15.

A typical stockholder focuses on the reported EPS, but professional security analysts and managers differentiate between *operating* and *non-operating* income. **Operating income** is derived from the firm's regular core business—in Allied's case, from producing and selling food products. Moreover, it is calculated before deducting interest expenses and taxes, which are considered to be non-operating costs. Operating income is also called EBIT, or earnings before interest and taxes. Here is its equation:

$$\begin{aligned} \text{Operating income (or EBIT)} &= \text{Sales revenues} - \text{Operating costs} \\ &= \$3,000.0 - \$2,716.2 \\ &= \$283.8 \text{ million} \end{aligned} \quad \blacktriangledown \quad 3.2$$

This figure must, of course, match the one reported on the income statement.

Different firms have different amounts of debt, different tax carrybacks and carryforwards, and different amounts of non-operating assets such as marketable securities. These differences can cause two companies with identical operations to report significantly different net incomes. For example, suppose two companies have identical sales, operating costs, and assets. However, one company uses some debt, and the other uses only common equity. Despite their identical operating performances, the company with no debt (and therefore no interest expense) would report a higher net income because no interest was deducted from its operating income. Consequently, if you want to compare two companies' operating performances, it is best to focus on their operating income.⁸

⁸Operating income is important for several reasons. Managers are generally compensated based on the performance of the units they manage. A division manager can control his or her division's performance, but not the firm's capital structure policy or other corporate decisions. Second, if one firm is considering acquiring another, it will be interested in the value of the target firm's operations; that value is determined by the target firm's operating income. Third, operating income is normally more stable than total income, as total income can be heavily influenced by write-offs of bonds backed by subprime mortgages and the like. Therefore, analysts focus on operating income when they estimate firms' long-run stock values.

Income Statements

Reports summarizing a firm's revenues, expenses, and profits during a reporting period, generally a quarter or a year.

Operating Income

Earnings from operations before interest and taxes (i.e., EBIT).

TABLE 3.2 Allied Food Products: Income Statements for Years Ending December 31
(Millions of Dollars, Except for Per-Share Data)

	2016	2015
Net sales	\$3,000.0	\$2,850.0
Operating costs except depreciation and amortization	2,616.2	2,497.0
Depreciation and amortization	100.0	90.0
Total operating costs	<u>\$2,716.2</u>	<u>\$2,587.0</u>
Operating income, or earnings before interest and taxes (EBIT)	\$ 283.8	\$ 263.0
Less interest	88.0	60.0
Earnings before taxes (EBT)	\$ 195.8	\$ 203.0
Taxes (40%)	78.3	81.2
Net income	<u>\$ 117.5</u>	<u>\$ 121.8</u>
<i>Here are some related items:</i>		
Total dividends	\$ 57.5	\$ 53.0
Addition to retained earnings = Net income – Total dividends	\$ 60.0	\$ 68.8
<i>Per-share data:</i>		
Common stock price	\$ 23.06	\$ 26.00
Earnings per share (EPS) ^a	\$ 2.35	\$ 2.44
Dividends per share (DPS) ^a	\$ 1.15	\$ 1.06
Book value per share (BVPS) ^a	\$ 18.80	\$ 17.60

Notes:

^aAllied has 50 million shares of common stock outstanding. Note that EPS is based on net income available to common stockholders. Calculations of EPS, DPS, and BVPS for 2016 are as follows:

$$\begin{aligned} \text{Earnings per share} = \text{EPS} &= \frac{\text{Net income}}{\text{Common shares outstanding}} = \frac{\$117,500,000}{50,000,000} = \$2.35 \\ \text{Dividends per share} = \text{DPS} &= \frac{\text{Dividends paid to common stockholders}}{\text{Common shares outstanding}} = \frac{\$57,500,000}{50,000,000} = \$1.15 \\ \text{Book value per share} = \text{BVPS} &= \frac{\text{Total common equity}}{\text{Common shares outstanding}} = \frac{\$940,000,000}{50,000,000} = \$18.80 \end{aligned}$$

When a firm has options or convertibles outstanding or it recently has issued new common stock, a more comprehensive EPS, "diluted EPS," is calculated. Its calculation is a bit more complicated, but you may refer to any financial accounting text for a discussion.

From Allied's income statement, we see that its operating income increased from \$263.0 million in 2015 to \$283.8 million in 2016, or by \$20.8 million. However, its 2016 net income declined. This decline occurred because it increased its debt in 2016, and the \$28 million increase in interest lowered its net income.

Taking a closer look at the income statement, we see that depreciation and amortization are important components of operating costs. Recall from accounting that **depreciation** is an annual charge against income that reflects the estimated dollar cost of the capital equipment and other tangible assets that were depleted in the production process. **Amortization** amounts to the same thing except that it represents the decline in value of intangible assets such as patents, copyrights, trademarks, and goodwill. Because depreciation and amortization are so similar, they are generally lumped together for purposes of financial analysis on the income statement and for other purposes. They both write off, or allocate, the costs of assets over their useful lives.

Depreciation

The charge to reflect the cost of assets depleted in the production process. Depreciation is not a cash outlay.

Amortization

A noncash charge similar to depreciation except that it represents a decline in value of intangible assets.

Even though depreciation and amortization are reported as costs on the income statements, they are not cash expenses—cash was spent in the past, when the assets being written off were acquired, but no cash is paid out to cover depreciation and amortization. Therefore, managers, security analysts, and bank loan officers who are concerned with the amount of cash a company is generating often calculate **EBITDA**, an acronym for earnings before interest, taxes, depreciation, and amortization. Allied has no amortization charges, so Allied's depreciation and amortization expense consists entirely of depreciation. In 2016, Allied's EBITDA was \$383.8 million.

Although the balance sheet represents a snapshot in time, the income statement reports on operations *over a period of time*. For example, during 2016, Allied had sales of \$3 billion and its net income was \$117.5 million. Income statements are prepared monthly, quarterly, and annually. The quarterly and annual statements are reported to investors, while the monthly statements are used internally by managers for planning and control purposes.

Finally, note that the income statement is tied to the balance sheet through the retained earnings account on the balance sheet. Net income as reported on the income statement less dividends paid is the retained earnings for the year (e.g., 2016). Those retained earnings are added to the cumulative retained earnings from prior years to obtain the year-end 2016 balance for retained earnings. The retained earnings for the year are also reported in the statement of stockholders' equity. All four of the statements provided in the annual report are interrelated.

EBITDA

Earnings before interest, taxes, depreciation, and amortization.

Self Test



Why is earnings per share called "the bottom line"? What is EBIT, or operating income?

What is EBITDA?

Which is more like a snapshot of the firm's operations—the balance sheet or the income statement? Explain your answer.

3-4 Statement of Cash Flows

Net income as reported on the income statement is not cash; and in finance, "cash is king." Management's goal is to maximize the price of the firm's stock; and the value of any asset, including a share of stock, is based on the cash flows the asset is expected to produce. Therefore, managers strive to maximize the cash flows available to investors. The **statement of cash flows**, as shown in Table 3.3, is the accounting report that shows how much cash the firm is generating. The statement is divided into four sections, and we explain it on a line-by-line basis.⁹

Here is a line-by-line explanation of the statement shown in Table 3.3:

- Operating activities.** This section deals with items that occur as part of normal ongoing operations.
- Net income.** The first operating activity is net income, which is the first source of cash. If all sales were for cash, if all costs required immediate cash payments, and if the firm were in a static situation, net income would equal

Statement of Cash Flows

A report that shows how items that affect the balance sheet and income statement affect the firm's cash flows.

⁹Allied's statement of cash flows is relatively simple because it is a relatively uncomplicated company. Many cash flow statements are more complex; but if you understand Table 3.3, you should be able to follow more complex statements.

TABLE 3.3

Allied Food Products: Statement of Cash Flows for 2016 (Millions of Dollars)

	2016
a. I. Operating Activities	
b. Net income	\$117.5
c. Depreciation and amortization	100.0
d. Increase in inventories	(200.0)
e. Increase in accounts receivable	(60.0)
f. Increase in accounts payable	30.0
g. Increase in accrued wages and taxes	10.0
h. Net cash provided by (used in) operating activities	<u>(\$ 2.5)</u>
i. II. Long-Term Investing Activities	
j. Additions to property, plant, and equipment	<u>(\$230.0)</u>
k. Net cash used in investing activities	<u>(\$230.0)</u>
l. III. Financing Activities	
m. Increase in notes payable	\$ 50.0
n. Increase in bonds	170.0
o. Payment of dividends to stockholders	<u>(57.5)</u>
p. Net cash provided by financing activities	<u>\$162.5</u>
q. IV. Summary	
r. Net decrease in cash (Net sum of I, II, and III)	(\$ 70.0)
s. Cash and equivalents at the beginning of the year	80.0
t. Cash and equivalents at the end of the year	<u>\$ 10.0</u>

Note: Here and throughout the book parentheses are sometimes used to denote negative numbers.

cash from operations. However, these conditions don't hold, so net income is not equal to cash from operations. Adjustments shown in the remainder of the statement must be made.

- c. *Depreciation and amortization.* The first adjustment relates to depreciation and amortization. Allied's accountants subtracted depreciation (it has no amortization expense), which is a noncash charge, when they calculated net income. Therefore, depreciation must be added back to net income when cash flow is determined.
- d. *Increase in inventories.* To make or buy inventory items, the firm must use cash. It may receive some of this cash as loans from its suppliers and workers (payables and accruals); but ultimately, any increase in inventories requires cash. Allied increased its inventories by \$200 million in 2016. That amount is shown in parentheses on line d because it is negative (i.e., a use of cash). If Allied had reduced its inventories, it would have generated positive cash.
- e. *Increase in accounts receivable.* If Allied chooses to sell on credit when it makes a sale, it will not immediately get the cash that it would have received had it not extended credit. To stay in business, it must replace the inventory that it sold on credit; but it won't yet have received cash from the credit sale. So if the firm's accounts receivable increase, this will amount to a use of cash. Allied's receivables rose by \$60 million in 2016, and that use of cash is shown as a negative number on line e. If Allied had reduced its receivables, this would be shown as a positive cash flow.

(Once cash is received for the sale, the accompanying accounts receivable will be eliminated.)

- f. *Increase in accounts payable.* Accounts payable represent a loan from suppliers. Allied bought goods on credit, and its payables increased by \$30 million this year. That is treated as a \$30 million increase in cash on line f. If Allied had reduced its payables, that would have required, or used, cash. Note that as Allied grows, it will purchase more inventories. That will give rise to additional payables, which will reduce the amount of new outside funds required to finance inventory growth.
- g. *Increase in accrued wages and taxes.* The same logic applies to accruals as to accounts payable. Allied's accruals increased by \$10 million this year, which means that in 2016, it borrowed an additional \$10 million from its workers and taxing authorities. So this represents a \$10 million cash inflow.
- h. *Net cash provided by operating activities.* All of the previous items are part of normal operations—they arise as a result of doing business. When we sum them, we obtain the net cash flow from operations. Allied had positive flows from net income, depreciation, and increases in payables and accruals; but it used cash to increase inventories and to carry receivables. The net result was that operations led to a \$2.5 million net cash outflow.
- i. *Long-term investing activities.* All activities involving long-term assets are covered in this section. Allied had only one long-term investment activity—the acquisition of some fixed assets, as shown on line j. If Allied had sold some fixed assets, its accountants would have reported it in this section as a positive amount (i.e., as a cash inflow).
- j. *Additions to property, plant, and equipment.* Allied spent \$230 million on fixed assets during the current year. This is an outflow; therefore, it is shown in parentheses. If Allied had sold some of its fixed assets, this would have been a cash inflow.¹⁰
- k. *Net cash used in investing activities.* Because Allied had only one investment activity, the total on this line is the same as that on the previous line.
- l. *Financing activities.* Allied's financing activities are shown in this section.
- m. *Increase in notes payable.* Allied borrowed an additional \$50 million from its bank this year, which was a cash inflow. When Allied repays the loan, this will be an outflow.
- n. *Increase in bonds (long-term debt).* Allied borrowed an additional \$170 million from long-term investors this year, issuing bonds in exchange for cash. This is shown as an inflow. When the bonds are repaid by the firm some years hence, this will be an outflow.
- o. *Payment of dividends to stockholders.* Dividends are paid in cash, and the \$57.5 million that Allied paid to stockholders is shown as a negative amount.
- p. *Net cash provided by financing activities.* The sum of the three financing entries, which is a positive \$162.5 million, is shown here. These funds were used to help pay for the \$230 million of new plant and equipment and to help cover the deficit resulting from operations.
- q. *Summary.* This section summarizes the change in cash and cash equivalents over the year.

¹⁰The number on line j is "gross" investment, or total expenditures. It is also equal to the change in net plant and equipment (from the balance sheet) plus depreciation, as shown on line c: Gross investment = Net investment + Depreciation = \$130 + \$100 = \$230.

MASSAGING THE CASH FLOW STATEMENT

Profits as reported on the income statement can be “massaged” by changes in depreciation methods, inventory valuation procedures, and so on, but “cash is cash,” so management can’t mess with the cash flow statement, right? Nope—wrong. A 2005 article in *The Wall Street Journal* (“Little Campus Lab Shakes Big Firms”) described how Ford, General Motors, and several other companies overstated their operating cash flows, the most important section of the cash flow statement. Indeed, GM reported more than twice as much cash from operations as it really generated, \$7.6 billion versus a true \$3.5 billion. When GM sold cars to a dealer on credit, it created an account receivable, which should be shown in the “Operating Activities” section as a use of cash. However, GM classified these receivables as an investing activity. That decision more than doubled its reported cash flow from operations. It didn’t affect the end-of-year cash balance, but it made operations look stronger than they really were.

If Allied Foods, in Table 3.3, had done this, the \$60 million increase in receivables, which is correctly shown as a use of cash, would have been shifted to the “Investing Activities” section, causing Allied’s cash provided by operations to rise from $-\$2.5$ million to $+\$57.5$ million. That would have made Allied look better to investors and credit analysts, but it would have been just smoke and mirrors.

GM’s treatment was first reported by Charles Mulford, a professor at Georgia Tech. The SEC then sent GM a letter requiring it to change its procedures. The company issued a statement saying it thought that it was acting in accordance with GAAP but that it would reclassify its accounts in the future. GM’s action was not in the league of WorldCom’s or Enron’s fraudulent accounting practices, but it does show that companies sometimes do things to make their statements look better than they really are.

Source: Based on Diya Gullapalli, “Little Campus Lab Shakes Big Firms,” *The Wall Street Journal*, March 1, 2005, p. C3.

- r. *Net decrease in cash.* The net sum of the operating activities, investing activities, and financing activities is shown here. These activities resulted in a \$70 million net decrease in cash during 2016, mainly due to expenditures on new fixed assets.
- s. *Cash and equivalents at the beginning of the year.* Allied began the year with \$80 million of cash, which is shown here.
- t. *Cash and equivalents at the end of the year.* Allied ended the year with \$10 million of cash, the \$80 million it started with minus the \$70 million net decrease that occurred during the year. Clearly, Allied’s cash position is weaker than it was at the beginning of the year.

Allied’s statement of cash flows should be of concern to its managers and investors. The company was able to cover the small operating deficit and the large investment in fixed assets by borrowing and reducing its beginning balances of cash and equivalents. However, the firm can’t continue to do this indefinitely. In the long run, Section I needs to show positive operating cash flows. In addition, we would expect Section II to show expenditures on fixed assets that are about equal to (1) its depreciation charges (to replace worn out fixed assets), along with (2) some additional expenditures to provide for growth. Section III would normally show some net borrowing in addition to a “reasonable” amount of dividends.¹¹ Finally, Section IV should show a reasonably stable year-to-year cash balance. These conditions don’t hold for Allied, so some actions should be taken to correct the situation. We will consider corrective actions in Chapter 4, when we analyze the firm’s financial statements.

¹¹The average company pays out about one-third of its earnings as dividends, but there is a great deal of variation between companies, depending on each company’s needs for retained earnings to support growth. We cover dividends in detail in Chapter 14.

SelfTest



What is the statement of cash flows, and what are some questions it answers?

Identify and briefly explain the four sections shown in the statement of cash flows.

If during the year a company has high cash flows from its operations, does this mean that cash on its balance sheet will be higher at the end of the year than it was at the beginning of the year? Explain.

3-5 Statement of Stockholders' Equity

Changes in stockholders' equity during the accounting period are reported in the **statement of stockholders' equity**. Table 3.4 shows that Allied earned \$117.5 million during 2016, paid out \$57.5 million in common dividends, and plowed \$60 million back into the business. Thus, the balance sheet item "Retained earnings" increased from \$750 million at year-end 2015 to \$810 million at year-end 2016.¹²

Note that "retained earnings" represents a *claim against assets*, not assets per se. Stockholders allow management to retain earnings and reinvest them in the business, use retained earnings for additions to plant and equipment, add to inventories, and the like. Companies *do not* just pile up cash in a bank account. Thus, *retained earnings as reported on the balance sheet do not represent cash and are not "available" for dividends or anything else.*¹³

Statement of Stockholders' Equity

A statement that shows by how much a firm's equity changed during the year and why this change occurred.

Allied Food Products: Statement of Stockholders' Equity, December 31, 2016 (Millions of Dollars) **TABLE 3.4**

	COMMON STOCK		Retained Earnings	Total Stockholders' Equity
	Shares (000)	Amount		
Balances, December 31, 2015	50,000	\$130.0	\$750.0	\$880.0
2016 Net income			117.5	
Cash dividends			(57.5)	
Addition to retained earnings				60.0
Balances, December 31, 2016	<u>50,000</u>	<u>\$130.0</u>	<u>\$810.0</u>	<u>\$940.0</u>

¹²If they had been applicable, columns would have been used to show Additional Paid-in Capital and Treasury Stock. Also, additional rows would have contained information on such things as new issues of stock, treasury stock acquired or reissued, stock options exercised, and unrealized foreign exchange gains or losses.

¹³Cash (as of the balance sheet date) is found in the cash account, an asset account. A positive number in the retained earnings account indicates only that the firm has in the past earned income and has not paid it all out as dividends. Even though a company reports record earnings and shows an increase in retained earnings, it still may be short of cash if it is using its available cash to purchase current and fixed assets to support growth. The same situation holds for individuals. You might own a new BMW (no loan), many clothes, and an expensive stereo (hence, have a high net worth); but if you had only \$0.23 in your pocket plus \$5.00 in your checking account, you would still be short of cash.

SelfTest

What information does the statement of stockholders' equity provide?

Why do changes in retained earnings occur?

Explain why the following statement is true: The retained earnings account reported on the balance sheet does not represent cash and is not "available" for dividend payments or anything else.

3-6 Uses and Limitations of Financial Statements

As we mentioned in the opening vignette to this chapter, financial statements provide a great deal of useful information. You can inspect the statements and answer a number of important questions such as these: How large is the company? Is it growing? Is it making or losing money? Is it generating cash through its operations, or are operations actually losing cash?

At the same time, investors need to be cautious when they review financial statements. Although companies are required to follow GAAP, managers still have a lot of discretion in deciding how and when to report certain transactions. (For an example, see the box in Section 3-4, "Massaging the Cash Flow Statement," on GM's treatment of receivables.)

Consequently, two firms in exactly the same situation may report financial statements that convey different impressions about their financial strength. Some variations may stem from legitimate differences of opinion about the correct way to record transactions. In other cases, managers may choose to report numbers in a manner that helps them present either higher or more stable earnings over time. As long as they follow GAAP, such actions are legal, but these differences make it difficult for investors to compare companies and gauge their true performances. In particular, watch out if senior managers receive bonuses or other compensation based on earnings in the short run—they may try to boost short-term reported income to boost their bonuses.

Unfortunately, there have also been cases where managers disregarded GAAP and reported fraudulent statements. One blatant example of cheating involved WorldCom, which reported asset values that exceeded their true value by about \$11 billion. This led to an understatement of costs and a corresponding overstatement of profits. Enron is another high-profile example. It overstated the value of certain assets, reported those artificial value increases as profits, and transferred the assets to subsidiary companies to hide the true facts. Enron's and WorldCom's investors eventually learned what was happening, and the companies were forced into bankruptcy. Many of their top executives went to jail; the accounting firm that audited their books was forced out of business; and investors lost billions of dollars.

After the Enron and WorldCom fiascos, Congress in 2002 passed the Sarbanes-Oxley Act (SOX), which required companies to improve their internal auditing standards and required the CEO and CFO to certify that the financial statements were properly prepared. The SOX bill also created a new watchdog organization to help make sure that the outside accounting firms were doing their jobs.

More recently, a serious debate has arisen regarding the appropriate accounting for complicated investments held by financial institutions. In the recent financial crisis, many of these investments (particularly those related to subprime mortgages) turned out to be worth a lot less than their stated book value. Currently, regulators

and other policy makers are struggling to come up with the best way to account for and regulate many of these “toxic assets.”¹⁴

Finally, keep in mind that even if investors receive accurate accounting data, it is cash flows, not accounting income, that matters most. Similarly, as we shall see in Chapters 11 and 12, when managers make capital budgeting decisions on which projects to accept, their focus should be on cash flow.

SelfTest



Can investors be confident that if the financial statements of different companies are accurate and are prepared in accordance with GAAP, the data reported by one company will be comparable to the data provided by another?

Why might different companies account for similar transactions in different ways?

3-7 Free Cash Flow

Thus far, we have focused on financial statements as they are prepared by accountants. However, accounting statements are designed primarily for use by creditors and tax collectors, not for managers and stock analysts. Therefore, corporate decision makers and security analysts often modify accounting data to meet their needs. The most important modification is the concept of **free cash flow (FCF)**, defined as “the amount of cash that could be withdrawn without harming a firm’s ability to operate and to produce future cash flows.” Here is the equation used to calculate free cash flow:

$$\text{FCF} = \left[\text{EBIT}(1 - T) + \frac{\text{Depreciation and amortization}}{\text{and amortization}} \right] - \left[\frac{\text{Capital expenditures}}{\text{expenditures}} + \frac{\Delta \text{Net operating working capital}}{\text{working capital}} \right] \quad 3.3$$

The first term represents the amount of cash that the firm generates from its current operations. EBIT (1 - T) is often referred to as **NOPAT**, or **net operating profit after taxes**. Depreciation and amortization are added back because these are noncash expenses that reduce EBIT but do not reduce the amount of cash the company has available to pay its investors. The second bracketed term indicates the amount of cash that the company is investing in its fixed assets (capital expenditures) and operating working capital in order to sustain ongoing operations. A positive level of FCF indicates that the firm is generating more than enough cash to finance current investments in fixed assets and working capital. By contrast, negative free cash flow means that the company does not have sufficient internal funds to finance investments in fixed assets and working capital, and that it will have to raise new money in the capital markets in order to pay for these investments.

Consider the case of Home Depot. The first bracketed term in Equation 3.3 represents the amount of cash that Home Depot is generating from its existing stores. The second bracketed term represents the amount of cash that the company is spending this period to construct new stores. When Home Depot opens a new store, it needs cash to purchase the land and construct the building—these are capital expenditures, and they lead to a corresponding increase in the firm’s fixed assets on the balance sheet. However, when it opens a new store, the company also needs to increase its net operating working capital. In

Free Cash Flow (FCF)

The amount of cash that could be withdrawn without harming a firm’s ability to operate and to produce future cash flows.

Net Operating Profit After Taxes (NOPAT)

The profit a company would generate if it had no debt and held only operating assets.

¹⁴On May 12, 2011, the FASB and IASB jointly issued new guidance regarding how fair value measurement should be applied where its use is already required. It does not extend the use of fair value accounting.

particular, the company needs to stock the store with new inventory. Part of this inventory may be financed through accounts payable—for example, a supplier might ship Home Depot some flashlights today and allow Home Depot to pay for them later. In this case, there would be no increase in net operating working capital because the increase in current assets exactly equals the increase in current liabilities. Other portions of their inventory may not have offsetting accounts payable, so there will be an increase in net operating working capital, and the company must come up with the cash today in order to pay for this increase. Putting everything together, the company as a whole is generating positive free cash flow if the money generated from operating existing stores exceeds the money required to build new stores.

Looking at Allied's key financial statements, we can collect the pieces that we need to calculate its free cash flow. First, we can obtain Allied's EBIT and depreciation and amortization expense from the income statement. Looking at Table 3.2, we see that Allied's 2016 operating income (EBIT) was \$283.8 million. Because Allied's tax rate is 40%, it follows that its NOPAT = EBIT(1 - T) = \$283.8(1 - 0.4) = \$170.3 million. We also see that Allied's depreciation and amortization expense in 2016 was \$100 million.

Allied's capital expenditures (the cash used to purchase new fixed assets) can be found under the investment activities on the Statement of Cash Flows. Looking at Table 3.3, we see that Allied's capital expenditures in 2016 totaled \$230 million.¹⁵ Finally, we need to calculate the change in net operating working capital (Δ NOWC). Recall that NOWC is current assets minus non-interest-bearing current liabilities (where non-interest-bearing current liabilities are calculated as current liabilities minus notes payable). We showed earlier that Allied's NOWC for 2016 was:

$$\text{NOWC}_{2016} = \$1,000 - (\$310 - \$110) = \$800 \text{ million}$$

Likewise, its NOWC for 2015 can be calculated as:

$$\text{NOWC}_{2015} = \$810 - (\$220 - \$60) = \$650 \text{ million}$$

Thus, Allied's change in net operating working capital (Δ NOWC) = \$150 million (\$800 million - \$650 million). Putting everything together, we can now calculate Allied's 2016 free cash flow:

$$\begin{aligned} \text{FCF} &= \left[\text{EBIT}(1 - T) + \begin{array}{c} \text{Depreciation} \\ \text{and amortization} \end{array} \right] - \left[\begin{array}{c} \text{Capital} \\ \text{expenditures} \end{array} + \begin{array}{c} \Delta \text{Net operating} \\ \text{working capital} \end{array} \right] \\ \text{FCF}_{2016} &= (\$170.3 + \$100) - (\$230 + \$150) \\ &= -\$109.7 \text{ million} \end{aligned}$$

Allied's FCF is negative, which is not good. Note, though, that the negative FCF is largely attributable to the \$230 million expenditure for a new processing plant. This plant is large enough to meet production for several years, so another new plant will not be needed until 2020. Therefore, Allied's FCF for 2017 and the next few years should increase, which means that Allied's financial situation is not as bad as the negative FCF might suggest.

Most rapidly growing companies have negative FCFs—the fixed assets and working capital needed to support a firm's rapid growth generally exceed cash flows from its existing operations. This is not bad, provided a firm's new investments are eventually profitable and contribute to its FCF.

¹⁵Alternatively, we can calculate Allied's capital expenditures by looking at changes in net fixed assets on the balance sheet between 2015 and 2016 and then adding back depreciation and amortization for 2016. In this example, Allied's net fixed assets increased \$130 million (from \$870 million in 2015 to \$1 billion in 2016), and its depreciation and amortization totaled \$100 million in 2016. Consequently, gross capital expenditures were \$130 million + \$100 million = \$230 million.

quick question



QUESTION:

A company has EBIT of \$30 million, depreciation of \$5 million, and a 40% tax rate. It needs to spend \$10 million on new fixed assets and \$15 million to increase its current assets. It expects its accounts payable to increase by \$2 million, its accruals to increase by \$3 million, and its notes payable to increase by \$8 million. The firm's current liabilities consist of only accounts payable, accruals, and notes payable. What is its free cash flow?

ANSWER:

First, you need to determine the Δ Net operating working capital (Δ NOWC):

$$\Delta\text{NOWC} = \Delta\text{Current assets} - (\Delta\text{Current liabilities} - \Delta\text{Notes payable})$$

$$\Delta\text{NOWC} = \$15 - (\$13 - \$8)$$

$$\Delta\text{NOWC} = \$15 - \$5 = \$10 \text{ million.}$$

Now, you can solve for free cash flow (FCF):

$$\text{FCF} = [\text{EBIT}(1 - T) + \text{Depreciation and amortization}] - [\text{Capital expenditures} + \Delta\text{NOWC}]$$

$$\text{FCF} = [\$30(1 - 0.4) + \$5] - [\$10 + \$10]$$

$$\text{FCF} = \$18 + \$5 - \$20$$

$$\text{FCF} = \$3 \text{ million}$$

FREE CASH FLOW IS IMPORTANT FOR BUSINESSES BOTH SMALL AND LARGE

Free cash flow is important to large companies like Allied Foods. Security analysts use FCF to help estimate the value of the stock, and Allied's managers use it to assess the value of proposed capital budgeting projects and potential merger candidates. Note, though, that the concept is also relevant for small businesses.

Assume that your aunt and uncle own a small pizza shop and that their accountant prepares their financial statements. The income statement shows their accounting profit for each year. Although they are certainly interested in this number, what they probably care more about is how much money they can take out of the business each year to maintain their standard of living. Let's assume that the shop's net income for 2016 was \$75,000. However, your aunt and uncle had to spend \$50,000 to refurbish the kitchen and restrooms.

So although the business is generating a great deal of "profit," your aunt and uncle can't take much money out because they have to put money back into the pizza shop. Stated another way, their free cash flow is much less than their net income. The required investments could be so large that they even exceed the money made from selling pizza. In this case, your aunt and uncle's free cash flow would be negative. If so, this means they must find funds from other sources just to maintain their pizza business.

As astute business owners, your aunt and uncle recognize that their restaurant investments, such as updating the kitchen and restrooms, are nonrecurring; and if nothing else happens unexpectedly, your aunt and uncle should be able to take more cash out of the business in future years, when their free cash flow increases. But some businesses never seem to produce cash for their owners—they consistently generate positive net income, but this net income is swamped by the amount of cash that has to be plowed back into the business.

Thus, when it comes to valuing the pizza shop (or any business small or large), what really matters is the amount of free cash flow that the business generates over time. Looking ahead, your aunt and uncle face competition from national chains that are moving into the area. To meet the competition, your aunt and uncle will have to modernize the dining room. This will again drain cash from the business and reduce its free cash flow, although the hope is that it will enable them to increase sales and free cash flow in the years ahead. As we will see in Chapters 11 and 12, which cover capital budgeting, evaluating projects require us to estimate whether the future increases in free cash flow are sufficient to more than offset the initial project cost. Therefore, the free cash flow calculation is critical to a firm's capital budgeting analysis.

Many analysts regard FCF as being the single most important number that can be developed from accounting statements, even more important than net income. After all, FCF shows how much cash the firm can distribute to its investors. We discuss FCF again in Chapter 9, which covers stock valuation, and in Chapters 11 and 12, which cover capital budgeting.

Self Test



What is free cash flow (FCF)?

Why is FCF an important determinant of a firm's value?

3-8 MVA and EVA

Items reported on the financial statements reflect historical, in-the-past, values, not current market values, and there are often substantial differences between the two. Changes in interest rates and inflation affect the market value of the company's assets and liabilities but often have no effect on the corresponding book values shown in the financial statements. Perhaps, more importantly, the market's assessment of value takes into account its ongoing assessment of current operations as well as future opportunities. For example, it cost Microsoft very little to develop its first operating system, but that system turned out to be worth many billions that were not shown on its balance sheet. For a given level of debt, these increases in asset value also lead to a corresponding increase in the market value of equity.

To illustrate, consider the following situation. A firm was started with \$1 million of assets at book value (historical cost), \$500,000 of which was provided by bondholders, and \$500,000 by stockholders (50,000 shares purchased at \$10 per share). However, this firm became very successful; the market value of the firm's equity is now worth \$19.5 million, and its current stock price is $\$19,500,000/50,000 = \390 per share. Clearly the firm's managers have done a marvelous job for the stockholders.

The accounting statements do not reflect market values, so they are not sufficient for purposes of evaluating managers' performance. To help fill this void, financial analysts have developed two additional performance measures, the first of which is MVA, or market value added.¹⁶ MVA is simply the difference between the market value of a firm's equity and the book value as shown on the balance sheet, with market value found by multiplying the stock price by the number of shares outstanding. For our hypothetical firm, MVA is $\$19.5 \text{ million} - \$0.5 \text{ million} = \$19 \text{ million}$.

For Allied, which has 50 million shares outstanding and a stock price of \$23.06, the market value of the equity is \$1,153 million versus a book value, as shown on the balance sheet in Table 3.1, of \$940 million. Therefore, Allied's MVA is $\$1,153 - \$940 = \$213$ million. This \$213 million represents the difference between the money Allied's stockholders have invested in the corporation since its founding—including retained earnings—versus the cash they could receive if they sold the business. The higher its MVA, the better the job management is doing for the firm's shareholders. Boards of directors often look at MVA when deciding on the compensation a firm's

Market Value Added (MVA)

The excess of the market value of equity over its book value.

¹⁶The concepts of EVA and MVA were developed by Joel Stern and Bennett Stewart, co-founders of the consulting firm Stern Stewart & Company. Stern Stewart copyrighted the terms MVA and EVA, so other consulting firms have given other names to these values. Still, MVA and EVA are the terms most commonly used in practice. For more on MVA and EVA, see G. Bennett Stewart, *The Quest for Value* (New York: HarperCollins, 1991, 1999).

managers deserve. Note, though, that just as all ships rise in a rising tide, most firms' stock prices rise in a rising stock market, so a positive MVA may not be entirely attributable to management performance.

A related concept, **economic value added (EVA)**, sometimes called "economic profit," is closely related to MVA and is found as follows:¹⁷

$$\begin{aligned}
 \text{EVA} &= \begin{array}{c} \text{Net operating profit} \\ \text{after taxes} \\ \text{(NOPAT)} \end{array} - \begin{array}{c} \text{Annual dollar} \\ \text{cost of} \\ \text{capital} \end{array} \\
 &= \text{EBIT}(1 - T) - \left(\begin{array}{c} \text{Total} \\ \text{invested} \\ \text{capital} \end{array} \times \begin{array}{c} \text{After-tax} \\ \text{percentage} \\ \text{cost of capital} \end{array} \right)
 \end{aligned}$$

Economic Value Added (EVA)
Excess of NOPAT over capital costs.

Companies create value (and realize positive EVA) if the benefits of their investments exceed the cost of raising the necessary capital. Total invested capital represents the amount of money that the company has raised from debt, equity, and any other sources of capital (such as preferred stock). The annual dollar cost of capital is total invested capital multiplied by the after-tax percentage cost of this capital. So, for example, if the company has raised \$1 million in capital, and the current cost of capital is 10%, the annual dollar cost of capital would be \$100,000. The funds raised from this capital are invested in a variety of net fixed assets and net operating working capital. In any given year, NOPAT is the amount of money that these investments have generated for the company's investors after paying for operating costs and taxes—in this regard it represents the benefits of capital investments.

EVA is an estimate of a business's true economic profit for a given year, and it often differs sharply from accounting net income. The main reason for this difference is that although accounting income takes into account the cost of debt (the company's interest expense), it does not deduct for the cost of equity capital. By contrast, EVA takes into account the total dollar cost of all capital, which includes both the cost of debt and equity capital.

If EVA is positive, then after-tax operating income exceeds the cost of the capital needed to produce that income, and management's actions are adding value for stockholders. Positive EVA on an annual basis will help ensure that MVA is also positive. Note that whereas MVA applies to the entire firm, EVA can be determined for divisions as well as for the company as a whole, so it is useful as a guide to "reasonable" compensation for divisional as well as top corporate managers.

Self Test



Define the terms *market value added (MVA)* and *economic value added (EVA)*.
How does EVA differ from accounting net income?

¹⁷Another top consulting company, McKinsey & Company, uses the term *economic profit*. Its definition of economic profit is:

$$(\text{Total invested capital}) \times (\text{Return on invested capital} - \text{Cost of capital})$$

Because the return on invested capital is $[\text{EBIT}(1 - T)] / \text{Total invested capital}$, you can show with a little bit of algebra that EVA and economic profit are identical.



The IRS website is www.irs.gov. Here you can find current filing information and current credits and deductions information, and order needed forms and publications.

Progressive

A tax system where the tax rate is higher on higher incomes. The personal income tax in the United States, which ranges from 0% on the lowest incomes to 39.6% on the highest incomes, is progressive.

Marginal Tax Rate

The tax rate applicable to the last unit of a person's income.

Average Tax Rate

Taxes paid divided by taxable income.

Capital Gain

The profit from the sale of a capital asset for more than its purchase price.

Capital Loss

The loss from the sale of a capital asset for less than its purchase price.

3-9 Income Taxes

Individuals and corporations pay out a significant portion of their income as taxes, so taxes are important in both personal and corporate decisions. We summarize the key aspects of the U.S. tax system for individuals in this section and for corporations in the next section, using 2015 data. The details of our tax laws change fairly often—annually for items that are indexed for inflation—but the basic nature of the tax system is likely to remain intact.

3-9A INDIVIDUAL TAXES

Individuals pay taxes on wages and salaries, on investment income (dividends, interest, and profits from the sale of securities), and on the profits of proprietorships and partnerships. The tax rates are **progressive**—that is, the higher one's income, the larger the percentage paid in taxes. Table 3.5 provides the 2015 tax rates that taxpayers will pay for tax returns due April 15, 2016.

Taxable income is defined as “gross income less a set of exemptions and deductions.” When filing a tax return in 2016 for the tax year 2015, taxpayers received an exemption of \$4,000 for each dependent, including the taxpayer, which reduces taxable income. However, this exemption is indexed to rise with inflation, and the exemption is phased out (taken away) for high-income taxpayers. Also, certain expenses, including mortgage interest paid, state and local income taxes paid, and charitable contributions, can be deducted and thus be used to reduce taxable income; but again, high-income taxpayers lose most of these deductions.

The **marginal tax rate** is defined as “the tax rate on the last dollar of income.” Marginal rates begin at 10% and rise to 39.6%. Note, though, that when consideration is given to the phase-out of exemptions and deductions, to Social Security and Medicare taxes, and to state taxes, the marginal tax rate may actually exceed 50%. Average tax rates can be calculated from the data in Table 3.5. For example, if a single individual had taxable income of \$38,000, his or her tax bill would be $\$5,156.25 + (\$38,000 - \$37,450)(0.25) = \$5,156.25 + \$137.50 = \$5,293.75$. Her **average tax rate** would be $\$5,293.75/\$38,000 = 13.9\%$ versus a marginal rate of 25%. If she received a raise of \$1,000, bringing her income to \$39,000, she would have to pay \$250 of it as taxes; so her after-tax raise would be \$750.

Note too that *interest income* received by individuals from corporate securities is added to other income and thus is taxed at federal rates going up to 39.6%, plus state taxes.¹⁸ *Capital gains and losses*, on the other hand, are treated differently. Assets such as stocks, bonds, and real estate are defined as *capital assets*. When you buy a capital asset and later sell it for more than you paid, you earn a profit that is called a **capital gain**; when you suffer a loss, it is called a **capital loss**. If you held the asset for a year or less, you will have a *short-term capital gain or loss*, while if you held it for more than a year, you will have a *long-term capital gain or loss*. Thus, if you buy 100 shares of Disney stock for \$80 per share and sell them for \$90 per share, you have a capital gain of $100 \times \$10$, or \$1,000. However, if you sell the stock for \$70 per share, you will have a \$1,000 capital loss. Depending on how long you hold the stock, you will have a short-term or long-term capital gain or loss.¹⁹ If you sell the stock for exactly \$80 per share, you make neither a gain nor a loss; so no tax is due.

¹⁸Under U.S. tax laws, interest on most state and local government bonds, called municipals or “munis,” is not subject to federal income taxes. This has a significant effect on the values of munis and on their rates of return. We discuss rates and returns in Chapter 8.

¹⁹If you have a net capital loss (your capital losses exceed your capital gains) for the year, you can deduct up to \$3,000 of this loss against your other income (for example, salary, interest, and dividends).

2015 Individual Tax Rates TABLE 3.5

Single Individuals

If Your Taxable Income Is	You Pay This Amount on the Base of the Bracket	Plus This Percentage on the Excess over the Base (Marginal Rate)	Average Tax Rate at Top of Bracket
Up to \$9,225	\$ 0	10.0%	10.0%
\$9,225–\$37,450	922.50	15.0	13.8
\$37,450–\$90,750	5,156.25	25.0	20.4
\$90,750–\$189,750	18,481.25	28.0	24.3
\$189,750–\$411,500	46,075.25	33.0	29.0
\$411,500–\$413,200	119,401.25	35.0	29.0
Over \$413,200	119,996.25	39.6	39.6

Married Couples Filing Joint Returns

If Your Taxable Income Is	You Pay This Amount on the Base of the Bracket	Plus This Percentage on the Excess over the Base (Marginal Rate)	Average Tax Rate at Top of Bracket
Up to \$18,450	\$ 0	10.0%	10.0%
\$18,450–\$74,900	1,845.00	15.0	13.8
\$74,900–\$151,200	10,312.50	25.0	19.4
\$151,200–\$230,450	29,387.50	28.0	22.4
\$230,450–\$411,500	51,577.50	33.0	27.1
\$411,500–\$464,850	111,324.00	35.0	28.0
Over \$464,850	129,996.50	39.6	39.6

Notes:

- These are the 2015 tax rates that will be paid on tax returns due April 15, 2016. The income ranges at which each tax rate takes effect are indexed with inflation, so they change each year.
- The average tax rates are always below the marginal rates, but in 2015 the average at the top of the brackets approaches 39.6% as taxable income rises without limit.
- In 2015, a personal exemption of \$4,000 per person or dependent could be deducted from gross income to determine taxable income. Thus, a husband and wife with two children would have a 2015 exemption of $4 \times 4,000 = 16,000$. The exemption increases with inflation, but if gross income exceeds certain limits, the exemption is phased out, and this has the effect of raising the effective tax rate on incomes over the specified limit. In addition, taxpayers can claim *itemized deductions* for charitable contributions and certain other items, but these deductions are also phased out for high-income taxpayers. In addition, there are Social Security and Medicare taxes. These additional situations and payroll taxes push the 2015 effective tax rate up well above 39.6%.

A short-term capital gain is taxed at the same rate as ordinary income. However, long-term capital gains are taxed differently. For most taxpayers, the rate on long-term capital gains is only 15%. Thus, if in 2015, you were in the 35% tax bracket, any short-term capital gains you earned would be taxed just like ordinary income; but your long-term capital gains would only be taxed at 15%. However, the tax rate on long-term capital gains is 20% for taxpayers in the 39.6% tax bracket. In addition, high-income taxpayers may incur a 3.8% unearned income Medicare contribution tax applied to their capital gains and other net investment income. So, the highest tax rate that could apply on short-term capital gains that are taxed at ordinary rates is 43.4% compared to 23.8% on long-term capital gains. Even for individuals at these top tax brackets, the tax rate on long-term capital gains still remains considerably lower than the tax rate on ordinary income.

Beginning in 2013, the maximum tax rate on *qualified dividends* increased to 20% for taxpayers in the 39.6% tax bracket.²⁰ However, for most taxpayers the top tax rate on qualified dividends is 15%. Because corporations pay dividends out of earnings that have already been taxed, there is *double taxation of corporate income*—income is first taxed at the corporate rate; and when what is left is paid out as dividends, it is taxed again. This double taxation motivated Congress to tax dividends at a lower rate than the rate on ordinary income.

Tax rates on dividends and capital gains have varied over time, but they have generally been lower than rates on ordinary income. Congress wants the economy to grow. For growth, we need investment in productive assets; and low capital gains and dividend tax rates encourage investment. Individuals with money to invest understand the tax advantages associated with making equity investments in newly formed companies versus buying bonds, so new ventures have an easier time attracting capital under the tax system. All in all, lower capital gains and dividend tax rates stimulate capital formation and investment.

As you might imagine, over the years Congress has frequently adjusted the tax code for individuals to promote certain activities. For example, Individual Retirement Accounts (IRAs) have encouraged individuals to save more for retirement. There are two main types of IRAs, **Traditional IRAs** and **Roth IRAs**. In each case, investors receive valuable tax benefits as long as the money is held in their account until age 59½. Qualified contributions to a Traditional IRA are tax deductible, and the income and capital gains on the investments within the account are not taxed until the money is withdrawn after age 59½. On the other hand, contributions to a Roth IRA are not tax deductible (they come out of after-tax dollars), but from that point forward, neither the future income nor the capital gains from the investments are taxed. In each case, investors in IRAs face penalties if they withdraw funds before age 59½, unless there is a qualifying exception—for example, investors in a Roth IRA can withdraw up to \$10,000 from their account to help pay for a first-time home without facing a penalty.

As a very rough rule of thumb, Roth IRAs are more attractive for those individuals who believe that their tax rates will increase over time—either because they think their income will increase as they age and/or because they think Congress will raise overall tax rates in the future. For this reason, many younger investors who expect higher pay (and therefore higher tax rates!) over time tend to select Roth IRAs. Indeed, a Vanguard analyst in a recent article in *The Wall Street Journal* estimates that investors under 30 years old allocate 92% of their IRA funds into Roth accounts. But as you might expect, one size doesn't fit all, and it is important to review the specific eligibility requirements, potential penalties, and distribution policies before making any investments. Fortunately, there are a lot of great online resources that summarize the relative benefits and drawbacks with both Traditional and Roth IRAs.²¹

One other tax feature should be addressed—the **Alternative Minimum Tax (AMT)**. The AMT was created in 1969 because Congress learned that 155 millionaires with high incomes paid no taxes because they had so many tax shelters from items such as depreciation on real estate and municipal bond interest. Under the AMT law, people must calculate their tax under the “regular” system and then under the AMT system, where many deductions are added back to income and then taxed

Traditional IRAs

Individual retirement arrangements in which qualified contributions are tax deductible and income and capital gains on investments within the account are not taxed until the money is withdrawn after age 59½.

Roth IRAs

Individual retirement arrangements in which contributions are not tax deductible but the future income and capital gains within these accounts are not taxed if the money is withdrawn after age 59½.

Alternative Minimum Tax (AMT)

Created by Congress to make it more difficult for wealthy individuals to avoid paying taxes through the use of various deductions.

²⁰For a dividend to be “qualified,” the investor must have owned the stock for more than 60 days during a 121-day period that begins 60 days prior to the ex-dividend date. We discuss dividends in Chapter 14; however, for now, understand that the ex-dividend date is the date when the right to the current dividend leaves the stock.

²¹For additional information regarding IRAs refer to Laura Saunders, “Is a Roth Account Right for You?” *The Wall Street Journal* (online.wsj.com), December 19, 2014; and David Wolpe, “All about IRAs,” *The Motley Fool* (www.fool.com/money/allaboutiras/allaboutiras.htm).

at a special AMT rate. For many years, the AMT was not indexed for inflation; and literally millions of taxpayers found themselves subject to this very complex tax.²²

New tax legislation also increased health care taxes for single taxpayers earning more than \$200,000 and married taxpayers earning more than \$250,000. These taxpayers will incur an additional 0.9% Medicare tax and a 3.8% net investment income tax on certain types of investment income.

3-9B CORPORATE TAXES

The corporate tax structure, shown in Table 3.6, is relatively simple. To illustrate, if a firm had \$65,000 of taxable income, its tax bill would be \$11,250:

$$\begin{aligned} \text{Taxes} &= \$7,500 + 0.25(\$15,000) \\ &= \$7,500 + \$3,750 = \$11,250 \end{aligned}$$

Its average tax rate would be $\$11,250/\$65,000 = 17.3\%$. Note that corporate income above \$18,333,333 has an average and marginal tax rate of 35%.

Interest and Dividends Received by a Corporation

Corporations earn most of their income from operations, but they may also own securities—bonds and stocks—and receive interest and dividend income. Interest income received by a corporation is taxed as ordinary income at regular corporate tax rates. *However, dividends are taxed more favorably: 70% of dividends received is excluded from taxable income, whereas the remaining 30% is taxed at the ordinary tax rate.*²³ Thus, a corporation earning more than \$18,333,333 and paying a 40% marginal federal plus state tax rate would normally pay only $(0.30)(0.4) = 0.12 = 12\%$ of its dividend income as taxes. If this firm had \$10,000 in pretax dividend income, its after-tax dividend income would be \$8,800:

$$\text{After-tax income} = \text{Pretax income}(1 - T) = \$10,000(1 - 0.12) = \$8,800$$

2015 Corporate Tax Rates TABLE 3.6

If a Corporation's Taxable Income Is	It Pays This Amount on the Base of the Bracket	Plus This Percentage on the Excess over the Base (Marginal Rate)	Average Tax Rate at Top of Bracket
Up to \$50,000	\$ 0	15%	15.0%
\$50,000–\$75,000	7,500	25	18.3
\$75,000–\$100,000	13,750	34	22.3
\$100,000–\$335,000	22,250	39	34.0
\$335,000–\$10,000,000	113,900	34	34.0
\$10,000,000–\$15,000,000	3,400,000	35	34.3
\$15,000,000–\$18,333,333	5,150,000	38	35.0
Over \$18,333,333	6,416,667	35	35.0

²²Beginning in 2013, the AMT exemption amounts are indexed to inflation. In 2015, the AMT exemption amounts are \$53,600 for single taxpayers, \$83,400 for those married and filing jointly, and \$41,700 for those married and filing separately. The corporate AMT exemption is \$40,000 and is phased out with alternative minimum taxable income between \$150,000 and \$310,000.

²³The exclusion depends on the percentage of the paying company's stock the receiving company owns. If it owns 100% (hence, the payer is a subsidiary), all of the dividend will be excluded. If it owns less than 20%, which is the case if the stock held is just an investment, 70% will be excluded. Also, state tax rules vary; but in our example, we assume that Allied also has a state tax exclusion.

The rationale behind this exclusion is that when a corporation receives dividends and then pays out its own after-tax income as dividends to its stockholders, the dividends received are subjected to triple taxation: (1) The original corporation is taxed. (2) The second corporation is taxed on the dividends it receives. (3) The individuals who receive the final dividends are taxed again. This explains the 70% intercorporate dividend exclusion.

Suppose a firm has excess cash that it does not need for operations, and it plans to invest this cash in marketable securities. The tax factor favors stocks, which pay dividends, rather than bonds, which pay interest. For example, suppose Allied had \$100,000 to invest, and it could buy bonds that paid 8% interest, or \$8,000 per year, or stock that paid 7% in dividends, or \$7,000. Allied is in the 40% federal-plus-state tax bracket. Therefore, if Allied bought bonds and received interest, its tax on the \$8,000 of interest would be $0.4(\$8,000) = \$3,200$, and its after-tax income would be \$4,800. If it bought stock, its tax would be $\$7,000(0.12) = \840 , and its after-tax income would be \$6,160. *Other factors might lead Allied to invest in bonds, but when the investor is a corporation, the tax factor favors stock investments.*

Interest and Dividends Paid by a Corporation

A firm like Allied can finance its operations with either debt or stock. If a firm uses debt, it must pay interest, whereas if it uses stock, it is expected to pay dividends. *Interest paid can be deducted from operating income to obtain taxable income, but dividends paid cannot be deducted.* Therefore, Allied would need \$1 of pretax income to pay \$1 of interest; but because it is in the 40% federal-plus-state tax bracket, it must earn \$1.67 of pretax income to pay \$1 of dividends:

$$\text{Pretax income needed to pay \$1 of dividends} = \frac{\$1}{1 - \text{Tax rate}} = \frac{\$1}{0.60} = \$1.67$$

Working backward, if Allied has \$1.67 in pretax income, it must pay \$0.67 in taxes $[(0.4)(\$1.67) = \$0.67]$. This leaves it with after-tax income of \$1.00.

Table 3.7 shows the situation for a firm with \$10 million of assets, sales of \$5 million, and \$1.5 million of earnings before interest and taxes (EBIT). As shown in column 1, if the firm were financed entirely by bonds and if it made interest payments of \$1.5 million, its taxable income would be zero; taxes would be zero; and its investors would receive the entire \$1.5 million. (The term *investors* includes both stockholders and bondholders.) However, as shown in column 2, if the firm had no debt and was therefore financed entirely by stock, all of the \$1.5 million of EBIT would be taxable income to the corporation; the tax would be

TABLE 3.7 Returns to Investors under Bond and Stock Financing

	Use Bonds (1)	Use Stocks (2)
Sales	\$5,000,000	\$5,000,000
Operating costs	<u>3,500,000</u>	<u>3,500,000</u>
Earnings before interest and taxes (EBIT)	\$1,500,000	\$1,500,000
Interest	<u>1,500,000</u>	<u>0</u>
Taxable income	\$ 0	\$1,500,000
Federal-plus-state taxes (40%)	<u>0</u>	<u>600,000</u>
After-tax income	<u>\$ 0</u>	<u>\$ 900,000</u>
Income to investors	<u>\$1,500,000</u>	<u>\$ 900,000</u>
Rate of return on \$10 million of assets	15.0%	9.0%

$\$1,500,000(0.40) = \$600,000$; and investors would receive only \$0.9 million versus \$1.5 million under debt financing. Therefore, the rate of return to investors on their \$10 million investment is much higher when debt is used.

Of course, it is generally not possible to finance exclusively with debt; and the risk of doing so would offset the benefits of the higher expected income. *Still, the fact that interest is a deductible expense has a profound effect on the way businesses are financed—the corporate tax system favors debt financing over equity financing.* This point is discussed in more detail in Chapters 10 and 13.²⁴

Corporate Capital Gains

Before 1987, corporate long-term capital gains were taxed at lower rates than corporate ordinary income; so the situation was similar for corporations and individuals. Currently, though, corporations' capital gains are taxed at the same rates as their operating income.

Corporate Loss Carryback and Carryforward

Ordinary corporate operating losses can be carried back (**carryBack**) to each of the preceding 2 years and carried forward (**carryForward**) for the next 20 years and used to offset taxable income in those years. For example, an operating loss in 2016 could be carried back and used to reduce taxable income in 2014 and 2015, it also could be carried forward, if necessary, and used in 2017, 2018, up until 2036. The loss is applied to the earliest year first, then to the next earliest year, and so forth, until losses have been used up or the 20-year carryforward limit has been reached.

To illustrate, suppose Company X had \$2 million of pretax profits (taxable income) in 2014 and 2015 and then in 2016, it lost \$12 million. Its federal-plus-state tax rate is 40%. As shown in Table 3.8, Company X would use the carryback feature to recompute its taxes for 2014, using \$2 million of the 2016 operating losses to reduce the 2014 pretax profit to zero. This would permit it to recover the taxes paid in 2014. Therefore, in 2016, it would receive a refund of its 2014 taxes because of the loss experienced in 2016. Because \$10 million of the unrecovered losses would still be available, X would repeat this procedure for 2015. Thus, in 2016, the company would pay zero taxes for 2016 and would receive a refund for taxes paid in 2014 and 2015. It would still

Carryback

Ordinary corporate operating losses can be carried backward for 2 years and carried forward for 20 years to offset taxable income in a given year.

Carryforward

Ordinary corporate operating losses can be carried backward for 2 years and carried forward for 20 years to offset taxable income in a given year.

Calculation of Loss Carryback and Carryforward for 2014–2015 Using a \$12 Million 2016 Loss **TABLE 3.8**

	2014	2015
Original taxable income	\$ 2,000,000	\$ 2,000,000
Carryback credit	<u>–2,000,000</u>	<u>–2,000,000</u>
Adjusted profit	\$ 0	\$ 0
Taxes previously paid (40%)	<u>800,000</u>	<u>800,000</u>
Difference = Tax refund	<u>\$ 800,000</u>	<u>\$ 800,000</u>
Total refund check received in 2017: $\$800,000 + \$800,000 = \$1,600,000$.		
Amount of loss carryforward available for use in 2017–2036:		
2016 loss	\$12,000,000	
Carryback losses used	<u>4,000,000</u>	
Carryforward losses still available	<u>\$ 8,000,000</u>	

²⁴A company could, in theory, refrain from paying dividends to help prevent its stockholders from having to pay taxes on dividends received. The IRS has a rule against the *improper accumulation of retained earnings*. However, in our experience, it is easy for firms to justify retaining earnings; and we have never seen a firm have a problem with the improper accumulation rule.

have \$8 million of unrecovered losses to carry forward, subject to the 20-year limit. This \$8 million could be used until the entire \$12 million loss had been used to offset taxable income. The purpose of permitting this loss treatment is to avoid penalizing corporations whose incomes fluctuate substantially from year to year.

Consolidated Corporate Tax Returns

If a corporation owns 80% or more of another corporation's stock, it can aggregate income and file one consolidated tax return. This allows the losses of one company to be used to offset the profits of another. (Similarly, one division's losses can be used to offset another division's profits.) No business wants to incur losses; but tax offsets make it more feasible for large, multidivisional corporations to undertake risky new ventures or ventures that will suffer losses during a developmental period.

Taxation of Small Businesses: S Corporations

As we noted in Chapter 1, the Tax Code allows small businesses that meet certain conditions to be set up as corporations and thus receive the benefits of the corporate form of organization—especially limited liability—yet still be taxed as proprietorships or partnerships rather than as corporations. These corporations are called **S Corporations**. (Regular corporations are called C corporations.) If a corporation elects to set up as an S corporation, all of its income is reported as personal income by its stockholders, on a pro rata basis, and thus is taxed at the stockholders' individual rates. Because the income is taxed only once, this is an important benefit to the owners of small corporations in which all or most of the income earned each year will be distributed as dividends. The situation is similar for LLCs.

S Corporation

A small corporation that, under Subchapter S of the Internal Revenue Code, elects to be taxed as a proprietorship or a partnership yet retains limited liability and other benefits of the corporate form of organization.

Depreciation

Depreciation plays an important role in income tax calculations—the larger the depreciation, the lower the taxable income, the lower the tax bill, and thus the higher the operating cash flow. Congress specifies the life over which assets can be depreciated for tax purposes and the depreciation methods that can be used. We discuss in detail how depreciation is calculated and how it affects income and cash flows when we study capital budgeting.

Self Test



- Explain this statement: Our tax rates are progressive.
- What's the difference between marginal and average tax rates?
- What's the AMT, and what is its purpose?
- What's a muni bond, and how are these bonds taxed?
- What are long-term capital gains? Are they taxed like other income? Explain.
- How does our tax system influence the use of debt financing by corporations?
- What is the logic behind allowing tax loss carrybacks/carryforwards?
- Differentiate between S and C corporations.



TYING IT ALL TOGETHER

The primary purposes of this chapter were to describe the basic financial statements, to present background information on cash flows, to differentiate between cash flow and accounting income, and to provide an overview of the federal income tax system. In the next chapter, we build on this information to analyze a firm's financial statements and to determine its financial health.

Self-Test Questions And Problems



(Solutions Appear in Appendix A)

ST-1 KEY TERMS Define each of the following terms:

- Annual report; balance sheet; income statement; statement of cash flows; statement of stockholders' equity
- Stockholders' equity; retained earnings; working capital; net working capital; net operating working capital (NOWC); total debt
- Depreciation; amortization; operating income; EBITDA; free cash flow (FCF)
- Net operating profit after taxes (NOPAT)
- Market value added (MVA); economic value added (EVA)
- Progressive tax; marginal tax rate; average tax rate
- Tax loss carryback; carryforward; alternative minimum tax (AMT)
- Traditional IRAs; Roth IRAs
- Capital gain (loss)
- S corporation

ST-2 NET INCOME AND CASH FLOW Last year Rattner Robotics had \$5 million in operating income (EBIT). Its depreciation expense was \$1 million, its interest expense was \$1 million, and its corporate tax rate was 40%. At year-end, it had \$14 million in current assets, \$3 million in accounts payable, \$1 million in accruals, \$2 million in notes payable, and \$15 million in net plant and equipment. Rattner uses only debt and common equity to fund its operations. (In other words, Rattner has no preferred stock on its balance sheet.) Rattner had no other current liabilities. Assume that Rattner's only noncash item was depreciation.

- What was the company's net income?
- What was its net operating working capital (NOWC)?
- What was its net working capital (NWC)?
- Rattner had \$12 million in net plant and equipment the prior year. Its net operating working capital has remained constant over time. What is the company's free cash flow (FCF) for the year that just ended?
- Rattner has 500,000 common shares outstanding, and the common stock amount on the balance sheet is \$5 million. The company has not issued or repurchased common stock during the year. Last year's balance in retained earnings was \$11.2 million, and the firm paid out dividends of \$1.2 million during the year. Develop Rattner's end-of-year statement of stockholders' equity.
- If the firm's stock price at year-end is \$52, what is the firm's market value added (MVA)?
- If the firm's after-tax percentage cost of capital is 9%, what is the firm's EVA at year-end?

Questions

- 3-1 What four financial statements are contained in most annual reports?
- 3-2 Who are some of the basic users of financial statements, and how do they use them?
- 3-3 If a “typical” firm reports \$20 million of retained earnings on its balance sheet, could its directors declare a \$20 million cash dividend without having any qualms about what they were doing? Explain your answer.
- 3-4 Explain the following statement: Although the balance sheet can be thought of as a snapshot of a firm’s financial position at a point in time, the income statement reports on operations over a period of time.
- 3-5 Financial statements are based on generally accepted accounting principles (GAAP) and are audited by CPA firms. Do investors need to worry about the validity of those statements? Explain your answer.
- 3-6 Refer to the box titled, “The Balance Sheet of an ‘Average’ American Household” when answering parts a and b.
- a. Based on this evidence, did the financial position of the average household improved during 2004–2007? During 2007–2010? During 2010–2014? Explain your answers.
- b. What do you think the average household balance sheet looks like today? Explain your answer.
- 3-7 What is free cash flow? If you were an investor, why might you be more interested in free cash flow than net income?
- 3-8 Would it be possible for a company to report negative free cash flow and still be highly valued by investors; that is, could a negative free cash flow ever be viewed optimistically by investors? Explain your answer.
- 3-9 How are management’s actions incorporated in EVA and MVA? How are EVA and MVA interconnected?
- 3-10 Explain the following statement: Our tax rates are progressive.
- 3-11 What does *double taxation of corporate income* mean? Could income ever be subject to *triple taxation*? Explain your answer.
- 3-12 How does the deductibility of interest and dividends by the paying corporation affect the choice of financing (i.e., the use of debt versus equity)?

Problems

Easy Problems 1–8

- 3-1 **BALANCE SHEET** The assets of Dallas & Associates consist entirely of current assets and net plant and equipment. The firm has total assets of \$2.5 million and net plant and equipment equals \$2 million. It has notes payable of \$150,000, long-term debt of \$750,000, and total common equity of \$1.5 million. The firm does have accounts payable and accruals on its balance sheet. The firm only finances with debt and common equity, so it has no preferred stock on its balance sheet.
- a. What is the company’s total debt?
- b. What is the amount of total liabilities and equity that appears on the firm’s balance sheet?
- c. What is the balance of current assets on the firm’s balance sheet?
- d. What is the balance of current liabilities on the firm’s balance sheet?
- e. What is the amount of accounts payable and accruals on its balance sheet? (Hint: Consider this as a single line item on the firm’s balance sheet.)
- f. What is the firm’s net working capital?
- g. What is the firm’s net operating working capital?
- h. What is the explanation for the difference in your answers to parts f and g?
- 3-2 **INCOME STATEMENT** Byron Books Inc. recently reported \$13 million of net income. Its EBIT was \$20.8 million, and its tax rate was 35%. What was its interest expense?

(Hint: Write out the headings for an income statement, and fill in the known values. Then divide \$13 million of net income by $(1 - T) = 0.65$ to find the pretax income. The difference between EBIT and taxable income must be interest expense. Use this same procedure to complete similar problems.)

- 3-3 INCOME STATEMENT** Patterson Brothers recently reported an EBITDA of \$7.5 million and net income of \$2.1 million. It had \$2.0 million of interest expense, and its corporate tax rate was 30%. What was its charge for depreciation and amortization?
- 3-4 STATEMENT OF STOCKHOLDERS' EQUITY** In its most recent financial statements, Nessler Inc. reported \$75 million of net income and \$825 million of retained earnings. The previous retained earnings were \$784 million. How much in dividends were paid to shareholders during the year? Assume that all dividends declared were actually paid.
- 3-5 MVA** Harper Industries has \$900 million of common equity on its balance sheet; its stock price is \$80 per share; and its market value added (MVA) is \$50 million. How many common shares are currently outstanding?
- 3-6 MVA** Over the years, Masterson Corporation's stockholders have provided \$34,000,000 of capital when they purchased new issues of stock and allowed management to retain some of the firm's earnings. The firm now has 2,000,000 shares of common stock outstanding, and the shares sell at a price of \$28 per share. How much value has Masterson's management added to stockholder wealth over the years, that is, what is Masterson's MVA?
- 3-7 EVA** Barton Industries has operating income for the year of \$3,500,000 and a 36% tax rate. Its total invested capital is \$20,000,000 and its after-tax percentage cost of capital is 8%. What is the firm's EVA?
- 3-8 PERSONAL TAXES** Susan and Stan Britton are a married couple who file a joint income tax return, where the tax rates are based on the tax tables presented in the chapter. Assume that their taxable income this year was \$375,000.
- What is their federal tax liability?
 - What is their marginal tax rate?
 - What is their average tax rate?
- 3-9 BALANCE SHEET** Which of the following actions are most likely to directly increase cash as shown on a firm's balance sheet? Explain and state the assumptions that underlie your answer.
- It issues \$4 million of new common stock.
 - It buys new plant and equipment at a cost of \$3 million.
 - It reports a large loss for the year.
 - It increases the dividends paid on its common stock.
- 3-10 STATEMENT OF STOCKHOLDERS' EQUITY** Electronics World Inc. paid out \$22.4 million in total common dividends and reported \$144.7 million of retained earnings at year-end. The prior year's retained earnings were \$95.5 million. What was the net income? Assume that all dividends declared were actually paid.
- 3-11 EVA** For 2016, Gourmet Kitchen Products reported \$22 million of sales and \$19 million of operating costs (including depreciation). The company has \$15 million of total invested capital. Its after-tax cost of capital is 10%, and its federal-plus-state income tax rate was 36%. What was the firm's economic value added (EVA), that is, how much value did management add to stockholders' wealth during 2016?
- 3-12 STATEMENT OF CASH FLOWS** Hampton Industries had \$39,000 in cash at year-end 2015 and \$11,000 in cash at year-end 2016. The firm invested in property, plant, and equipment totaling \$210,000. Cash flow from financing activities totaled +\$120,000.
- What was the cash flow from operating activities?
 - If accruals increased by \$15,000, receivables and inventories increased by \$50,000, and depreciation and amortization totaled \$25,000, what was the firm's net income?

Intermediate
Problems
9-14

- 3-13 STATEMENT OF CASH FLOWS** You have just been hired as a financial analyst for Barrington Industries. Unfortunately, company headquarters (where all of the firm's records are kept) has been destroyed by fire. So, your first job will be to recreate the firm's cash flow statement for the year just ended. The firm had \$100,000 in the bank at the end of the prior year, and its working capital accounts except cash remained constant during the year. It earned \$5 million in net income during the year but paid \$800,000 in dividends to common shareholders. Throughout the year, the firm purchased \$5.5 million of machinery that was needed for a new project. You have just spoken to the firm's accountants and learned that annual depreciation expense for the year is \$450,000; however, the purchase price for the machinery represents additions to property, plant, and equipment before depreciation. Finally, you have determined that the only financing done by the firm was to issue long-term debt of \$1 million at a 6% interest rate. What was the firm's end-of-year cash balance? Recreate the firm's cash flow statement to arrive at your answer.
- 3-14 FREE CASH FLOW** Arlington Corporation's financial statements (dollars and shares are in millions) are provided here.

Balance Sheets as of December 31

	2016	2015
Assets		
Cash and equivalents	\$ 15,000	\$ 14,000
Accounts receivable	35,000	30,000
Inventories	<u>33,320</u>	<u>27,000</u>
Total current assets	\$ 83,320	\$ 71,000
Net plant and equipment	48,000	46,000
Total assets	<u>\$131,320</u>	<u>\$117,000</u>
Liabilities and Equity		
Accounts payable	\$ 10,100	\$ 9,000
Accruals	8,000	6,000
Notes payable	<u>7,000</u>	<u>5,050</u>
Total current liabilities	\$ 25,100	\$ 20,050
Long-term bonds	<u>20,000</u>	<u>20,000</u>
Total liabilities	\$ 45,100	\$ 40,050
Common stock (4,000 shares)	40,000	40,000
Retained earnings	<u>46,220</u>	<u>36,950</u>
Common equity	\$ 86,220	\$ 76,950
Total liabilities and equity	<u>\$131,320</u>	<u>\$117,000</u>

Income Statement for Year Ending December 31, 2016

Sales	\$210,000
Operating costs excluding depreciation and amortization	<u>160,000</u>
EBITDA	\$ 50,000
Depreciation & amortization	<u>6,000</u>
EBIT	\$ 44,000
Interest	<u>5,350</u>
EBT	\$ 38,650
Taxes (40%)	<u>15,460</u>
Net income	<u>\$ 23,190</u>
Dividends paid	<u>\$ 13,920</u>

- What was net operating working capital for 2015 and 2016?
- What was Arlington's 2016 free cash flow?
- Construct Arlington's 2016 statement of stockholders' equity.
- What was Arlington's 2016 EVA? Assume that its after-tax cost of capital is 10%.
- What was Arlington's MVA at year-end 2016? Assume that its stock price at December 31, 2016, was \$25.

Challenging Problems
15–18

3-15 **INCOME STATEMENT** Edmonds Industries is forecasting the following income statement:

Sales	\$10,000,000
Operating costs excluding depreciation & amortization	<u>5,500,000</u>
EBITDA	\$ 4,500,000
Depreciation and amortization	<u>1,200,000</u>
EBIT	\$ 3,300,000
Interest	<u>500,000</u>
EBT	\$ 2,800,000
Taxes (40%)	<u>1,120,000</u>
Net income	<u>\$ 1,680,000</u>

The CEO would like to see higher sales and a forecasted net income of \$2,100,000. Assume that operating costs (excluding depreciation and amortization) are 55% of sales and that depreciation and amortization and interest expenses will increase by 6%. The tax rate, which is 40%, will remain the same. (Note that while the tax rate remains constant, the taxes paid will change.) What level of sales would generate \$2,100,000 in net income?

3-16 **FINANCIAL STATEMENTS** The Davidson Corporation's balance sheet and income statement are provided here.

Davidson Corporation: Balance Sheet as of December 31, 2016
(Millions of Dollars)

Assets		Liabilities and Equity	
Cash and equivalents	\$ 15	Accounts payable	\$ 120
Accounts receivable	515	Accruals	280
Inventories	<u>880</u>	Notes payable	<u>220</u>
Total current assets	\$1,410	Total current liabilities	\$ 620
Net plant and equipment	2,590	Long-term bonds	<u>1,520</u>
		Total liabilities	\$2,140
		Common stock (100 million shares)	260
		Retained earnings	<u>1,600</u>
		Common equity	<u>\$1,860</u>
Total assets	<u>\$4,000</u>	Total liabilities and equity	<u>\$4,000</u>

Davidson Corporation: Income Statement for Year Ending December 31, 2016
(Millions of Dollars)

Sales	\$6,250
Operating costs excluding depreciation and amortization	<u>5,230</u>
EBITDA	\$1,020
Depreciation & amortization	<u>220</u>
EBIT	\$ 800
Interest	<u>180</u>
EBT	\$ 620
Taxes (40%)	<u>248</u>
Net income	<u>\$ 372</u>
Common dividends paid	\$ 146
Earnings per share	\$ 3.72

- Construct the statement of stockholders' equity for December 31, 2016. No common stock was issued during 2016.
- How much money has been reinvested in the firm over the years?
- At the present time, how large a check could be written without it bouncing?
- How much money must be paid to current creditors within the next year?

3-17 FREE CASH FLOW Financial information for Powell Panther Corporation is shown here.

Powell Panther Corporation: Income Statements for Year Ending December 31
(Millions of Dollars)

	2016	2015
Sales	\$1,200.0	\$1,000.0
Operating costs excluding depreciation and amortization	<u>1,020.0</u>	<u>850.0</u>
EBITDA	\$ 180.0	\$ 150.0
Depreciation & amortization	<u>30.0</u>	<u>25.0</u>
Earnings before interest and taxes (EBIT)	\$ 150.0	\$ 125.0
Interest	<u>21.7</u>	<u>20.2</u>
Earnings before taxes (EBT)	\$ 128.3	\$ 104.8
Taxes (40%)	<u>51.3</u>	<u>41.9</u>
Net income	<u>\$ 77.0</u>	<u>\$ 62.9</u>

Powell Panther Corporation: Balance Sheets as of December 31
(Millions of Dollars)

	2016	2015
Assets		
Cash and equivalents	\$ 12.0	\$ 10.0
Accounts receivable	180.0	150.0
Inventories	<u>180.0</u>	<u>200.0</u>
Total current assets	\$372.0	\$360.0
Net plant and equipment	<u>300.0</u>	<u>250.0</u>
Total assets	<u>\$672.0</u>	<u>\$610.0</u>
Liabilities and Equity		
Accounts payable	\$108.0	\$ 90.0
Accruals	72.0	60.0
Notes payable	<u>67.0</u>	<u>51.5</u>
Total current liabilities	\$247.0	\$201.5
Long-term bonds	<u>150.0</u>	<u>150.0</u>
Total liabilities	\$397.0	\$351.5
Common stock (50 million shares)	50.0	50.0
Retained earnings	<u>225.0</u>	<u>208.5</u>
Common equity	<u>\$275.0</u>	<u>\$258.5</u>
Total liabilities and equity	<u>\$672.0</u>	<u>\$610.0</u>

- What was net operating working capital for 2015 and 2016?
- What was the 2016 free cash flow?
- How would you explain the large increase in 2016 dividends?

3-18 PERSONAL TAXES Mary Jarvis is a single individual who is working on filing her tax return for the previous year. She has assembled the following relevant information:

- She received \$82,000 in salary.
- She received \$12,000 of dividend income.

- She received \$5,000 of interest income on Home Depot bonds.
- She received \$22,000 from the sale of Disney stock that was purchased 2 years prior to the sale at a cost of \$9,000.
- She received \$10,000 from the sale of Google stock that was purchased 6 months prior to the sale at a cost of \$7,500.
- Mary receives one exemption (\$4,000), and she has allowable itemized deductions of \$7,500. These amounts will be deducted from her gross income to determine her taxable income.

Assume that her tax rates are based on the tax tables presented in the chapter.

- What is Mary's federal tax liability?
- What is her marginal tax rate?
- What is her average tax rate?

Comprehensive/Spreadsheet Problem

- 3-19 FINANCIAL STATEMENTS, CASH FLOW, AND TAXES** Laiho Industries's 2015 and 2016 balance sheets (in thousands of dollars) are shown.

	2016	2015
Cash	\$102,850	\$ 89,725
Accounts receivable	103,365	85,527
Inventories	38,444	34,982
Total current assets	<u>\$244,659</u>	<u>\$210,234</u>
Net fixed assets	67,165	42,436
Total assets	<u>\$311,824</u>	<u>\$252,670</u>
Accounts payable	\$ 30,761	\$ 23,109
Accruals	30,477	22,656
Notes payable	16,717	14,217
Total current liabilities	<u>\$ 77,955</u>	<u>\$ 59,982</u>
Long-term debt	76,264	63,914
Total liabilities	<u>\$154,219</u>	<u>\$123,896</u>
Common stock	100,000	90,000
Retained earnings	57,605	38,774
Total common equity	<u>\$157,605</u>	<u>\$128,774</u>
Total liabilities and equity	<u>\$311,824</u>	<u>\$252,670</u>

- Sales for 2016 were \$455,150,000, and EBITDA was 15% of sales. Furthermore, depreciation and amortization were 11% of net fixed assets, interest was \$8,575,000, the corporate tax rate was 40%, and Laiho pays 40% of its net income as dividends. Given this information, construct the firm's 2016 income statement.
- Construct the statement of stockholders' equity for the year ending December 31, 2016, and the 2016 statement of cash flows.
- Calculate 2015 and 2016 net operating working capital (NOWC) and 2016 free cash flow (FCF).
- If Laiho increased its dividend payout ratio, what effect would this have on corporate taxes paid? What effect would this have on taxes paid by the company's shareholders?
- Assume that the firm's after-tax cost of capital is 10.5%. What is the firm's 2016 EVA?
- Assume that the firm's stock price is \$22 per share and that at year-end 2016 the firm has 10 million shares outstanding. What is the firm's MVA at year-end 2016?



INTEGRATED CASE

D'LEON INC., PART I

3-20 FINANCIAL STATEMENTS AND TAXES Donna Jamison, a 2011 graduate of the University of Florida, with 4 years of banking experience, was recently brought in as assistant to the chairperson of the board of D'Leon Inc., a small food producer that operates in north Florida and whose specialty is high-quality pecan and other nut products sold in the snack foods market. D'Leon's president, Al Watkins, decided in 2015 to undertake a major expansion and to "go national" in competition with Frito-Lay, Eagle, and other major snack foods companies. Watkins believed that D'Leon's products were of higher quality than the competition's; that this quality differential would enable it to charge a premium price; and that the end result would be greatly increased sales, profits, and stock price.

The company doubled its plant capacity, opened new sales offices outside its home territory, and launched an expensive advertising campaign. D'Leon's results were not satisfactory, to put it mildly. Its board of directors, which consisted of its president, vice president, and major stockholders (all of whom were local businesspeople), was most upset when directors learned how the expansion was going. Unhappy suppliers were being paid late; and the bank was complaining about the deteriorating situation and threatening to cut off credit. As a result, Watkins was informed that changes would have to be made—and quickly; otherwise, he would be fired. Also, at the board's insistence, Donna Jamison was brought in and given the job of assistant to Fred Campo, a retired banker who was D'Leon's chairperson and largest stockholder. Campo agreed to give up a few of his golfing days and help nurse the company back to health, with Jamison's help.

Jamison began by gathering the financial statements and other data given in Tables IC 3.1, IC 3.2, IC 3.3, and IC 3.4. Assume that you are Jamison's assistant. You must help her answer the following questions for Campo. (Note: We will continue with this case in Chapter 4, and you will feel more comfortable with the analysis there. But answering these questions will help prepare you for Chapter 4. Provide clear explanations.)

- What effect did the expansion have on sales, after-tax operating income, net operating working capital (NOWC), and net income?
- What effect did the company's expansion have on its free cash flow?
- D'Leon purchases materials on 30-day terms, meaning that it is supposed to pay for purchases within 30 days of receipt. Judging from its 2016 balance sheet, do you think that D'Leon pays suppliers on time? Explain, including what problems might occur if suppliers are not paid in a timely manner.
- D'Leon spends money for labor, materials, and fixed assets (depreciation) to make products—and spends still more money to sell those products. Then the firm makes sales that result in receivables, which eventually result in cash inflows. Does it appear that D'Leon's sales price exceeds its costs per unit sold? How does this affect the cash balance?
- Suppose D'Leon's sales manager told the sales staff to start offering 60-day credit terms rather than the 30-day terms now being offered. D'Leon's competitors react by offering similar terms, so sales remain constant. What effect would this have on the cash account? How would the cash account be affected if sales doubled as a result of the credit policy change?
- Can you imagine a situation in which the sales price exceeds the cost of producing and selling a unit of output, yet a dramatic increase in sales volume causes the cash balance to decline? Explain.
- Did D'Leon finance its expansion program with internally generated funds (additions to retained earnings plus depreciation) or with external capital? How does the choice of financing affect the company's financial strength?
- Refer to Tables IC 3.2 and IC 3.4. Suppose D'Leon broke even in 2016 in the sense that sales revenues equaled total operating costs plus interest charges. Would the asset expansion have caused the company to experience a cash shortage that required it to raise external capital? Explain.

- i. If D'Leon starts depreciating fixed assets over 7 years rather than 10 years, would that affect (1) the physical stock of assets, (2) the balance sheet account for fixed assets, (3) the company's reported net income, and (4) the company's cash position? Assume that the same depreciation method is used for stockholder reporting and for tax calculations and that the accounting change has no effect on assets' physical lives.
- j. Explain how earnings per share, dividends per share, and book value per share are calculated and what they mean. Why does the market price per share not equal the book value per share?
- k. Explain briefly the tax treatment of (1) interest and dividends paid, (2) interest earned and dividends received, (3) capital gains, and (4) tax loss carrybacks and carryforwards. How might each of these items affect D'Leon's taxes?

Balance Sheets **TABLE IC 3.1**

	2016	2015
Assets		
Cash	\$ 7,282	\$ 57,600
Accounts receivable	632,160	351,200
Inventories	<u>1,287,360</u>	<u>715,200</u>
Total current assets	\$1,926,802	\$1,124,000
Gross fixed assets	1,202,950	491,000
Less accumulated depreciation	<u>263,160</u>	<u>146,200</u>
Net fixed assets	\$ 939,790	\$ 344,800
Total assets	<u>\$2,866,592</u>	<u>\$1,468,800</u>
Liabilities and Equity		
Accounts payable	\$ 524,160	\$ 145,600
Accruals	489,600	136,000
Notes payable	<u>636,808</u>	<u>200,000</u>
Total current liabilities	\$1,650,568	\$ 481,600
Long-term debt	723,432	323,432
Common stock (100,000 shares)	460,000	460,000
Retained earnings	<u>32,592</u>	<u>203,768</u>
Total equity	\$ 492,592	\$ 663,768
Total liabilities and equity	<u>\$2,866,592</u>	<u>\$1,468,800</u>

TABLE IC 3.2 Income Statements

	2016	2015
Sales	\$6,034,000	\$3,432,000
Cost of goods sold	5,528,000	2,864,000
Other expenses	519,988	358,672
Total operating costs excluding depreciation and amortization	\$6,047,988	\$3,222,672
Depreciation and amortization	116,960	18,900
EBIT	(\$ 130,948)	\$ 190,428
Interest expense	136,012	43,828
EBT	(\$ 266,960)	\$ 146,600
Taxes (40%)	(106,784) ^a	58,640
Net income	(\$ 160,176)	\$ 87,960
EPS	(\$ 1.602)	\$ 0.880
DPS	\$ 0.110	\$ 0.220
Book value per share	\$ 4.926	\$ 6.638
Stock price	\$ 2.25	\$ 8.50
Shares outstanding	100,000	100,000
Tax rate	40.00%	40.00%
Lease payments	\$ 40,000	\$ 40,000
Sinking fund payments	0	0

^aThe firm had sufficient taxable income in 2014 and 2015 to obtain its full tax refund in 2016.

TABLE IC 3.3 Statement of Stockholders' Equity, 2016

	Common Stock		Retained Earnings	Total Stockholders' Equity
	Shares	Amount		
Balances, December 31, 2015	100,000	\$460,000	\$203,768	\$ 663,768
2016 Net income			(160,176)	
Cash dividends			(11,000)	
Addition (subtraction) to retained earnings				(171,176)
Balances, December 31, 2016	<u>100,000</u>	<u>\$460,000</u>	<u>\$ 32,592</u>	<u>\$ 492,592</u>

Statement of Cash Flows, 2016 TABLE IC 3.4

Operating Activities	
Net income	(\$ 160,176)
Depreciation and amortization	116,960
Increase in accounts payable	378,560
Increase in accruals	353,600
Increase in accounts receivable	(280,960)
Increase in inventories	(572,160)
Net cash provided by operating activities	<u>(\$ 164,176)</u>
Long-Term Investing Activities	
Additions to property, plant, and equipment	(\$ 711,950)
Net cash used in investing activities	<u>(\$ 711,950)</u>
Financing Activities	
Increase in notes payable	\$ 436,808
Increase in long-term debt	400,000
Payment of cash dividends	(11,000)
Net cash provided by financing activities	<u>\$ 825,808</u>
Summary	
Net decrease in cash	(\$ 50,318)
Cash at beginning of year	<u>57,600</u>
Cash at end of year	<u>\$ 7,282</u>

TAKING A CLOSER LOOK

EXPLORING WHOLE FOODS' FINANCIAL STATEMENTS

Use online resources to work on this chapter's questions. Please note that website information changes over time, and these changes may limit your ability to answer some of these questions.

Over the past decade, Whole Foods Market, Inc., has become an increasingly familiar part of the urban landscape. As of November 5, 2014, the company had 401 stores in the United States, Canada, and the United Kingdom.

Using financial websites such as finance.yahoo.com and money.msn.com, you can access a wealth of financial information for companies such as Whole Foods. By entering the company's ticker symbol, WFM, you will be able to access a great deal of useful information, including a summary of what Whole Foods does (Profile), a chart of its recent stock price (Interactive Chart), EPS estimates (Earnings), recent news stories (Headlines), and a list of key financial data and ratios (Key Ratios).

In researching a company's operating performance, a good place to start is the recent stock price performance. From an interactive chart, you can obtain a chart of the company's stock price performance and compare it to the overall market (as measured by the S&P 500 index) between 2010 and 2015. As you can see, Whole Foods has had its ups and downs. But the company's overall performance has been quite strong during the past 5 years, and it has beaten the overall market handily.

You can also find Whole Foods' recent financial statements (Financials). Typically, you can find annual balance sheets, income statements, and cash flow statements for 3 to 5 years. Quarterly information is also available.

DISCUSSION QUESTIONS

1. Looking at the most recent year available, what is the amount of total assets on Whole Foods' balance sheet? What percentage is fixed assets, such as plant and equipment? What percentage is current assets? How much has the company grown over the years that are shown?
2. Does Whole Foods have very much long-term debt? What are the chief ways in which Whole Foods has financed assets?
3. Looking at the statement of cash flows, what factors can explain the change in the company's cash position over the last couple of years?
4. Looking at the income statement, what are the company's most recent sales and net income? Over the past several years, what has been the sales growth rate? What has been the growth rate in net income?
5. Over the past few years, has there been a strong correlation between stock price performance and reported earnings? Explain. (Hint: Change the Interactive Stock Chart so that it corresponds to the same number of years shown for the financial statements.)