

Part 1 Introduction to Financial Management
(Chapters 1, 2, 3, 4)

Part 2 Valuation of Financial Assets
(Chapters 5, 6, 7, 8, 9, 10)

Part 3 Capital Budgeting (Chapters 11, 12, 13, 14)

Part 4 Capital Structure and Dividend Policy
(Chapters 15, 16)

Part 5 Liquidity Management and Special Topics in Finance
(Chapters 17, 18, 19, 20)

Understanding Financial Statements

Chapter Outline

- 3.1** An Overview of the Firm's Financial Statements (pgs. 72–74) → **Objective 1.** Describe the content of the four basic financial statements and discuss the importance of financial statement analysis to the financial manager.
- 3.2** The Income Statement (pgs. 74–79) → **Objective 2.** Evaluate firm profitability using the income statement.
- 3.3** Corporate Taxes (pgs. 79–81) → **Objective 3.** Estimate a firm's tax liability using the corporate tax schedule and distinguish between the average and marginal tax rates.
- 3.4** The Balance Sheet (pgs. 81–89) → **Objective 4.** Use the balance sheet to describe a firm's investments in assets and the way it has financed them.
- 3.5** The Cash Flow Statement (pgs. 90–98) → **Objective 5.** Identify the sources and uses of cash for a firm using the firm's cash flow statement.

Principles P1, P3, P4, and P5 Applied

In this chapter, we apply **P** Principle 1: **Money Has a Time Value**, **P** Principle 3: **Cash Flows Are the Source of Value**, **P** Principle 4: **Market Prices Reflect Information**, and **P** Principle 5: **Individuals Respond to Incentives**. Financial statements are prepared in accordance with a set of accounting principles that separates reported statement figures, present values, and cash flows, but we can

determine the cash flow implications for the firm from its reported financial statements. It is critical that we learn how to do this. Moreover, we learn that the firm's financial statements do contain information that can be important to the formation of investor expectations concerning the firm's future performance and, consequently, market prices.



In the summer of 1969, Don and Doris Fisher got so frustrated looking for a good pair of jeans in San Francisco that they decided to do something about it. They opened their own store called the Generation Gap, which sold Levi's jeans and record albums. The Generation Gap was an immediate hit, becoming a prime counterculture shopping spot. By 1976, The Gap, Inc. (GPS), as it is now known, had expanded to over 200 stores, and its shares were trading on the New York Stock Exchange.

Until the late 1990s, it seemed that The Gap could do no wrong. The firm owned Old Navy and Banana Republic. Sales just kept on climbing. However, an examination of The Gap's financial statements began to show some weaknesses in firm performance. For example, same-store sales were declining, and the number of Gap stores had been cut in half. The Gap's common stock price reached a high of \$51 in 1999 but dropped to less than \$10 a share in the spring of 2009. Since 2009, share price has fluctuated and drifted down to just over \$24 by April 2015. Although it would have been difficult to foresee The Gap's performance perfectly, its financial statements contain information about the firm's past performance and financial health that is helpful in predicting future cash flows (remember **P** Principle 3: **Cash Flows Are the Source of Value**), and this information is helpful in estimating the value of the firm's common stock (remember **P** Principle 4: **Market Prices Reflect Information**).

This is the first of two chapters that focus on accounting and, specifically, financial statements. Because this isn't an accounting book, you might be asking yourself (or your teacher), "Why we are spending so much time delving into financial statements?" The answer is simply that *accounting is the language of business*. A firm's principal means of communication with its stockholders and creditors is through its financial statements. Moreover, when managers communicate with their fellow employees about the firm's performance, they often do so using benchmarks that are based on accounting profits.

In this chapter, we review the basic financial statements used by firms to report their financial performance. These financial statements can be viewed as a model or representation of the firm at a particular point in time. We first investigate why both a student of finance and a manager need to understand financial statements as well as the basic accounting principles that underlie their construction.



Regardless of Your Major...



“Accounting Is the Language of Business”

investors and others outside of the firm as well as to the firm’s employees. Consequently, we can think of a firm’s financial statements and the various terms used to describe the firm and its operations as the language of business. As such, everyone who becomes a manager, no matter what their area of expertise, needs to know how to “speak business,” and this means knowing how to read and interpret financial statements. For example, when the firm communicates with its banker or the investment analysts who follow the firm’s common stock, financial statement results provide the common language. When members of the firm’s top management are determining the bonuses to pay at year-end, they look to the firm’s financial performance as reflected in the financial statements. Moreover, progressing up the ranks of the firm’s management team requires that you develop a broader understanding of the firm and how its components fit together. The firm’s financial statements provide the key to gaining this knowledge.

A firm’s financial statements provide a visual representation of the firm that is used to describe the business to

3.1

An Overview of the Firm’s Financial Statements

In Chapter 2, we looked at the world of business through the eyes of an investor using security prices from financial markets. In this chapter, we look at the firm from the perspective of the financial analyst by reviewing the firm’s financial statements, including the income statement, balance sheet, and cash flow statement. Understanding the financial health of a business by reviewing its financial statements is also important to the financial manager, whose goal is to determine how to increase the value of the firm.

Basic Financial Statements

The accounting and financial regulatory authorities mandate that firms provide the following four types of financial statements:


1. **Income statement**—includes the revenues the firm has earned, the expenses it has incurred to earn those revenues, and the profit it has earned *over a specific period of time*, usually a quarter of a year or a full year.
2. **Balance sheet**—contains information as of the date of its preparation about the firm’s assets (everything of value the company owns), liabilities (the company’s debts), and stockholders’ equity (the money invested by the company owners). As such, the balance sheet is a snapshot of the firm’s assets, liabilities, and stockholders’ equity for a particular date.
3. **Cash flow statement**—reports cash received and cash spent by the firm *over a specific period of time*, usually a quarter of a year or a full year.
4. **Statement of shareholders’ equity**—provides a detailed account of activities in the firm’s common and preferred stock accounts and its retained earnings account and of changes to shareholders’ equity that do not appear in the income statement.

In this chapter, we review the basic content and format of the income statement, balance sheet, and cash flow statement. We do not discuss the statement of shareholders’ equity, as the information we need from this statement can be obtained from the income statement and balance sheet.

Why Study Financial Statements?

Analyzing a firm's financial statements can help managers carry out three important tasks: assess current performance, monitor and control operations, and plan and forecast future performance.

1. **Financial statement analysis.** The basic objective of financial statement analysis is to assess the financial condition of the firm being analyzed. In a sense, the analyst performs a financial analysis so he or she can see the firm's financial performance the same way an outside investor would see it. In Chapter 4, we delve into the tools and techniques used in carrying out financial statement analysis.
2. **Financial control.** Managers use financial statements to monitor and control the firm's operations. The performance of the firm is reported using accounting measures that compare the prices of the firm's products and services with the estimated costs of providing them to buyers. Moreover, the board of directors uses these performance measures to determine executives' bonuses. In addition, the company's creditors use performance measures based on the firm's financial statements to determine whether or not to extend loans to the company. For example, a common restriction included in loan agreements prohibits firms from borrowing more than a specific percentage of their total assets as reflected in their financial statements.
3. **Financial forecasting and planning.** Financial statements provide a universally understood format for describing a firm's operations. Consequently, financial planning models are typically built using the financial statements as a prototype. We address financial planning in Chapter 17.

This chapter focuses on  **Principle 3: Cash Flows Are the Source of Value.** A key issue that we will discuss is the distinction between the earnings numbers that the firm's accountants calculate and the amount of cash that a firm generates from its various lines of business. This difference is a primary source of differentiation between the study of finance and the study of accounting. For example, firms can show positive accounting earnings while hemorrhaging cash and can generate positive cash flows while reporting accounting losses. So for the future financial manager, a key objective in this chapter involves developing a good understanding of accounting earnings and how they relate to cash flows.

What Are the Accounting Principles Used to Prepare Financial Statements?

Accountants use three fundamental principles when preparing a firm's financial statements: the revenue recognition principle, the matching principle, and the historical cost principle. Understanding these principles is critical to a full and complete understanding of what information is reported in a firm's financial statements and how that information is reported. Much of the accounting fraud that has occurred in the United States can be traced back to violations of one or more of these basic principles of accounting.

1. **The revenue recognition principle.** This principle provides the basis for deciding what **revenues**—the cumulative dollar amount of goods and services the firm sold to its customers during the period—should be reported in a particular income statement. The principle states that revenues should be included in the firm's income statement for the period in which (a) its goods and services were exchanged for either cash or **accounts receivable** (credit sales that have not yet been collected) or (b) the firm completed what it had to do to be entitled to the cash. As a general rule, a sale can be counted only when the goods sold leave the business's premises en route to the customer. The revenue recognition principle guides accountants when it is difficult to determine whether revenues should be reported in one period or another.
2. **The matching principle.** This principle determines what costs or expenses can be attributed to a specific period's revenues. Once the firm's revenues for the period have been determined, its accountants then determine the expenses for the period by letting the expenses "follow" the revenues, so to speak. For example, employees' wages aren't

recognized when the wages are paid or when their work is performed but when the product produced as a result of that work is sold. Therefore, expenses are matched with the revenues they helped to produce.

3. **The historical cost principle.** This principle provides the basis for determining the dollar values the firm reports on the balance sheet. Most assets and liabilities are reported in the firm's financial statements on the basis of the price the firm paid to acquire them. This price is called the asset's historical cost. This may or may not equal the price the asset might bring if it were sold today. (Usually, it does not.)¹

Remembering these three principles will help you understand what you see in the firm's financial statements and why it is reported that way. Furthermore, having a basic understanding of accounting principles will make you a much more informed user of accounting information and a much better financial analyst.

Before you move on to 3.2

Concept Check | 3.1

1. Name the four basic financial statements that make up the published financial reports of a firm, and describe the basic function of each.
2. What are the three ways in which the firm's management uses the firm's financial statements?
3. Describe the revenue recognition, matching, and historical cost principles as they are applied in the construction of a firm's financial statements.

3.2

The Income Statement

An **income statement**, also called a *profit and loss statement*, measures the amount of profits generated by a firm over a given time period (usually a year or a quarter). In its most basic form, the income statement can be expressed as follows:

$$\text{Revenues (or Sales)} - \text{Expenses} = \text{Profits} \quad (3-1)$$

Revenues represent the sales for the period. **Profits** are the difference between the firm's revenues and the expenses it incurred in order to generate those revenues for the period. Recall that revenues are determined in accordance with the revenue recognition principle and expenses are then matched to these revenues using the matching principle.

The Income Statement of H. J. Boswell, Inc.

The typical format for the income statement is shown in Table 3.1 for H. J. Boswell, Inc., a fictitious firm we will use as an example throughout this chapter and Chapter 4. Boswell is a well-known manufacturer of orthopedic devices and supplies. Its products include hip replacement supplies; knee, shoulder, and spinal implants; products used to fix bone fractures; and operating room products.

Reading and Interpreting Boswell's Income Statement

Recall from Equation (3-1) that the income statement contains three basic elements: revenues (or sales), expenses, and profits. We will use these elements to analyze each of the components of the income statement found in Table 3.1:

1. **Revenues (or Sales).** Boswell's revenues totaled \$2,700 million for the 12-month period ended December 31, 2016.

¹There are exceptions to the historical cost principle for recording asset values on the firm's balance sheet. A prime example involves the firm's cash and marketable securities portfolio. These assets are recorded on the balance sheet using the lesser of their cost or current market value. Changing the value of the firm's cash and marketable securities to reflect current market prices is commonly referred to as "marking to market." However, the historical cost principle is the guiding rule for determining the value to be recorded on the balance sheet in most cases.

Table 3.1 H. J. Boswell, Inc.

Income Statement (\$ millions, except per share data) for the Year Ended December 31, 2016

Sales		\$2,700.00	
Cost of goods sold		(2,025.00)	
Gross profit		\$ 675.00	
Operating expenses:			
Selling expense	\$(90.00)		
General and administrative expense	(67.50)		
Depreciation and amortization expense	(135.00)		
Total operating expenses		(292.50)	
Net operating income (EBIT, or earnings before interest and taxes)		\$ 382.50	Income from operating activities
Interest expense		(67.50)	Cost of debt financing
Earnings before taxes		\$ 315.00	
Income taxes		(110.25)	Cost of corporate income taxes
Net income		<u>\$ 204.75</u>	Income resulting from operating and financing activities
Additional information:			
Dividends paid to stockholders during 2016		\$ 45.00	
Number of common shares outstanding		90.00	
Earnings per share (EPS)		\$ 2.28	
Dividends per share		\$ 0.50	

- 2. Cost of Goods Sold.** Next, we see that the various expenses the firm incurred in producing revenues are broken down into various subcategories. For example, the firm spent \$2,025 million on **cost of goods sold**, the cost of producing or acquiring the products or services that the firm sold during the period.
- 3. Gross Profit.** Subtracting cost of goods sold from revenues produces the firm's gross profit of \$675 million.
- 4. Operating Expenses.** Next, we examine Boswell's operating expenses (this includes the salaries paid to the firm's administrative staff, the firm's electric bills, and so forth). One of the operating expense categories is depreciation expense (\$135 million for Boswell in 2016). **Depreciation expense** is a noncash expense used to allocate the cost of the firm's long-lived assets (such as its plant and equipment) over the useful lives of these assets. For example, suppose that, during 2016, Boswell built a new distribution facility in Temple, Texas, at a cost of \$10 million. The firm would not expense the full \$10 million against 2016 revenues; instead, it would spread out the costs over many years to match the revenues created with the help of the facility.²
- 5. Net Operating Income.** After deducting \$292.50 million in operating expenses, Boswell's *net operating income* is \$382.50 million. The firm's **net operating income** shows us the firm's ability to earn profits from its ongoing operations—before it makes interest

²Although there are many types of depreciation methods that can be used, we restrict our attention in this chapter to a simplified version of straight-line depreciation (e.g., we ignore the half-year convention). Using this method, the total cost of the asset minus any salvage value is divided by the number of years of useful life to calculate annual depreciation. For example, if the \$10 million distribution facility has an expected salvage value at the end of its twenty-year useful life of \$1 million, then the annual straight-line depreciation is calculated as follows: $(\$10,000,000 - \$1,000,000) / 20 \text{ years} = \$450,000$. In Chapter 12, we discuss the Modified Accelerated Cost Recovery System (MACRS), which is the current method required by the Internal Revenue Service (IRS) for computing accelerated depreciation.

payments and pays its taxes. For our purposes, net operating income will be synonymous with **earnings before interest and taxes (EBIT)**.

6. **Interest Expense.** To this point, we have calculated only the profit resulting from operating the business, without regard for any financing costs, such as the interest paid on money the firm might have borrowed. In this instance, Boswell incurred interest expense equal to \$67.50 million during 2016.
7. **Earnings Before Taxes.** Now we can subtract Boswell's interest expense of \$67.50 million from its net operating income of \$382.50 million to determine its earnings before taxes (also known as taxable income). Boswell's earnings before taxes are \$315 million.
8. **Income Taxes.** Next, we determine the firm's income tax obligation. We will show how to calculate the tax obligation later in this chapter. For now, note that Boswell's income tax obligation is \$110.25 million.
9. **Net Income.** The income statement's bottom line is **net income**, which is calculated by subtracting the firm's tax liability of \$110.25 million from its earnings before taxes of \$315 million. This leaves net income of \$204.75 million.

Evaluating Boswell's per Share Earnings and Dividends

At this point, we have completed the income statement. However, the firm's owners (common stockholders) will want to know how much income the firm made on a per share basis, or what is called **earnings per share**. We can calculate earnings per share by dividing the company's net income by the number of common shares it has outstanding. Because H. J. Boswell, Inc., had 90 million shares outstanding in 2016 (see Table 3.1), its earnings per share were \$2.28 ($\$2.28 \text{ per share} = \$204.75 \text{ million net income} \div 90 \text{ million shares}$).

Investors also want to know the amount of dividends a firm pays for each share outstanding, or the **dividends per share**. In Table 3.1, we see that H. J. Boswell, Inc., paid \$45 million in dividends during 2016. You can then determine that the firm paid \$0.50 in dividends per share ($\$0.50 = \$45 \text{ million total dividends} \div 90 \text{ million shares outstanding}$).

Connecting the Income Statement and Balance Sheet

If Boswell earned net income of \$204.75 million (or \$2.28 per share) and paid out only \$45 million in dividends (or \$0.50 per share), what happened to the \$204.75 million – 45 million = \$159.75 million in earnings that were not paid out in dividends? The answer is that this amount was retained and reinvested in the firm. As we will later discuss, in the balance sheet Boswell's retained earnings rise by exactly this amount. Thus, the income statement feeds directly into the balance sheet to record any profit or loss from the firm's operations for the period.

Interpreting Firm Profitability Using the Income Statement

The first conclusion we can draw from our quick survey of H. J. Boswell, Inc.'s income statement is that the firm was profitable because its revenues for 2016 exceeded the sum of all its expenses. Furthermore, as we move down the income statement beginning with the firm's revenues (or sales), we can identify three different measures of profit or income. For example, the company's gross profit was \$675 million, its operating income—or earnings before interest and taxes—was \$382.5 million, and its net income was \$204.75 million. It is common practice to divide gross profit, operating income, and net income by the level of the firm's sales to calculate the firm's *gross profit margin*, *operating profit margin*, and *net profit margin*, respectively. For H. J. Boswell, Inc., we calculate each of these profit margins as follows:

1. The *gross profit margin* is 25 percent of the firm revenues ($\$675 \text{ million of gross profit} \div \$2,700 \text{ million of sales} = 25\%$). Because the gross profit equals revenues minus the firm's cost of goods sold, the **gross profit margin** indicates the firm's "markup" on its cost of goods sold per dollar of sales. Note that the percentage of the markup is generally expressed as a percentage of the firm's cost of goods sold. That is, the markup percentage equals gross profit divided by cost of goods sold, or $\$675 \text{ million} \div \$2,025 \text{ million} = 33.3\%$. Because gross profit is 25 percent of sales and cost of goods is 75 percent of


sales, we can also compute the markup percentage using these percentages; that is, $25\% \div 75\% = 33.3\%$.

2. The *operating profit margin* is 14.2 percent of firm revenues (\$382.5 million of net operating income \div \$2,700 million of sales = 14.2%). The **operating profit margin** is equal to the ratio of net operating income or earnings before interest and taxes (EBIT) divided by firm sales.
3. The *net profit margin* is 7.6 percent of firm revenues (\$204.75 million of net profits \div \$2,700 million of sales = 7.6%). The **net profit margin** captures the effects of all of the firm's expenses and indicates the percentage of revenues left over after interest and taxes have been considered.

Notice that as we move down the income statement, calculating different profit margins after incorporating consideration for more categories of expenses, the successive profit margins naturally get smaller and smaller. By comparing these margins to those of similar businesses, we can dissect a firm's performance and identify expenses that are out of line. Because the firm's profit margins are an important indicator of how well the firm is doing financially, managers pay close attention to them, carefully watching for any changes either up or down. They also compare the firm's profit margins with those of its competitors—something we will discuss in Chapter 4.

GAAP and Earnings Management

In the United States, firms must adhere to a set of accounting principles commonly referred to as Generally Accepted Accounting Principles, or GAAP.³ Even so, there is considerable room for a company's managers to actively influence the firm's reported earnings. Corporate executives have an incentive to manage the firm's earnings, both because their pay depends on earnings and because investors pay close attention to the firm's quarterly earnings announcements. Executives sometimes "smooth out" reported earnings by making choices that, for example, transfer earnings from years when they are abnormally high to future years when earnings would otherwise be low. The specifics of how this is done can be very complex and are beyond the scope of this book.⁴ However, in extreme cases, earnings management can lead to fraudulent efforts to create earnings where none exist.

Companies hire accountants to maintain the firm's financial records and prepare the firm's quarterly and annual financial statements.  Principle 5: **Individuals Respond to Incentives** serves to remind us that managers may at times find themselves in situations where they would like to be less than forthcoming in describing the firm's financial condition to investors and may be tempted to stretch the rules of financial reporting to disguise the firm's current circumstances. Although the incentive to misreport the firm's financial condition is ever present (remember Enron?), investors (stockholders) in publicly held companies, those whose bonds and/or stock can be bought and sold in the public markets, do not have to depend on the honesty of the firm's accountants for assurance that the firm has followed GAAP. The reason is that public firms are required to have their financial statements audited by an independent accounting firm. This audit provides a verification of the financial statements of the firm and an audit opinion. The audit opinion is intended to provide *reasonable assurance that the financial statements are presented fairly, in all material respects, and/or give a true and fair view in accordance with the financial reporting framework*. As such, the audit serves to enhance the degree of confidence that investors and others have when they use the financial statements. In essence, the audit by an independent accounting firm serves as a check and balance to control management's incentive to disguise the firm's true financial condition.

³GAAP represents the compilation of a voluminous set of standards that guides the construction of the firm's financial statements. These standards are set by governmental entities such as the Securities and Exchange Commission and the Accounting Oversight Board as well as by industry groups from the accounting profession, including the American Institute of Certified Public Accountants.

⁴If you want to learn more about this and other tools of earnings management (i.e., manipulation), see Howard M. Schilit, *Financial Shenanigans: How to Detect Accounting Gimmicks & Fraud in Financial Reports*, 3rd ed. (New York: McGraw-Hill, 2010).

Checkpoint 3.1

Constructing an Income Statement

Use the following information to construct an income statement for The Gap, Inc. (GPS). The Gap is a specialty retailing company that sells clothing, accessories, and personal-care products under the Gap, Old Navy, Banana Republic, Piperlime, and Athleta brand names. Use the scrambled information below to calculate the firm's gross profit, operating income, and net income for the year ended January 31, 2016. Calculate the firm's earnings per share and dividends per share.

Cost of goods sold	\$10,077,000,000	Revenues (sales)	\$15,797,000,000
Earnings before taxes	\$1,471,000,000	Common stock dividends	\$379,960,000
Shares outstanding	413,000,000	Income taxes	\$550,010,000

STEP 1: Picture the problem

The income statement can be visualized as a mathematical equation using Equation (3–1) as follows:

$$\text{Revenues} - \text{Expenses} = \text{Profits} \quad (3-1)$$

However, this equation belies the level of detail normally included in the income statement. That is, expenses are typically broken down into multiple categories, including cost of goods sold, operating expenses (including such things as selling expenses, administrative expense, and depreciation expense), finance charges or expenses (interest expense), and income taxes. After subtracting each of these general categories of expenses, a new profit number is calculated. The following template provides a useful guide for reviewing the format of the income statement:

Revenues

Less: Cost of goods sold

Equals: Gross profit

Less: Operating expenses

Equals: Net operating income

Less: Interest expense

Equals: Earnings before taxes

Less: Income taxes

Equals: Net income

STEP 2: Decide on a solution strategy

Given the account balances provided, constructing the income statement simply entails substituting the appropriate balances into the template found above.

STEP 3: Solve

Revenues = **\$14,549,000,000**

Less: Cost of goods sold = \$9,275,000,000

Equals: Gross profit = \$5,274,000,000

Less: Operating expenses = \$3,836,000,000

Equals: Net operating income = \$1,438,000,000

Less: Interest expense = \$74,000,000

Equals: Earnings before taxes = \$1,364,000,000

Less: Income taxes = \$536,000,000

Equals: Net income = \$828,000,000

Net Income = Earnings before taxes – Income taxes = \$1,471,000,000 – \$550,010,000 = \$920,990,000
 Earnings per share (\$920,990,000 net income ÷ 413,000,000 shares) = **\$2.23**
 Dividends per share (\$379,960,000 dividends ÷ 413,000,000 shares) = **\$0.92**

STEP 4: Analyze

There are some important observations we can make about The Gap's income statement. First, the firm is profitable because it earned net income of \$920,990,000 over the year ended January 31, 2016. Second, the firm earned more net income than it distributed to its shareholders in dividends, which means that it retained and reinvested the remainder.

STEP 5: Check yourself

Reconstruct The Gap's income statement assuming that the firm is able to cut its cost of goods sold by 10 percent and pays taxes at a 40 percent rate. What is the firm's net income and earnings per share?

ANSWER: \$1,374,900,000 and \$1.92.

Your Turn: For more practice, do related **Study Problem** 3–1 at the end of this chapter.

>> **END Checkpoint 3.1**

Before you move on to 3.3

Concept Check | 3.2

1. What information can we derive from a firm's income statement?
2. List the entries in the income statement.
3. What does the acronym GAAP stand for?

3.3 Corporate Taxes

In our discussion of the income statement, we simply listed the firm's income tax obligation without further explanation. It is important that the financial manager understand how taxes are computed, as taxes are a critical factor in determining cash flow (Principle 3: **Cash Flows Are the Source of Value**) and, consequently, in making many financial decisions. The tax rules can be extremely complex, requiring specialized expertise to understand them, so for our purposes we will provide a simplified overview of how corporate income taxes are computed.

Computing Taxable Income

A corporation's **taxable income** is often referred to in its income statement as *earnings before taxes*. Earnings before taxes are equal to the firm's net operating income less interest expense. Note that taxable income was item 7 in our earlier description of the firm's income statement. The firm's income tax liability is calculated using its taxable income and the tax rates on corporate income, which we will now discuss.

Federal Income Tax Rates for Corporate Income

For 2015, the corporate income tax rates in the United States were as follows:

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

Notice that corporate tax rates increase for taxable income up to \$335,000, then drop back, and then increase again before dropping to 35 percent for taxable income above \$18,333,333. This means that large corporations pay taxes at the 35 percent tax rate and smaller firms, those with before-tax income up to \$100,000 per year, face tax rates ranging from 15 percent up to 34 percent.

To this point we have discussed only federal income taxes. Many states and even cities have their own income taxes that also must be considered in computing a firm's after-tax net income. However, the possible tax consequences brought by these added tax jurisdictions are beyond the scope of this book.

Marginal and Average Tax Rates

When firms analyze the tax consequences of a new business venture, it is important that they use the proper tax rate in their analysis. The appropriate rate is the **marginal tax rate**, which is the tax rate that the company will pay on its next dollar of taxable income.

Consider the income tax liability of a firm with \$100,000 in taxable income:

Taxable Income	Marginal Tax Rate	Tax Liability	Cumulative Tax Liability	Average Tax Rate
\$ 50,000	15%	\$ 7,500	\$ 7,500	15.00%
75,000	25%	6,250	13,750	18.33%
100,000	34%	8,500	22,250	22.25%

The firm's \$100,000 in earnings before taxes results in a total tax liability of \$22,250. As a result, the firm's **average tax rate** on \$100,000 in taxable income is $\$22,250 \div \$100,000$, or 22.25 percent. However, if the firm earns a dollar more than \$100,000, then the marginal tax rate jumps from 34 to 39 percent. So the firm's marginal tax rate would be 39 percent.

The reason the marginal corporate tax rate jumps up to 39 percent for taxable income of \$100,001 to \$335,000 and then falls to 34 percent before eventually rising to 38 percent is to make sure that firms that have very high taxable income don't benefit from the lower rates on the initial dollars that they earn. As a result, if a firm earns between \$335,001 and \$10 million, both its marginal and its average tax rates are 34 percent, whereas if a firm earns over \$18 1/3 million, both its marginal and its average tax rates are 35 percent. In order to simplify our tax calculations, throughout the balance of the text we will assume that firms pay a single tax rate of 35 percent, which is the rate for large corporations.

Dividend Exclusion for Corporate Stockholders

For corporate stockholders, the dividends received are at least partially exempt from taxation. The rationale behind the exclusion is to avoid double taxation (i.e., taxes are paid on corporate income before dividends are paid, and if these dividends were subjected to taxation as part of the taxable income of the receiving corporation, they would effectively be taxed twice at the corporate level). However, not all the dividends received by the corporation are excluded from taxes. A corporation that owns less than 20 percent of the stock in another company can exclude 70 percent of the dividends received from its taxable income. When it owns between 20 and 79 percent of the stock of another company, it can exclude 75 percent of the dividends received from that firm from taxation. When it owns 80 percent or more of another company's stock, then it can exclude all of the dividends received from that firm from taxation. Note that dividend exclusion is *not* applicable to individual investors.

To illustrate the dividend exclusion, consider a situation in which Firm A receives \$100,000 in dividends from Firm B. The dividend exclusion and taxable income under each of the possible scenarios listed previously are as follows:

Ownership Interest	Dividend Exclusion	Dividend Income	Taxable Income
Less than 20%	70%	\$100,000	\$30,000
20% to 79%	75%	\$100,000	\$25,000
80% or more	100%	\$100,000	\$0

If Firm A owns less than 20 percent of Firm B's shares, then it pays tax on only 30 percent of the \$100,000 in dividend income it receives, as it gets a 70 percent dividend exclusion; if Firm A owns 80 percent or more of Firm B's shares, then it pays no taxes on the \$100,000 in dividend income it receives, as it gets a 100 percent dividend exclusion.

Before you move on to 3.4

Concept Check | 3.3

1. What is the difference between average and marginal tax rates?
2. What is the marginal tax rate for a firm that currently has \$75,000 in earnings before taxes and expects to earn \$80,000 next year?
3. How are dividends received by corporations taxed?

3.4

The Balance Sheet

The income statement reports the cumulative results from operating the business over a period of time, such as one year. By contrast, the **balance sheet** is a snapshot of the firm's financial position on a specific date. In its simplest form, the balance sheet is defined by the following equation:

$$\text{Total Assets} = \text{Total Liabilities} + \text{Total Shareholder's Equity} \quad (3-2)$$

Total liabilities represent the total amount of money the firm owes its creditors (including the firm's banks and suppliers). **Total shareholders' equity** refers to the difference in the value of the firm's total assets and the firm's total liabilities recorded in the firm's balance sheet. As such, total shareholders' equity refers to the book value of their investment in the firm, which includes both the money they invested in the firm to purchase its shares and the accumulation of past earnings from the firm's operations. The sum of total shareholders' equity and total liabilities is equal to the firm's **total assets**, which are the resources owned by the firm.

In general, GAAP requires that the firm report assets on its balance sheet using the historical cost of acquiring them. Cash and assets held for resale (such as marketable securities) are an exception to the historical cost principle. These assets are reported in the balance sheet using the lower of their cost or their current **market value**, which is the price that an asset would trade for in a competitive market. Assets whose value is expected to decline over time as they are used, such as plant and equipment, are adjusted downward periodically by depreciating the historical cost. Consequently, the amount recorded on the firm's balance sheet for **net plant and equipment** is equal to the historical costs incurred when the assets were purchased less the depreciation accumulated on them. Note that this book value is not intended to measure the market value of these assets. In fact, book and market values of plant and equipment can differ dramatically. It is important to note that depreciation expense—and, consequently, the recorded book value of the firm's net plant and equipment—does not account for **P Principle 1: Money Has a Time Value**. We will have more to say about this later when we discuss capital-budgeting decisions in Chapters 11–14.

In summary, the balance sheet contains the book value of the firm's assets. Generally, the book value is not equal to the current market value of the firm's assets; consequently, book value does not reflect the value of the company if it were to be sold to another owner or liquidated by selling off the individual assets it owns. This distinction between book (or accounting) value and market value is important for understanding the different perspectives taken with respect to a firm's financial statements by accountants and finance professionals. The accounting approach is to count or "account" for the firm's past actions, whereas the financial manager seeks to understand the implications of the financial statements for future cash flows and the value of the firm.

The Balance Sheet of H. J. Boswell, Inc.

Consider the 2015 and 2016 balance sheets for H. J. Boswell, Inc., found in Table 3.2. At the end of 2016, Boswell owned \$1,971 million in total assets, had debts totaling \$1,059.75 million, and had total common stockholders' equity of \$911.25 million.

Table 3.2 H. J. Boswell, Inc.

Balance Sheets (\$ millions), December 31, 2015 and 2016

Assets			Liabilities and Stockholders' Equity		
	2015	2016		2015	2016
Cash	\$ 94.50	\$ 90.00	Accounts payable	\$ 184.50	\$ 189.00
Accounts receivable	139.50	162.00	Accrued expenses	45.00	45.00
Inventory	229.50	378.00	Short-term notes	<u>63.00</u>	<u>54.00</u>
Other current assets	<u>13.50</u>	<u>13.50</u>	Total current liabilities	\$ 292.50	\$ 288.00
Total current assets	\$ 477.00	\$ 643.50	Long-term debt	<u>720.00</u>	<u>771.75</u>
Gross plant and equipment	1,669.50	1,845.00	Total liabilities	\$1,012.50	\$1,059.75
Less accumulated depreciation	(382.50)	(517.50)	Common stockholders' equity		
Net plant and equipment	<u>\$1,287.00</u>	<u>\$1,327.50</u>	Common stock-par value	45.00	45.00
Total assets	<u>\$1,764.00</u>	<u>\$1,971.00</u>	Paid-in capital	324.00	324.00
			Retained earnings	<u>382.50</u>	<u>542.25</u>
			Total common stockholders' equity	<u>\$ 751.50</u>	<u>\$ 911.25</u>
			Total liabilities and stockholders' equity	<u>\$1,764.00</u>	<u>\$1,971.00</u>

Legend:**Assets:** *The Left-Hand Side of the Balance Sheet***Current Assets.** Assets that the firm expects to convert to cash in 12 months or less. Examples include cash, accounts receivable, inventories, and other current assets.

- **Cash.** Every firm must have some cash on hand at all times because cash expenditures can sometimes exceed cash receipts.
- **Accounts receivable.** The amounts owed to the firm by its customers who purchased on credit.
- **Inventory.** Raw materials that the firm utilizes to build its products, partially completed items or work in process, and finished goods held by the firm for eventual sale.
- **Other current assets.** All current assets that do not fall into one of the named categories (cash, accounts receivable, and so forth). Prepaid expenses (prepayments for insurance premiums, for example) are a common example of an asset in this catch-all category.

Gross Plant and Equipment. The sum of the original acquisition prices of plant and equipment still owned by the firm.**Accumulated Depreciation.** The sum of all the depreciation expenses charged against the prior year's revenues for fixed assets that the firm still owns.**Net Plant and Equipment.** The depreciated value of the firm's plant and equipment.**Liabilities and Stockholders' Equity:** *The Right-Hand Side of the Balance Sheet***Current Liabilities.** Liabilities that are due and payable within a period of 12 months or less. Examples include the firm's accounts payable, accrued expenses, and short-term notes.

- **Accounts payable.** The credit suppliers extended to the firm when it purchased items for its inventories.
- **Accrued expenses.** Liabilities that were incurred in the firm's operations but not yet paid. For example, the company's employees might have done work for which they will not be paid until the following week or month. The wages owed by the firm to its employees are recorded as accrued wages.
- **Short-term notes.** Debts created by borrowing from a bank or other lending source that must be repaid in 12 months or less.

Long-Term Debt. All firm debts that are due and payable more than 12 months in the future. A 25-year mortgage loan used to purchase land or buildings is an example of a long-term liability. If the firm has issued bonds, the portion of those bonds that is not due and payable in the coming 12 months is also included in long-term debt.**Common Stockholders' Equity.** Common stockholders are the residual owners of a business. They receive whatever income is left over after the firm has paid all of its expenses. In the event the firm is liquidated, the common stockholders receive only what is left over—but never lose more than they invested—after the firm's other financial obligations have been paid.

Assets: The Left-Hand Side of the Balance Sheet

The left-hand side of Boswell's balance sheet lists the firm's assets, which are categorized into current and fixed assets. The distinction between current and fixed assets is simply the time it takes for them to be converted to cash.

Current Assets

Current assets consist of the firm's cash plus other assets the firm expects to convert to cash within 12 months or less. Boswell had current assets of \$643.5 million at the end of 2016, comprised principally of its **inventory** of \$378 million (including raw materials used to make the firm's products, goods in process, and finished goods that are ready for sale) and its accounts receivable of \$162 million, which reflects the value of prior credit sales that have not been collected.

Fixed Assets

Fixed assets are assets that the firm does *not* expect to sell within one year. These include plant and equipment, land, and other investments that are expected to be held for an extended period of time and frequently cannot be easily converted to cash. Boswell had **gross plant and equipment** totaling \$1,845 million at the end of 2016. This total represents the combined historical dollar amounts the firm paid to acquire fixed assets. Net plant and equipment is equal to gross plant and equipment less **accumulated depreciation** expense. The latter is the sum of all depreciation expenses deducted in the firm's income statement in previous periods for the plant and equipment.

Gross plant and equipment changes over time as new assets are acquired and others are sold. When a firm purchases a new computer system, for example, it does not immediately report the cost as an expense for the period in its income statement. Instead, the computer system is considered to be an asset and is included on the balance sheet. Then the cost of the computer system is depreciated over time. Some assets, such as land, are not expected to depreciate; these assets are carried on the firm's balance sheet at their original cost until they are sold for a profit or a loss.

H. J. Boswell's gross fixed assets for 2015 and 2016 are shown in Table 3.2. In 2015, the firm had \$1,669.5 million in gross plant and equipment. By the end of 2016, this amount had grown to \$1,845 million. In other words, Boswell acquired an additional \$175.5 million in fixed assets during the year (i.e., \$1,845 million – \$1,669.5 million = \$175.5 million). In addition, during 2016, the firm's accumulated depreciation expense rose from \$382.5 million to \$517.5 million. This increase in accumulated depreciation is equal to the amount of depreciation expense for the year (or the \$135 million reported in the firm's income statement, found in Table 3.1). Thus, Boswell's net fixed assets rose by \$40.5 million (the difference between the company's new fixed assets of \$175.5 million and the depreciation expense recorded for 2016 of \$135 million).

Liabilities and Stockholders' Equity: The Right-Hand Side of the Balance Sheet

We now turn to the right-hand side of the balance sheet in Table 3.2, labeled "Liabilities and Stockholders' Equity." This side of the balance sheet indicates how the firm finances its assets. H. J. Boswell, Inc., has borrowed a total of \$1,059.75 million and raised \$911.25 million in equity to finance its total investment in firm assets. Boswell's **current liabilities** represent the amount that the firm owes to creditors that must be paid within a period of 12 months or less. Typically, a firm's current liabilities include **accounts payable**, which is what the firm owes its suppliers for items purchased for its inventories, and **notes payable**, which are short-term loans from banks and other creditors. Current liabilities totaled \$288 million at the end of 2016. The firm also owed \$771.75 million in **long-term debt**, such as loans from banks and other lenders that have maturities longer than one year. This also includes bonds sold by the firm in the public markets.

To understand the stockholders' equity account, we need to know how accountants construct this account. Specifically, it is broken down into the following components:

1. **The amount the company received from selling stock to investors.** This amount may simply be shown as common stock in the balance sheet, or it may be divided into two

components: par value and additional paid-in capital above par.⁵ **Par value** is the stated or face value a firm puts on each share of stock prior to offering it for sale. The par value of the shares has no relationship to their market value. For example, Boswell's par value per share is \$1.00, and the firm has 45 million shares outstanding, so the par value of the firm's common equity is \$45 million. The paid-in capital above par, or simply **paid-in capital**, is the additional amount of capital the firm raised when buyers purchased Boswell's stock for more than its par value.⁶ This amounts to \$324 million for Boswell.

2. **The amount of the firm's retained earnings.** **Retained earnings** are the portion of net income that has been retained (i.e., not paid in dividends) from prior years' operations. Boswell has retained a total of \$542.25 million over the course of its existence.

In effect, **stockholders' equity** is equal to the sum of the par value of common stock plus paid-in capital plus retained earnings.⁷

$$\text{Stockholder's Equity} = \text{Par Value of Common Stock} + \text{Paid-In Capital} + \text{Retained Earnings} \quad (3-3)$$

Alternatively, stockholders' equity can be thought of as the difference between total assets and total liabilities. For example, if some of your company's assets included stocks or bonds that had declined in value over time, then the value of the company's assets would decline accordingly. Thus, in order for the balance sheet to balance, stockholders' equity must decline, and that is done through a reduction in common equity. In effect,

$$\text{Stockholders' Equity} = \text{Total Assets} - \text{Total Liabilities} \quad (3-4)$$

Firm Liquidity and Net Working Capital

The **liquidity** of an asset refers to the speed with which it can be converted to cash without loss of value. Obviously, the firm's bank account is perfectly liquid because it consists of cash that can be readily spent. However, other types of assets are less liquid because they are more difficult to sell and convert to cash.

We can also think in terms of the liquidity of the firm as a whole—that is, the firm's ability to regularly convert its current assets (principally accounts receivable and inventories) to cash so that it can pay its bills on time. This is a function of both the liquidity of the firm's current assets and the size of the bills the firm must pay. A common way to assess a firm's overall liquidity therefore involves comparing its current assets to its current liabilities. This simple measure of the firm's liquidity is its **net working capital**, the difference between the firm's current assets and current liabilities.

$$\text{Net Working Capital} = \text{Current Assets} - \text{Current Liabilities} \quad (3-5)$$

Graphically, this is presented in Figure 3.1. Recall that current assets are those assets that the firm expects to be able to convert to cash within a period of one year or less and current liabilities are those debts that the firm owes and must pay within one year. Consequently, a firm with current assets much larger than its current liabilities is in a good position to pay its debts on time and is, consequently, very liquid. Lenders frequently focus on the amount of net working capital as an important indicator of a firm's ability to repay its loans.

For H. J. Boswell, Inc., net working capital for year-end 2016 is computed as follows, using information from Table 3.2:

Current assets	\$643,500,000
Less: Current liabilities	<u>288,000,000</u>
Equals: Net working capital	\$355,500,000

⁵We assume that the firm has not issued any preferred stock.

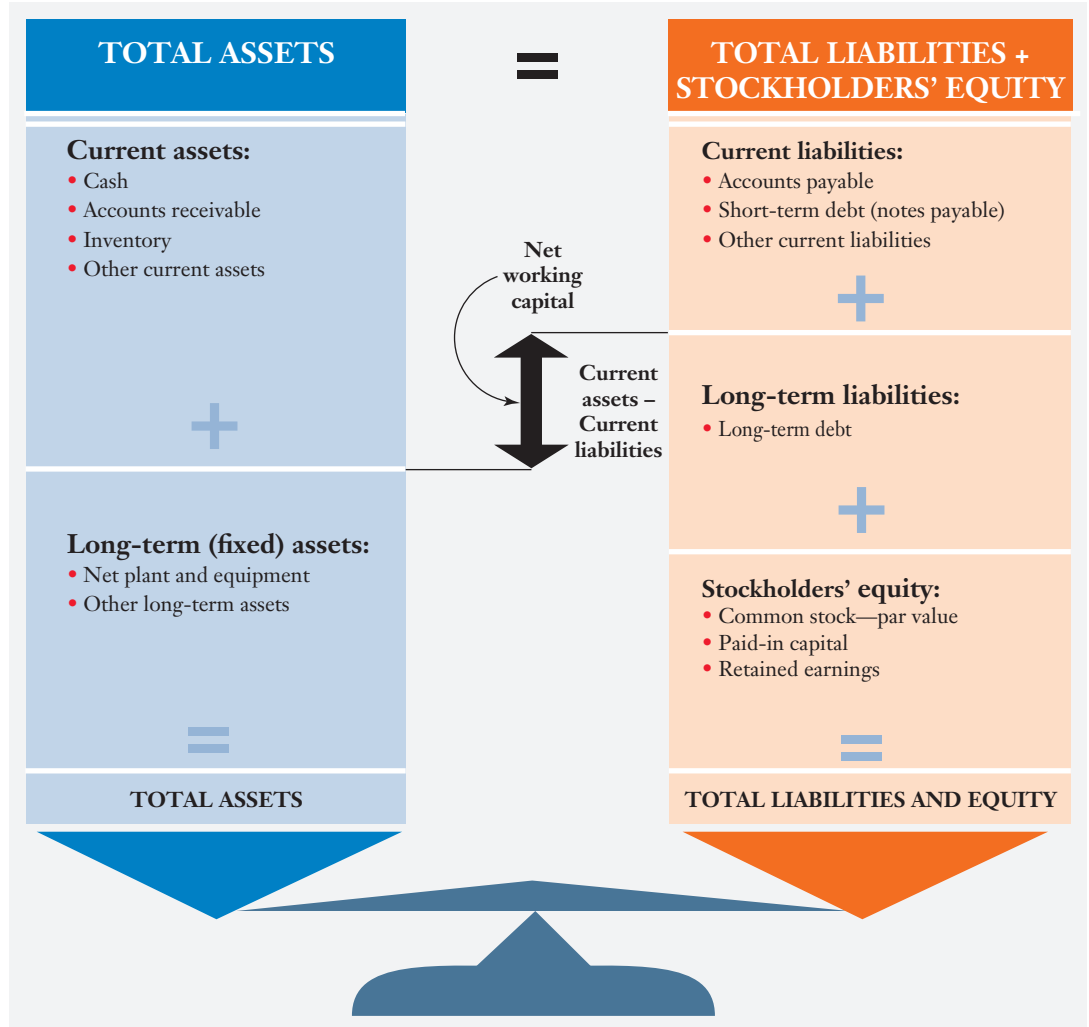
⁶The amount of common stock issued will be offset by any stock that has been repurchased by the company. The amount of the repurchases is listed as **treasury stock**.

⁷If the firm has issued preferred stock then Equation (3-3) for stockholders' equity will also include the dollar amount of preferred stock issued as well as common stock.

Figure 3.1

The Balance Sheet

The balance sheet represents a snapshot of the firm. Specifically, it lists the assets the firm has acquired, classified as current and long-term (or fixed) assets, as well as the sources of money the firm has used to finance the acquisition of its assets. Net working capital is an important measure of a firm’s ability to pay its bills on time and is equal to the difference in the dollar amounts of current assets (assets the firm expects to convert to cash within the year) and current liabilities (debts the firm must pay within the year). Stockholders’ equity is the total investment of the firm’s owners in the firm and is equal to the difference between total assets and total liabilities.



>> END FIGURE 3.1

Debt and Equity Financing

The right-hand side of the firm’s balance sheet reveals the sources of the money used to finance the purchase of the firm’s assets listed on the left-hand side of the balance sheet. It shows how much was borrowed (debt financing) and how much was provided by the firm’s owners (equity financing), either through the sale of equity to investors or through the retention of prior years’ earnings.

Debt and equity, as you will recall from Chapter 2, differ with regard to how the holders of these types of securities get paid and the priority of their respective claims in the event the firm were to become bankrupt. Debt security holders or lenders get paid first. They typically receive periodic interest payments up until the maturity of the debt, at which time the principal must be repaid. Equity securities, on the other hand, do not mature, and although equity

Checkpoint 3.2

Constructing a Balance Sheet

Construct a balance sheet for The Gap, Inc. (GPS), using the following list of jumbled accounts for January 31, 2009. Identify the firm's total assets and net working capital.

Net plant and equipment	\$ 2,523,000,000
Cash	1,885,000,000
Current liabilities	2,128,000,000
Other current assets	809,000,000
Other long-term assets	590,000,000
Accounts receivable	\$ 0
Long-term liabilities	2,539,000,000
Stockholders' equity	2,755,000,000
Inventory	1,615,000,000
Accounts payable	2,069,000,000

STEP 1: Picture the problem

The firm's balance sheet can be visualized as a mathematical equation using Equation (3–2) as follows:

$$\text{Total Assets} = \text{Total Liabilities} + \text{Total Stockholders' Equity} \quad (3-2)$$

Just as with the income statement equation, this equation belies the level of detail normally included in the firm's balance sheet. The following template shows how to construct the balance sheet:

Current assets Cash Accounts receivable Inventory Other current assets Total current assets	Current liabilities Accounts payable Short-term debt (notes payable) Other current liabilities Total current liabilities
Long-term (fixed) assets Gross plant and equipment Less: Accumulated depreciation Net plant and equipment Other long-term assets Total long-term assets	Long-term liabilities Long-term debt
Total assets	Stockholders' equity Common stock—par value Paid-in capital Retained earnings Total equity
	Total liabilities and stockholders' equity

STEP 2: Decide on a solution strategy

Given the account balances provided, constructing the balance sheet simply entails substituting the appropriate balances into the template found above.

STEP 3: Solve

Current assets	\$4,309,000,000	Current liabilities	\$2,128,000,000
Long-term assets	<u>3,113,000,000</u>	Long-term liabilities	2,539,000,000
Total assets	<u>\$7,422,000,000</u>	Total stockholders' equity	<u>2,755,000,000</u>
		Total liabilities and equity	<u>\$7,422,000,000</u>

Total Assets = Current Assets + Long-Term Assets = \$4,309,000,000 + \$3,113,000,000 = \$7,422,000,000

Net Working Capital = Current Assets – Current Liabilities = \$4,309,000,000 – \$2,128,000,000 = \$2,181,000,000

STEP 4: Analyze

There are some important observations we can make about The Gap's balance sheet. First, the firm has invested a total of \$7.422 billion in assets that have been financed using \$2.128 billion in current liabilities, \$2.539 billion in long-term liabilities, and \$2.755 billion in owner-supplied funds. Second, the firm has \$4.309 billion tied up in current assets and \$2.128 billion in current liabilities, leaving the firm with a net working capital position of \$4.309 billion – 2.128 billion = \$2.181 billion. The latter suggests that the value of the firm's current assets could shrink by as much as \$2.181 billion and the firm could still pay its current liabilities.

STEP 5: Check yourself

Reconstruct The Gap's balance sheet to reflect the repayment of \$1 billion in short-term debt using a like amount of the firm's cash. What is the balance for total assets and net working capital?

ANSWER: \$6.422 billion and \$2.181 billion, respectively.

Your Turn: For more practice, do related **Study Problems** 3–11 and 3–12 at the end of this chapter.

>> **END Checkpoint 3.2**

security holders may receive dividends, there is no contractual or predetermined dividend payment (for example, Apple did not pay any dividends between 1995 and 2012). Another key difference between debt and equity is the fact that debt holders are paid before equity holders in the event of bankruptcy.

It is often said that equity holders have the residual claim on income. This simply means that they have a claim on any income that is left over after paying the firm's obligations. This income is paid to them in the form of dividends, used to buy back outstanding stock, or added to their investment in the firm when the firm reinvests the retained earnings.

Book Values, Historical Costs, and Market Values

The different objectives of the accountants who prepare financial statements and the financial managers who interpret those statements are perhaps nowhere more apparent than in the comparison of book (or accounting) values based on historical costs and market values. For example, in June 2016 Home Depot (HD) had total assets (book value) of \$45.5 billion; however, the market value of its liabilities plus equity totaled more than \$175 billion.

There are three reasons for book and market values of a firm's assets to be different. First, book values for most categories of assets in a firm's balance sheet reflect their historical cost at the time each asset was acquired, not their current market value. Two important exceptions to this rule are cash and marketable securities whose value is adjusted to reflect current market value as of the date of the preparation of the balance sheet. The second reason for a difference in book and market values is that the book value of the firm's plant and equipment is depreciated in an effort to account for the cost of using these assets in the firm's operations. Depreciation expense reflects the fact that fixed assets wear out with use and the cost of the wear must be accounted for in determining the profits the firm earns. However, the depreciation expense the firm uses reflects accounting and tax rules rather than actual changes in market values. As a consequence, the adjusted book value of the firm's plant and equipment sometimes bears little resemblance to the asset's market value.

Perhaps the most important reason for the difference in book and market values of a firm's assets relates to valuable intangible assets the firm possesses that are not reflected fully in the firm's balance sheet. That is, the balance sheet does not include the value of having a talented management team, valuable patents and trademarks, and superior business practices.



Finance for Life

Your Personal Balance Sheet and Income Statement

We can apply the concepts of financial statements to prepare a personal balance sheet and income statement. A personal balance sheet is a snapshot of your financial status at a particular point in time. It lists the assets you own and the debts, or liabilities, you owe. Your personal net worth is equal to the difference between your assets and your liabilities. A sample balance sheet

worksheet is provided in Figure 3.2. As you can see, it looks a lot like H. J. Boswell's corporate balance sheet.

Once you've prepared your personal balance sheet and identified your net worth, the next step is to trace where your money comes from and how you spend it. To do this, we put together a personal income statement that looks at both the money you take in and the money you spend. What's left over (if anything) is, like a firm's profit, the amount you have available for savings or investment. If you're spending too much, your income statement will show you exactly where your money is going so that you can spot these problem areas quickly. With a good income statement, you'll never end another month wondering where your money went. A sample income statement is provided in Figure 3.3.

The income statement and balance sheet should be used together. The balance sheet lets you assess your financial standing by showing your net worth. The income statement tells you exactly how your spending and saving habits are affecting your net worth. If your balance sheet shows you that you're not building your net worth as quickly as you'd like or that you're overspending and actually decreasing your net worth, your income statement can help you identify where your money is going.

In *Finance for Life* in the next chapter, we will look at putting the income statement and balance sheet into action through the use of a personal budget.

Figure 3.2

Your Personal Balance Sheet

Assets (What You Own)	
A. Monetary assets (bank account, etc.)	_____
B. Investments	+ _____
C. Retirement plan investments	+ _____
D. Housing (market value)	+ _____
E. Automobiles	+ _____
F. Personal property	+ _____
G. Other assets	+ _____
H. Your total assets (add lines A–G)	= _____
Liabilities or Debt (What You Owe)	
Current Debt	
I. Current bills	_____
J. Credit card debt	+ _____
Long-Term Debt	
K. Housing	_____
L. Automobile loans	+ _____
M. Other debt	+ _____
N. Your total debt (add lines I–M)	= _____
Your Net Worth	
H. Total assets	_____
N. Less: Total debt	– _____
O. Equals: Your net worth	= _____

Figure 3.3

Your Personal Income Statement

Your Take-Home Pay		
A. Total income		_____
B. Total income taxes	-	_____
C. After-tax income available for living expenditures or take-home pay (line A minus line B)	=	_____
Your Living Expenses		
D. Total housing expenditures		_____
E. Total food expenditures	+	_____
F. Total clothing and personal care expenditures	+	_____
G. Total transportation expenditures	+	_____
H. Total recreation expenditures	+	_____
I. Total medical expenditures	+	_____
J. Total insurance expenditures	+	_____
K. Total other expenditures	+	_____
L. Total living expenditures (add lines D–K)		= _____
Total Available for Savings and Investments		
C. After-tax income available for living expenditures or take-home pay		_____
L. Total living expenditures	-	_____
M. Income available for savings and investment (line C minus line L)	=	_____

Your Turn: See **Study Question** 3–9.

Tools of Financial Analysis—Financial Statement Relationships

Name of Tool	Formula	What It Tells You
Balance sheet equation	$\text{Total Assets} = \text{Total Liabilities} + \text{Shareholders' Equity}$	<ul style="list-style-type: none"> The sum of the dollar cost of the firm's investment in assets. The sources of financing used to acquire the firm's assets.
Stockholders' equity equation	$\text{Stockholders' Equity} = \text{Total Assets} - \text{Total Liabilities}$	<ul style="list-style-type: none"> The amount of money invested in the firm by its common stockholders. Because most of the firm's assets are recorded in the balance sheet at their historical cost, stockholders' equity is not a measure of the market value of the equity.

Before you move on to 3.5

Concept Check | 3.4

1. Describe the basic categories of assets and liabilities reported in a firm's balance sheet.
2. What does the term *net working capital* mean, and how is it computed?

3.5

The Cash Flow Statement

We now move on to the third financial statement we want to review. The **cash flow statement** is a report, like the income statement and balance sheet, that firms use to explain changes in their cash balances over a specific period of time (i.e., one year or one quarter) by identifying all of the sources and uses of cash for that period. Thus, the focus of the cash flow statement is the change in a firm's cash balance for the period covered by the statement:

$$\begin{array}{r} \text{Change in Cash} \\ \text{Balance} \end{array} = \begin{array}{r} \text{Ending Cash} \\ \text{Balance} \end{array} - \begin{array}{r} \text{Beginning Cash} \\ \text{Balance} \end{array} \quad (3-6)$$

Because the beginning cash balance for one year is the ending balance for the previous year, we typically evaluate Equation (3-6) as shown in the following example:

$$\begin{array}{r} \text{Change in Cash Balance} \\ \text{for the Current Year} \end{array} = \begin{array}{r} \text{Ending Cash Balance} \\ \text{for the Current Year} \end{array} - \begin{array}{r} \text{Ending Cash Balance} \\ \text{for the Previous Year} \end{array} \quad (3-7)$$

Still another way to look at the change in cash balance for the period is to compare the sources and uses of cash for the period.

We can find the information needed to prepare the cash flow statement in the income statement for the period and the beginning and ending balance sheets for the period. The information from the income statement is inserted directly into the cash flow statement, but the information from the balance sheet does not transfer directly; instead, we must determine what has changed between the beginning and ending balance sheets. So before we dig into the specific format of the cash flow statement, let us first identify a firm's sources and uses of cash by looking at its balance sheet changes from the beginning to the end of the year. These changes will tell the story of where the firm obtained cash and how it spent cash.

Sources and Uses of Cash

A **source of cash** is any activity that brings cash into the firm, such as when the firm sells goods and services or sells an old piece of equipment that it no longer needs. A **use of cash** is any activity that causes cash to leave the firm, such as the payment of taxes or the purchase of a new piece of equipment.

We can identify both sources and uses of cash by looking at the changes in balance sheet entries from the beginning to the end of the period. For example, we can use the 2015 and 2016 balance sheets found in Table 3.3 to see how Boswell's balance sheet entries for assets changed from 2015 to 2016. First, note that the cash balance declined by \$4.5 million. This change is the object of the analysis, so let us move on to accounts receivable, which increased from \$139.5 million to \$162 million. Accounts receivable represent the sum total of all credit sales that have not been collected yet. Thus, the increase in receivables resulted because Boswell's sales are made on credit and the firm's customers owed Boswell \$22.5 million *more* at the end of 2016 than they did at the end of 2015. This means that Boswell *used* cash to invest in accounts receivable.⁸ Similarly, inventory rose by \$148.5 million, indicating the use of cash to invest in a higher level of inventory, which represents the firm's stockpile of products that are either ready for sale (finished goods) or in the process of being made ready for sale (work-in-process inventory). *So, in general, we can think of an increase in an asset account as an indication of the use of cash, whereas a decrease in an asset account is a source of cash.*

What about changes in the firm's liability accounts? Note that accounts payable balance, which includes the credit extended to the firm to acquire inventory, increased by \$4.5 million in 2016. This indicates that Boswell obtained an additional \$4.5 million from accounts payable, *so an increase in a liability account indicates a source of cash, whereas a decrease in a liability account is a use of cash.* For example, short-term notes decreased by \$9 million, which means that Boswell paid down its short-term notes owed to banks and other creditors by this amount, which is a use of cash.

⁸It is easier to see how changes in accounts receivable affect cash when the account balance falls. For example, if a firm's accounts receivable balance falls by \$10,000 during the period, this means that the firm's customers have paid the firm cash. So a decrease in accounts receivable is actually a source of cash!

Table 3.3 H. J. Boswell, Inc.

Balance Sheets and Balance Sheet Changes (\$ millions), December 31, 2015 and 2016

	2015	2016	Change
Cash	\$ 94.50	\$ 90.00	\$ (4.50)
Accounts receivable	139.50	162.00	22.50
Inventory	229.50	378.00	148.50
Other current assets	13.50	13.50	0.00
Total current assets	\$ 477.00	\$ 643.50	\$166.50
Gross plant and equipment	1,669.50	1,845.00	175.50
Less accumulated depreciation	(382.50)	(517.50)	(135.00)
Net plant and equipment	\$1,287.00	\$1,327.50	\$ 40.50
Total assets	\$1,764.00	\$1,971.00	\$207.00
	2015	2016	Change
Accounts payable	\$ 184.50	\$ 189.00	\$ 4.50
Accrued expenses	45.00	45.00	0.00
Short-term notes	63.00	54.00	(9.00)
Total current liabilities	\$ 292.50	\$ 288.00	\$ (4.50)
Long-term debt	720.00	771.75	51.75
Total liabilities	\$1,012.50	\$1,059.75	\$ 47.25
Common stockholders' equity			
Common stock—par value	45.00	45.00	0.00
Paid-in capital	324.00	324.00	0.00
Retained earnings	382.50	542.25	159.75
Total common stockholders' equity	\$ 751.50	\$ 911.25	\$159.75
Total liabilities and stockholders' equity	\$1,764.00	\$1,971.00	\$207.00

Note that Boswell's retained earnings, which represent the sum of all its past earnings that have been reinvested in the firm, increased by \$159.75 million for the period. This increase represents a source of cash to the firm from the firm's operations. The increase in retained earnings is calculated from the income statement (Table 3.1) as follows:

Net income for 2016	\$204.75 million
Less: Dividends paid in 2016	45.00 million
Equals: Change in retained earnings for 2016	\$159.75 million

We can summarize all the sources and uses of cash for Boswell in 2016 using the following criteria for identifying sources and uses of cash:

Sources of Cash	Uses of Cash
Decrease in an asset account	Increase in an asset account
Increase in a liability account	Decrease in a liability account
Increase in a stockholders' equity account	Decrease in a stockholders' equity account

For Boswell, we summarize sources and uses of cash for 2016 as follows (\$ millions):

Sources of cash:		
Increase in accounts payable	\$ 4.50	
Increase in long-term debt	51.75	
Increase in retained earnings	159.75	
Total sources of cash		\$ 216.00
Uses of cash:		
Increase in accounts receivable	\$ 22.50	
Increase in inventory	148.50	
Increase in net plant and equipment	40.50	
Decrease in short-term notes	9.00	
Total uses of cash		\$ 220.50
Change in Cash Balance = Sources of Cash – Uses of Cash = \$216.00 – 220.50 \$ (4.50)		

So here is what we have learned about H. J. Boswell's operations during 2016 from analyzing its sources and uses of cash:

- The firm used more cash than it generated; thus, its cash balance declined by \$4.5 million.
- The firm's primary sources of cash were the retention of \$159.75 million from 2016 earnings plus an increase in long-term debt of \$51.75 million.
- The largest single use of cash involved the addition of \$148.5 million in inventory.
- The firm paid down \$9 million of short-term debt but on balance increased its borrowing substantially due to the increase in long-term borrowing of \$51.75 million noted above.

By analyzing the firm's sources and uses of cash over the period, we begin to paint an overall picture of its financial activities. By looking at changes in the firm's balance sheet accounts, we learn what actions the management took over the year, not just the end results of those actions.

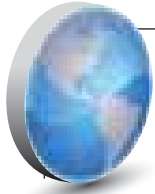
H. J. Boswell's Cash Flow Statement

The format of the cash flow statement differs slightly from the format of the simple analysis of sources and uses of cash we just completed. However, it utilizes the same information. Specifically, in the cash flow statement sources and uses of cash are classified into one of three broad categories:

- *Operating activities* represent the company's core business, including sales and expenses (basically any cash activity that affects net income for the period).
- *Investment activities* include the cash flows that arise out of the purchase and sale of long-term assets such as plant and equipment.
- *Financing activities* represent changes in the firm's use of debt and equity. The latter includes the sale of new shares of stock, the repurchase of outstanding shares, and the payment of dividends.

The basic format of the statement is as follows:

Beginning cash balance
Plus: Cash flow from operating activities
Plus: Cash flow from investing activities
Plus: Cash flow from financing activities
Equals: Ending cash balance



Finance in a Flat World

GAAP vs. IFRS



Financial reporting in the United States is governed by a collection of accounting principles referred to as Generally Accepted Accounting Principles, or GAAP for short. However, the increasing globalization of financial markets has led to the growing acceptance by many accountants that the new standards for financial reporting within the United States will look a lot more like the International Financial Reporting Standards (IFRS) used by many foreign companies. Although the two systems are similar, the IFRS system is typically characterized as being simpler while offering more reporting flexibility than GAAP rules. The transition to the IFRS began in April 2007 when President Bush announced that the IFRS would be recognized in the United States within two years as part of an agreement with the European Union.

Source: Sarah Johnson, "Goodbye GAAP," *CFO*, April 2008, 49–54.

Your Turn: See Study Question 3–10.

Table 3.4 H. J. Boswell, Inc.

Statement of Cash Flows (\$ millions) for the Year Ended December 31, 2016

Ending cash balance for 2015 (beginning cash balance for 2016)			\$94.50
Operating activities			
Net income	\$204.75		
Increase in accounts receivable	(22.50)		
Increase in inventory	(148.50)		
No change in other current assets	0.00		
Depreciation expense	135.00		
Increase in accounts payable	4.50		
No change in accrued expenses	0.00		
Cash flow from operating activities		\$ 173.25	
Investing activities			
Purchases of plant and equipment	(175.50)		
Cash flow from investing activities		(175.50)	
Financing activities			
Decrease in short-term notes	(9.00)		
Increase in long-term debt	51.75		
Cash dividends paid to shareholders	\$ (45.00)		
Cash flow from financing activities		(2.25)	
Increase (decrease) in cash during the year			\$ (4.50)
Ending cash balance for 2016			\$90.00

Evaluating the Cash Flow Statement

Table 3.4 contains the 2016 cash flow statement for Boswell. This statement explains why the firm's cash balance declined by \$4.5 million during 2016. As such, the statement can be used to answer a number of important questions:

- **How much cash did the firm generate from its operations?** Boswell generated \$173.25 million in cash from its operations based on net income of \$204.75 million.
- **How much did the firm invest in plant and equipment?** The firm purchased a total of \$175.5 million in new capital equipment during 2016.
- **Did the firm raise additional funds during the period and, if so, how much and from what sources?** Boswell raised a net amount of new financing of \$2.25 million. By *net amount*, we refer to the sum of new short-term notes of \$9 million that were repaid and \$51.75 million in new long-term debt that the firm issued, less the \$45 million that was paid in common stock dividends.

Quality of Earnings—Evaluating Cash Flow from Operations

A firm's earnings, or net income, is one of the most important pieces of information analysts use to analyze the firm's past performance and make an assessment of its future performance. However, reported earnings can sometimes be a misleading indicator of firm performance in that earnings are comprised of the income earned from the firm's business operations as well as from asset sales and other forms of non-operating revenues. To address this problem, we can combine information from the firm's income statement and statement of cash flows to evaluate the quality of its reported earnings.

Consider the performance of two companies: Alpha and Beta. The companies operated in the same industry, they reported the same earnings last year, and each realized a 10 percent rate of growth in earnings over the last five years. However, the two firms generated their earnings in different ways, as follows:

- Alpha's earnings came solely from the successful operations of the firm's primary business.
- Beta's earnings from its operations were flat for the last three years, and its growth in earnings resulted from gains realized from the sale of company assets.

Which company do you feel has the more promising future? I think you will agree that because Beta is generating its earnings growth out of asset sales, Alpha's earnings are a much better indicator of the firm's performance potential.

Note that we did not suggest that Beta has done anything illegal or wrong. We simply observed that the firm's growth in income has come from selling off assets, which is probably not a sustainable way to generate future earnings. However, Beta might also have been engaged in accounting chicanery to prop up its earnings. We do not want to delve into the specifics of these practices. However, they can include anything from aggressively interpreting the reporting rules (i.e., GAAP) to using fraudulent reporting practices.⁹ The point is simply that a financial analyst would be more confident about using Alpha's earnings as an indicator of firm performance going forward. Another way to say this is that Alpha's earnings are a higher-quality indicator of the firm's future performance than are Beta's.

So how can financial analysts appraise the quality of a firm's reported earnings? One popular indicator of earnings quality is the **quality of earnings ratio**.¹⁰ We compute the ratio as follows:

$$\text{Quality of Earnings} = \frac{\text{Cash Flow from Operations}}{\text{Net Income}} \quad (3-8)$$

Net income is simply the reported earnings for the period found in the *income statement*, and **cash flow from operations** is the portion of the firm's total cash flow that came from its operating activities, as stated in the *statement of cash flows*.

⁹Common types of fraudulent financial reporting arise out of reporting revenues before they are earned (i.e., inflating revenues) and/or delaying or failing to report expenses when they are incurred (i.e., underreporting expenses).

¹⁰An alternative formulation of the quality of earnings ratio is the following:

$$\text{Quality of Earnings} = \frac{\text{Net Income} - \text{Cash from Operations}}{\text{Total Assets}}$$

In this formulation, lower ratios indicate higher-quality earnings, as the difference between the firm's net income and its cash flow from operations is smaller.

In effect, the quality of earnings ratio tells us whether or not the firm's operating cash flow and net income are in sync with each other. A ratio of 1.00 indicates very-high-quality earnings, as the firm's cash from operations is 100 percent of firm-reported net income. On the other hand, a ratio of, say, .20, or 20 percent, would indicate that the firm's cash from operations is only 20 percent of reported net income; this raises a serious question as to the firm's ability to continue producing this level of net income because it is so dependent on non-operating sources of cash.

If the quality of earnings ratio is low for a single year, there could be a logical explanation. However, if the ratio is persistently low, this suggests the very real possibility that the firm is using aggressive reporting practices to inflate its reported earnings.

Example—H. J. Boswell, Inc. To illustrate the computation of the quality of earnings ratio found in Equation (3–8), we refer back to the cash flow statement found in Table 3.4. Substituting for cash flow from operations and net income for 2016, we get the following:

$$\text{Quality of Earnings} = \frac{\text{Cash Flow from Operations}}{\text{Net Income}} = \frac{\$173.25 \text{ million}}{\$204.75 \text{ million}} = .846, \text{ or } 84.6\%$$

Thus, in 2016 Boswell's cash flow from operations was 84.6 percent of the firm's reported net income. The reasons for the difference are outlined in the computation of cash flow from operations found in Table 3.4. Specifically, Boswell received less cash from its operations than it reported in earnings because it had more credit sales than it collected during the period (i.e., accounts receivable increased by \$22.5 million) and because the firm actually increased its inventory (i.e., bought more inventory items than it sold by \$148.5 million). In addition, the firm realized a noncash depreciation expense of \$135 million that increased its cash flow from operations. Boswell also increased its reliance on accounts payable by \$4.5 million.

What have we learned by evaluating Boswell's quality of earnings ratio? First, after reviewing the reasons for the difference in cash flow from operations and net income, we can see that firms that are growing will tend to report quality of earnings ratios less than 1. This is true because growing firms experience growing accounts receivable, which are due to growing sales and growing inventories, which are built up in anticipation of higher sales in the future. Second, in order to say whether Boswell's quality of earnings ratio is good or bad, we need to know two things: How do Boswell's competitor firms compare, and how has its ratio been changing over time? For example, if Boswell operates in an industry where firm sales and profits are growing, then having a quality of earnings ratio less than 1 is to be expected. Moreover, if the quality of earnings ratio is fairly stable over time, this suggests that the firm's earnings and cash flows are in sync and that reported earnings provide a high-quality indicator of the firm's future performance potential. Dramatic deviations from the historical trend could, however, signal problems for Boswell in the future and would be a cause for concern.

Sustainable Capital Expenditures—Evaluating Investment Activities

In Table 3.4, we saw that H. J. Boswell, Inc., spent \$175.5 million on plant and equipment during 2016, yet it raised only an additional \$2.25 million in new financing during the period. The additional funds needed to finance the firm's capital expenditures came from the firm's operations.

Raising the funds needed to finance the firm's capital expenditures from operations means that the firm has less need for external financing and would be less dependent on the whims of the capital markets. For this reason, financial analysts have devised a capital acquisitions ratio that compares the firm's cash flow from operating activities to the cash paid for plant and equipment. The capital acquisitions ratio is defined as follows:

$$\text{Capital Acquisitions Ratio} = \frac{\text{Cash Flow from Operations}}{\text{Cash Paid for Capital Expenditures (CAPEX)}} \quad (3-9)$$

This ratio indicates whether there are sufficient operating cash flows to pay for capital expenditures. The higher the ratio, other things being equal, the less dependent the firm is on capital markets for financing its expenditures on new capital equipment. Because a firm's capital expenditures can vary dramatically from year to year, it is common to calculate this ratio as an average of, say, three years. In addition, because capital expenditures can vary

dramatically between different industries, this ratio should be compared only to the ratios of firms in the same industry as well as to past capital acquisitions ratios for the same firm.

Example—H. J. Boswell, Inc. Given the information from Table 3.4, along with the 2014 and 2015 information given below, the capital acquisitions ratio for H. J. Boswell, Inc., can be calculated as follows:

(\$ millions)	2014	2015	2016	3-Year Average
Cash flow from operations	\$158.00	\$142.00	\$173.25	\$157.75
Capital expenditures (CAPEX)	\$168.00	\$135.00	\$175.50	\$159.50

$$\text{Capital Acquisitions Ratio} = \frac{\text{3-Year Average Cash Flow from Operations}}{\text{3-Year Average Cash Paid for Capital Expenditures (CAPEX)}} = \frac{\$157.75 \text{ million}}{\$159.5 \text{ million}} = .989, \text{ or } 98.9\%$$

Consequently, for the past three years, Boswell was on average able to finance 98.9 percent of its new expenditures for plant and equipment out of the firm's current-year operations.

Checkpoint 3.3

Interpreting the Statement of Cash Flows

Although the national economy is still suffering from the effects of a deep recession, the U.S. energy industry is booming due to the exploitation of shale gas reserves in the spring of 2016. You are in your second rotation in the management training program at a regional brokerage firm, and your supervisor calls you into her office on Monday morning to discuss your next training rotation. When you enter her office, you are surprised to learn that you will be responsible for compiling a financial analysis of Peatry Energy Inc. Peatry is one of the largest producers of natural gas in the United States and is headquartered in Dallas, Texas. Your boss suggests that you begin your analysis by reviewing the firm's cash flow statements for 2012 through 2015 (as follows):

12 Months Ending December 31

(US\$ millions)	2015	2014	2013	2012
Net income	1,451.00	2,003.32	948.30	515.15
Depreciation/depletion	1,971.00	1,449.44	935.97	605.59
Deferred taxes	835.00	1,251.74	544.89	289.53
Noncash items	350.00	(659.40)	(3.43)	(7.76)
Changes in working capital	325.00	798.37	(18.84)	29.75
Cash flow from operating activities	4,932.00	4,843.47	2,406.89	1,432.27
Capital expenditures	(6,744.00)	(4,765.61)	(2,856.08)	(1,426.14)
Other investing cash flow items, total	(1,178.00)	(4,176.89)	(4,065.30)	(1,955.06)
Cash flow from investing activities	(7,922.00)	(8,942.50)	(6,921.38)	(3,381.20)
Financing cash flow items	(196.00)	52.51	39.05	77.40
Total cash dividends paid	(210.00)	(175.43)	(92.01)	(79.81)
Issuance (retirement) of stock, net	15.00	2,303.59	2,344.92	941.11
Issuance (retirement) of debt, net	3,379.00	1,860.85	2,275.65	976.54
Cash flow from financing activities	2,988.00	4,041.52	4,567.62	1,915.24
Net change in cash	(2.00)	(57.51)	53.13	(33.69)

She also asks that you write out a narrative describing Peatry's operations over the last four years, using just the cash flows of the firm. In the narrative, you should address some very basic questions: (a) How much cash has the firm generated from its operations? (b) How much cash has the firm been investing? (c) How has the firm financed its needs for cash?

STEP 1: Picture the problem

The cash flow statement uses information from the firm's balance sheet and income statement to identify the net sources and uses of cash for a specific period of time. Moreover, the sources and uses are organized into cash from operating activities, from investing activities, and from financing activities:

Beginning cash balance

Plus: Cash flow from operating activities

Plus: Cash flow from investing activities

Plus: Cash flow from financing activities

Equals: Ending cash balance

We can write an equation to represent the cash flow statement as follows:

$$\begin{array}{r} \text{Beginning} \\ \text{Cash Balance} \end{array} + \begin{array}{r} \text{Cash Flow from} \\ \text{Operating Activities} \end{array} + \begin{array}{r} \text{Cash Flow from} \\ \text{Investing Activities} \end{array} + \begin{array}{r} \text{Cash Flow from} \\ \text{Financing Activities} \end{array} = \begin{array}{r} \text{Ending} \\ \text{Cash Balance} \end{array}$$

The cash flow statements for Peatry focus on the change in cash for the period or the difference between the beginning and ending cash balances. This can be expressed as an equation as follows:

$$\begin{array}{r} \text{Net Change} \\ \text{in Cash} \end{array} = \begin{array}{r} \text{Ending} \\ \text{Cash Balance} \end{array} - \begin{array}{r} \text{Beginning} \\ \text{Cash Balance} \end{array} = \begin{array}{r} \text{Cash Flow from} \\ \text{Operating Activities} \end{array} + \begin{array}{r} \text{Cash Flow from} \\ \text{Investing Activities} \end{array} + \begin{array}{r} \text{Cash Flow from} \\ \text{Financing Activities} \end{array}$$

STEP 2: Decide on a solution strategy

The basic format of the cash flow statements provides a useful guide to the analysis of a firm's cash flows for the period. For example, the operating activities cash flow section describes how much cash the firm generated from operations, the investing activities cash flow section summarizes how much money the firm invested in new fixed assets, and the financing activities cash flow section summarizes the net results of the firm's financing decisions for the period. To analyze what the firm has done that affects its cash balance, we need review only the balances under each of these sections of the cash flow statement.

STEP 3: Solve

Cash flow from operating activities:

- Peatry has had positive and growing cash flows from operations every year during the entire period.
- The primary contributors to the operating cash flows have been the firm's net income and its depreciation/depletion expense.¹¹
- Working capital has been a source of cash in three of the four years, indicating the net reduction in the firm's investment in working capital.

Cash flow from investing activities:

- Peatry has been a very aggressive investor in new fixed assets and acquisitions of new oil and gas properties.
- Total investments have been roughly two times the firm's operating cash flows, which has meant that the firm has had to raise a substantial amount of outside financing in the financial markets.

Cash flow from financing activities:

- Peatry has been a regular issuer of both equity and debt throughout the period.
- The firm's peak year for raising external financing was 2013, when it raised over \$4.5 billion.
- The firm has issued a total of \$5.6 billion in equity and \$8.5 billion in debt over the four-year period.
- The firm has paid a total of \$557.25 million in dividends to its stockholders over the period.

(3.3 CONTINUED >> ON NEXT PAGE)

¹¹Depletion expense is similar to depreciation expense except that in this case it represents the expensing of the cost of acquiring and developing oil and gas properties.

Summary Comments:

- Peatry has made a lot of money over this four-year period.
- However, the firm has been investing in new properties at a much greater pace (it has invested a total of \$27.2 billion over the last four years), so it has had to go to the financial markets every year to raise the additional capital it has required to finance its investments.
- The net result is that the cumulative change in cash over the four-year period is a negative \$40.07 million.

STEP 4: Analyze

The cash flow statements portray a very profitable firm that has been investing at a pace that is roughly double the firm's operating cash flows. The net result has been the ability to raise over \$13.5 billion in new financing from the financial markets. Moreover, the firm has made relatively modest cash distributions to its shareholders and, instead, has reinvested most of the firm's substantial earnings back into the firm.

STEP 5: Check yourself

Go to <http://finance.google.com/finance>, and get the cash flow statements for the most recent four-year period for Exco Resources (XCO). How does its cash flow from investing activities compare to its cash flow from operating activities in 2015?

ANSWER: Cash flow from operating activities = \$577.83 million and cash flow from investing activities = (\$2,396) million.

Your Turn: For more practice, do related **Study Problem** 3–14 at the end of this chapter.

>> **END Checkpoint 3.3**

Tools of Financial Analysis—Financial Statement Relationships

Name of Tool	Formula	What It Tells You
Cash flow statement equation	$\text{Change in Cash Balance} = \text{Ending Cash Balance} - \text{Beginning Cash Balance}$	<ul style="list-style-type: none"> • The net amount of cash that the firm collected or spent during the period. • Because accountants follow the accrual method of accounting, the change in the cash balance for the period will not necessarily match up with the reported net income.

Before you begin end-of-chapter material**Concept Check | 3.5**

1. Describe the content and purpose of the cash flow statement.
2. Is an increase in accounts receivable a source of cash or a use of cash? Explain.
3. Is a decrease in accounts payable a source of cash or a use of cash? Explain.
4. When an asset balance increases, this indicates that the firm has more of that asset, so why is this a use of cash?

Applying the Principles of Finance to Chapter 3

P Principle 1: **Money Has a Time Value** A firm's financial statements typically do not incorporate consideration for the time value of money. This fact is an important distinction between how the financial manager and the accountant view a firm's financial statements.

P Principle 3: **Cash Flows Are the Source of Value** Accounting statements contain important information that can be used to calculate current cash flows as well as to evaluate the potential of the firm to generate future cash flows.

P Principle 4: **Market Prices Reflect Information** To the extent that new information is revealed in a firm's financial statements, investors respond by either buying or selling the firm's common stock, thereby incorporating the content of the information in the firm's stock price.

P Principle 5: **Individuals Respond to Incentives** Managers respond to the incentives, which are often tied to firm earnings. This means that they might be incented to focus on growing reported earnings even when this does not result in a higher stock price for investors.

Chapter Summaries

3.1

Describe the content of the four basic financial statements and discuss the importance of financial statement analysis to the financial manager.

(pgs. 72–74)

SUMMARY: The accounting and financial regulatory authorities have mandated that firms provide four different financial statements, with each having its own perspective and objective:

1. **Income statement**—includes the revenues the firm has earned, the expenses it has incurred to earn those revenues, and the profit the firm has earned over a specific period of time, usually a quarter of a year or a full year.
2. **Balance sheet**—contains information about the firm's assets (everything of value the company owns), liabilities (the company's debts), and stockholders' equity (the money invested by the company owners).
3. **Cash flow statement**—reports cash received and cash spent by the firm over a specific period of time, usually a quarter of a year or a full year.
4. **Statement of shareholders' equity**—provides a detailed account of activities in the firm's common and preferred stock accounts and its retained earnings account and of changes to shareholders' equity that do not appear in the income statement.

First, financial managers use the firm's financial statements to assess the firm's financial condition. Second, financial statements provide a tool for controlling the firm's operations. Finally, financial statements provide the model that managers use to develop forecasts and plans.

KEY TERMS

Accounts receivable, page 73 Credit sales that have not yet been collected.

Revenues, page 73 Sales recognized for the period and recorded in the firm's income statement.

Concept Check | 3.1

1. Name the four basic financial statements that make up the published financial reports of a firm and describe the basic function of each.
2. What are the three ways in which the firm's management uses the firm's financial statements?
3. Describe the revenue recognition, matching, and historical cost principles as they are applied in the construction of a firm's financial statements.

3.2

Evaluate firm profitability using the income statement. (pgs. 74–79)

SUMMARY: A firm's income statement reflects its sales (also called revenues) earned during a specific period of time (for example, for one year or one quarter) less the expenses the firm incurred in producing those revenues. The firm's income statement is typically analyzed by calculating profit margins based on gross profit (revenues less cost of goods sold), net operating income (gross profit less operating expenses), and net income (net operating income less the interest expense and tax liability for the period).

KEY TERMS

Cost of goods sold, page 75 The cost of producing or acquiring the products or services that the firm sold during the period covered by an income statement.

Depreciation expense, page 75 The allocation of the cost of the firm's long-lived assets (such as its plant and equipment) in the income statement over the useful lives of the assets.

Dividends per share, page 76 The per share cash distribution a firm pays for each share of stock.

Earnings before interest and taxes (EBIT), page 76 Revenues from sales minus the cost of goods sold and operating expenses. Also referred to as *net operating income*.

Concept Check | 3.2

1. What information can we derive from a firm's income statement?
2. List the entries in the income statement.
3. What does the acronym GAAP stand for?

Earnings per share, page 76 Net income divided by the number of common shares outstanding.

Gross profit margin, page 76 The ratio of gross profit (sales less cost of goods sold) divided by sales.

Income statement, page 74 The financial statement that includes the revenues the firm has earned, the expenses it has incurred to earn those revenues, and the profit it has earned over a specific period of time, usually a quarter of a year or a full year.

Net income, page 76 The income that a firm has after subtracting costs and expenses from total revenues.

Net operating income, page 75 The firm's profits from its ongoing operations—before it makes interest payments and pays its taxes. Also referred to as *earnings before interest and taxes (EBIT)*.

Net profit margin, page 77 Net income divided by sales.

Operating profit margin, page 77 The ratio of net operating income to sales.

Profits, page 74 Another term for income.

KEY EQUATION

$$\text{Revenues (or Sales)} - \text{Expenses} = \text{Profits} \quad (3-1)$$

3.3 Estimate a firm's tax liability using the corporate tax schedule and distinguish between the average and marginal tax rates. (pgs. 79–81)

SUMMARY: For the most part, taxable income for the corporation is equal to the firm's operating income less any interest expense. Rather than a single tax rate, the corporate tax is calculated using a schedule of rates applicable to various income brackets, where the maximum tax rate of 35 percent applies to all taxable income in excess of \$18,333,333. If a firm pays \$10,000 in taxes on \$40,000 in taxable income, then its average tax rate is 25 percent. However, with a progressive tax rate, the last dollar of income will be taxed at a higher rate than the first dollar of income. The tax rate applicable to the last dollar of taxable income is the marginal tax rate. Moreover, the marginal tax rate is the rate that impacts any new earnings and, consequently, is the appropriate rate for use when making financial decisions.

KEY TERMS

Average tax rate, page 80 The ratio of the tax liability divided by taxable income.

Marginal tax rate, page 80 The tax rate that the company will pay on its next dollar of taxable income.

Taxable income, page 79 Firm revenues for the period less all tax-deductible expenses (such as cost of goods sold, operating expenses, and interest expense for the period).

Concept Check | 3.3

1. What is the difference between average and marginal tax rates?
2. What is the marginal tax rate for a firm that currently has \$75,000 in earnings before taxes and expects to earn \$80,000 next year?
3. How are dividends received by corporations taxed?

3.4 Use the balance sheet to describe a firm's investments in assets and the way it has financed them. (pgs. 81–89)

SUMMARY: The balance sheet presents a snapshot of the company's assets, liabilities, and equity on a specific date. The firm's total assets represent the historical cost of all the investments that have been made in the business. The firm's total assets must equal its total debt and equity because every dollar of investment made in assets has been financed by the firm's creditors and owners. Assets are categorized into one of two groupings: current assets, which are assets expected to be converted to cash within a period of 12 months or less, or fixed assets, which are expected to remain on the firm's books for a period longer than one year. The firm's debts, or liabilities, include both its short-term debt (payable in 12 months or less) and its long-term debt (payable in more than 12 months). The balance sheet also includes the stockholders' equity, which includes (a) common stock, which can be shown as par value plus additional paid-in capital (the additional

amount of capital the firm raised when investors purchased its stock for more than its par value), and (b) retained earnings (the earnings that the firm has retained and reinvested in the business rather than distributing them to the company's stockholders).

KEY TERMS

Accounts payable, page 83 The credit suppliers extend to the firm when it purchases items for its inventories.

Accumulated depreciation, page 83 The sum of all depreciation expenses that have been deducted from the firm's income statement in previous periods for the plant and equipment the firm currently has on its balance sheet.

Balance sheet, page 81 A financial statement that contains a summary of the firm's assets (everything of value the company owns), liabilities (the company's debts), and stockholders' equity (the money invested by the company owners).

Current assets, page 83 Cash plus other assets that the firm expects to convert to cash within 12 months or less.

Current liabilities, page 83 The debts of the firm that must be paid within a period of 12 months or less.

Fixed assets, page 83 Those assets that the firm does not expect to sell or otherwise convert to cash within one year.

Gross plant and equipment, page 83 The sum of the historical costs of the plant and equipment owned by the firm.

Inventory, page 83 Raw materials used to make the firm's products, goods in process, and finished goods that are ready for sale.

Liquidity, page 84 The speed with which an asset can be converted into cash without loss of value.

Long-term debt, page 83 Loans from banks and other lenders that have maturities longer than one year as well as bonds sold by the firm in the public markets.

Market value, page 81 The price that an asset would trade for in a competitive market.

Net plant and equipment, page 81 The cumulative historical costs of plant and equipment owned by the firm (gross plant and equipment) less the accumulated depreciation expense that has been charged against those assets over their useful lives.

Net working capital, page 84 The difference between the firm's current assets and current liabilities.

Note payable, page 83 A loan contract reflecting the fact that a firm has borrowed money that it promises to repay according to the terms of the agreement.

Paid-in capital, page 84 The money contributed to a corporation by its stockholders in addition to the par value of the firm's stock. Sometimes called *paid-in capital above par*.

Par value, page 84 The stated value of a bond or share of stock at the time of issue.

Retained earnings, page 84 The accumulation of prior-year net income that was retained and reinvested in the firm (i.e., not paid in dividends).

Stockholders' equity, page 84 The sum of the par value of common stock plus paid-in capital plus retained earnings. This quantity is sometimes referred to as the *book value of the firm's equity*.

Total assets, page 81 The total of current and long-term assets recorded in the firm's balance sheet.

Total liabilities, page 81 The total amount of money the firm owes its creditors (including the firm's banks and other creditors).

Total stockholders' equity, page 81 Total assets less total liabilities.

Treasury stock, page 84 Stock that has been bought back by the issuing company.

Concept Check | 3.4

1. Describe the basic categories of assets and liabilities reported in a firm's balance sheet.
2. What does the term *net working capital* mean, and how is it computed?

KEY EQUATIONS

$$\text{Total Assets} = \text{Total Liabilities} + \text{Total Shareholders' Equity} \quad (3-2)$$

$$\text{Stockholders' Equity} = \text{Par Value of Common Stock} + \text{Paid-In Capital} + \text{Retained Earnings} \quad (3-3)$$

$$\text{Stockholders' Equity} = \text{Total Assets} - \text{Total Liabilities} \quad (3-4)$$

$$\text{Net Working Capital} = \text{Current Assets} - \text{Current Liabilities} \quad (3-5)$$

3.5 Identify the sources and uses of cash for a firm using the firm's cash flow statement. (pgs. 90–98)

SUMMARY: The cash flow statement explains the change in the firm's cash account, which equals the difference between the ending and beginning balances in the firm's cash account. The statement categorizes cash flows into one of three buckets: cash flow from operating activities, from investing activities, and from financing activities. This financial statement is widely used by financial analysts because it provides a very clear picture of what the firm did during the period to generate and spend cash.

KEY TERMS

Cash flow from operations, page 94 The portion of the firm's total cash flow resulting from its operating activities.

Cash flow statement, page 90 A financial statement that reports cash received and cash spent by the firm over specific a period of time, usually one quarter of a year or a full year.

Net income, page 94 The income that a firm has after subtracting costs and expenses from total revenues.

Quality of earnings ratio, page 94 The ratio of cash flow from operations divided by net income.

Source of cash, page 90 Any activity that brings cash into the firm, such as when the firm sells goods and services or sells an old piece of equipment that it no longer needs.

Use of cash, page 90 Any activity that causes cash to leave the firm, such as the payment of taxes or payments made to stockholders, creditors, and suppliers.

Concept Check | 3.5

1. Describe the content and purpose of the cash flow statement.
2. Is an increase in accounts receivable a source of cash or a use of cash? Explain.
3. Is a decrease in accounts payable a source of cash or a use of cash? Explain.
4. When an asset balance increases, this indicates that the firm has more of that asset, so why is this a use of cash?

KEY EQUATIONS

$$\frac{\text{Change in Cash Balance}}{\text{Balance}} = \frac{\text{Ending Cash Balance} - \text{Beginning Cash Balance}}{\text{Balance}} \quad (3-6)$$

$$\frac{\text{Change in Cash Balance for the Current Year}}{\text{Balance for the Current Year}} = \frac{\text{Ending Cash Balance for the Current Year} - \text{Ending Cash Balance for the Previous Year}}{\text{Balance for the Current Year}} \quad (3-7)$$

$$\text{Quality of Earnings} = \frac{\text{Cash Flow from Operations}}{\text{Net Income}} \quad (3-8)$$

$$\text{Capital Acquisitions Ratio} = \frac{\text{Cash Flow from Operations}}{\text{Cash Paid for Capital Expenditures (CAPEX)}} \quad (3-9)$$

Study Questions

- 3-1. Describe the content of the balance sheet and the income statement.
- 3-2. Firm income statements document the revenues earned and the expenses incurred in generating those revenues during the period covered. However, firm expenses are categorized into one of three groups: cost of goods sold, operating expenses, and interest expense. By deducting each of these categories of expenses from firm revenues, we compute three types of profits. What are they and how are they different?
- 3-3. From the firm's perspective, how are cash dividends different from interest payments?
- 3-4. When bank loan officers are evaluating the creditworthiness of a potential commercial borrower, they often look to the firm's net working capital balance as an indicator of the firm's overall liquidity. How is net working capital defined, and what does it tell loan officers about the liquidity of a firm?

- 3-5. Meriwhether Chemicals experienced an increase in its accounts receivable balance for the year just ended. This will be reported as a use of cash in the firm's cash flow statement. How is it that an increase in an asset such as accounts receivable represents a use of cash?
- 3-6. Appleby Southern Inc. had an accounts payable balance of \$5 million at the end of 2015, and that balance rose to \$7 million in 2016. What is the cash flow consequence of this change in accounts payable?
- 3-7. In 2016, RubKing Barbeque Sauce, Inc., purchased a new bottling machine at a cost of \$1.5 million. The new machine is expected to last for 10 years, and the firm plans to depreciate it using straight-line depreciation of \$150,000 per year. What is the cash flow consequence of the purchase for 2016?
- 3-8. The cash flow statement is one of the four basic financial statements. Define the objective in preparing this statement, and discuss some of the types of questions that can be addressed using its content.
- 3-9. In *Finance for Life: Your Personal Balance Sheet and Income Statement* on page 88, we learned that individuals have financial statements just like firms. Prepare your personal balance sheet using the following items: (i) You have a 2003 Corolla that you bought for \$3,500 and still owe a note of \$2,000; (ii) your checking account has a balance of \$453.28, and you have a savings account with a \$2,412.49 balance; and (iii) you have an unpaid balance on your school loan of \$12,591.22 (your tuition for last year). What is your current net worth?
- 3-10. In *Finance in a Flat World: GAAP vs. IFRS* on page 93, we learned that GAAP, the financial reporting system used in the United States, is not the same as that used throughout the rest of the world. However, the U.S. system is converging with the international system. Do a web search and write up a brief statement summarizing the current status of the convergence of the U.S. and international accounting systems.

Study Problems

MyLab Finance

Go to www.myfinancelab.com to complete these exercises online and get instant feedback.

The Income Statement

- 3-1. **(Working with the income statement) (Related to Checkpoint 3.1 on page 78)** GMT Transport Company ended the year with record sales of \$18 million. The firm's cost of goods sold totaled \$10.8 million while its operating expenses (including depreciation) totaled \$4 million. GMT paid \$1.5 million in interest expense and had an income tax liability of \$595,000. What is the firm's net income for the year?
- 3-2. **(Working with the income statement)** If GMT Transport Company (from the previous problem) plans to reinvest \$1 million of its earnings back in the firm and pay out the remainder in cash dividends to the firm's shareholders, what is the total amount of the cash dividend?
- 3-3. **(Working with the income statement)** Solpro PLC has reported £800,000 in retained profit after paying £400,000 in dividends. What are Solpro PLC's earnings per share if the firm has 300,000 issued and paid-up equity shares?

Corporate Income Tax

- 3-4. **(Calculating corporate income tax)** Lookers Group Ltd. deals in automobile retailing and has a chain of dealerships across the United States. They have declared an income of \$5,200,000. Assuming that the entire amount is taxable, what are the firm's marginal and average tax rates?
- 3-5. **(Calculating corporate income tax)** Hunters Inc. has reported sales of \$5.5 million. The gross profit has been declared at \$3.5 million. They also reported operating

expenses including depreciation of \$1.2 million and paid \$40,000 interest on its bank loans. It also received \$60,000 in dividends from a company where it owns less than 20 percent shares. It has also declared dividends of \$25,000 for its own common shareholders. Calculate the firm's corporation tax liability, marginal tax rate, and average tax rate.

- 3-6. **(Calculating corporate income tax)** The Robbins Corporation is an oil wholesaler. The firm's sales last year were \$1 million, with the cost of goods sold equal to \$600,000. The firm paid interest of \$200,000, and its cash operating expenses were \$100,000. Also, the firm received \$40,000 in dividend income (from a firm in which it owned 22 percent of the shares) while paying only \$10,000 in dividends to its own stockholders. Depreciation expense was \$50,000. Compute the firm's tax liability. Based on your answer, does management need to take any additional action? What are the firm's average and marginal tax rates?
- 3-7. **(Calculating corporate income tax)** GoCamping Inc. has declared a sales figure of \$7,600,000. The cost of sales is \$3,000,000. The admin and depreciation expenses are \$1,200,000 and \$2,000,000, respectively. They have also received \$500,000 in dividend income from a firm where GoCamping owns 87 percent of the shares. Compute the taxable income and tax liability for GoCamping. What are GoCamping's average and marginal tax rates?
- 3-8. **(Calculating corporate income tax)** G. R. Edwin Inc. had sales of \$6 million during the past year. The cost of goods sold amounted to \$3 million. Operating expenses totaled \$2.6 million, and interest expense was \$30,000. Determine the firm's tax liability. What are the firm's average and marginal tax rates?
- 3-9. **(Calculating corporate income tax)** Crisp and Sharp Inc. is a small supplier of printing material for business around New York. They have declared a taxable income of \$126,000. What would their federal tax liability be? What are their average and marginal tax rates?
- 3-10. **(Calculating corporate income tax)** Boone Heavy Engineering Inc. made a total taxable profit of \$22 million. Calculate their federal income tax liability. What will their average and marginal tax rates be?

The Balance Sheet

- 3-11. **(Working with the balance sheet) (Related to Checkpoint 3.2 on page 86)** The Caraway Seed Company grows heirloom tomatoes and sells their seeds. Heirloom tomato plants are preferred by many growers for their superior flavor. At the end of the most recent year, the firm had current assets of \$50,000, net fixed assets of \$250,000, current liabilities of \$30,000, and long-term debt of \$100,000.
- Calculate Caraway's stockholders' equity.
 - What is the firm's net working capital?
 - If Caraway's current liabilities consist of \$20,000 in accounts payable and \$10,000 in short-term debt (notes payable), what is the firm's net working capital?
- 3-12. **(Reviewing financial statements) (Related to Checkpoint 3.2 on page 86)** Following is a scrambled list of accounts from the income statement and balance sheet of Belmond, Inc.:

Inventory	\$ 6,500
Common stock	45,000
Cash	16,550
Operating expenses	1,350
Short-term notes payable	600
Interest expense	900
Depreciation expense	500
Sales	12,800
Accounts receivable	9,600
Accounts payable	4,800
Long-term debt	55,000

Cost of goods sold	5,750
Buildings and equipment	122,000
Accumulated depreciation	34,000
Taxes	1,440
General and administrative expense	850
Retained earnings	?

- What is the firm's net working capital?
- Complete an income statement and a balance sheet for Belmond.
- If you were asked to complete parts a and b as part of a training exercise, what could you tell your boss about the company's financial condition based on your answers?

3-13. **(Reviewing financial statements)** Prepare a balance sheet and income statement for TNT, Inc., from the following scrambled list of items:

Depreciation expense	\$ 99,000
Cash	337,500
Long-term debt	501,000
Sales	859,500
Accounts payable	153,000
General and administrative expense	118,500
Buildings and equipment	1,342,500
Notes payable	112,500
Accounts receivable	251,250
Interest expense	7,125
Accrued expenses	11,850
Common stock	433,500
Cost of goods sold	445,500
Inventory	148,950
Taxes	75,750
Accumulated depreciation	394,500
Taxes payable	21,750
Retained earnings	79,500

- Prepare an income statement for TNT.
- Prepare a balance sheet for TNT.
- What can you say about the firm's financial condition based on these financial statements?

Cash Flow Statement

3-14. **(Analyzing the cash flow statement)** (Related to Checkpoint 3.3 on page 96) Google, Inc. (GOOG), is one of the most successful internet firms, and it experienced very rapid growth in revenues from 2011 through 2014. The cash flow statements for Google, Inc., spanning the period are as follows:

(US\$ millions)	12/31/2014	12/31/2013	12/31/2012	12/31/2011
Net income	\$ 14,444	\$ 12,920	\$ 10,737	\$ 9,737
Depreciation	3,523	2,781	1,988	1,396
Amortization	1,456	1,158	974	455
Deferred taxes	(104)	(437)	(266)	343
Noncash items	2,693	2,268	2,288	2,004
Changes in working capital	<u>364</u>	<u>(31)</u>	<u>898</u>	<u>630</u>
Cash flow from operating activities	\$ 22,376	\$ 18,659	\$ 16,619	\$ 14,565

(US\$ millions)	12/31/2014	12/31/2013	12/31/2012	12/31/2011
Capital expenditures	(10,959)	(7,358)	(3,273)	(3,438)
Other investing cash flow items, total	<u>(10,096)</u>	<u>(6,321)</u>	<u>(9,783)</u>	<u>(15,603)</u>
Cash flow from investing activities	<u>(21,055)</u>	<u>(13,679)</u>	<u>(13,056)</u>	<u>(19,041)</u>
Interest and financing cash flow items	(1,421)	(300)	(99)	81
Total cash dividends paid	-	-	-	-
Issuance (retirement) of stock, net	-	-	-	-
Issuance (retirement) of debt, net	<u>(18)</u>	<u>(557)</u>	<u>1,328</u>	<u>726</u>
Cash flow from financing activities	<u>(1,439)</u>	<u>(857)</u>	<u>1,229</u>	<u>807</u>
Foreign exchange effects	<u>(433)</u>	<u>(3)</u>	<u>3</u>	<u>22</u>
Net Change in Cash	<u>(551)</u>	<u>4,120</u>	<u>4,795</u>	<u>(3,647)</u>

Answer the following questions using the information found in these statements:

- Is Goggle generating positive cash flow from its operations?
- How much did Goggle invest in new capital expenditures over these four years?
- Describe Goggle's sources of financing in the financial markets over these four years.
- Based solely on the cash flow statements for 2011 through 2014, write a brief narrative that describes the major activities of Goggle's management team over these four years.

- 3–15. **(Analyzing the cash flow statement)** The cash flow statements for retailing giant Big-Box, Inc., spanning the period 2013–2016 are as follows:

(US\$ millions)	12/31/2016	12/31/2015	12/31/2014	12/31/2013
Net income	\$ 13,000	\$ 12,000	\$ 11,000	\$ 10,000
Depreciation expense	6,500	6,300	5,000	4,000
Changes in working capital	1,200	2,300	2,400	1,000
Cash flow from operating activities	<u>\$ 20,700</u>	<u>\$ 20,600</u>	<u>\$ 18,400</u>	<u>\$ 15,000</u>
Capital expenditures	<u>\$ (16,000)</u>	<u>\$ (14,500)</u>	<u>\$ (14,000)</u>	<u>\$ (12,300)</u>
Cash flow from investing activities	<u>\$ (16,000)</u>	<u>\$ (14,500)</u>	<u>\$ (14,000)</u>	<u>\$ (12,300)</u>
Interest and financing cash flow items	\$ (350)	\$ (250)	\$ (350)	\$ 100
Total cash dividends paid	(3,600)	(2,800)	(2,500)	(2,200)
Issuance (retirement) of stock	(8,000)	(1,500)	(3,600)	(4,500)

(US\$ millions)	12/31/2016	12/31/2015	12/31/2014	12/31/2013
Issuance (retirement) of debt	1,500	(100)	4,000	4,100
Cash flow from financing activities	\$ (10,450)	\$ (4,650)	\$ (2,450)	\$ (2,500)
Net change in cash	\$ (5,750)	\$ 1,450	\$ 1,950	\$ 200

Answer the following questions using the information found in these statements:

- Does BigBox generate positive cash flow from its operations?
 - How much did BigBox invest in new capital expenditures over these four years?
 - Describe BigBox's sources of financing in the financial markets over these four years.
 - Based solely on the cash flow statements for 2013 through 2016, write a brief narrative that describes the major activities of BigBox's management team over these four years.
- 3–16. **(Analyzing the quality of firm earnings)** Ubimetal Fabrications Plc specializes in large-scale industrial metal fabrication for construction companies. They have a net income of £850,000. Cash flow from financing activities is £160,000. The cash flow from operating activities is £614,000, and they have an annual depreciation expense of £74,000. They also have the following information for the period 2015–2017.
- Calculate the firm's quality of earnings ratio. What do you understand from this ratio?
 - Consider the following additional information and calculate the average capital acquisition ratio over the three-year period. What do these ratios tell you?

(£ ,000s)	2015	2016	2017
Cash Flow from Operations	648	620	650
Capital Expenditure (CAPEX)	568	632	640

- 3–17. **(Analyzing the quality of earnings and sustainability of capital expenditures)** Obtain the statement of cash flows for Sainsbury's and Morrisons using Yahoo! Finance.
- Compute the quality of earnings ratio for the last three years for both firms.
 - Compare the quality of earnings ratio for the two firms. Which of the two firms has better earning quality in your opinion?
 - Calculate the capital acquisition ratio for the latest three years for both firms. What do you understand from their ratios?
 - What is your opinion about Morrisons and Sainsbury's ability to finance their capital expenditure using their operational cash flow? Which of them is more likely to rely on capital markets for funds?

Mini-Case

In the introduction to this chapter, we described the situation faced by The Gap, Inc. (GPS). We learned that the retail clothing chain had grown dramatically over the first two decades of its existence but had fallen on difficult times in 2007. Assume that you have been hired as a new management trainee by the corporate offices of Gap in the spring of 2009 and that you report directly to the director of sales and marketing. Although your job

is not specifically in finance, your boss is a major contributor to the firm's overall financial success and wants you to familiarize yourself with the firm's recent financial performance. Specifically, she has asked that you review the following income statements for the years 2005–2008. You are to review the firm's revenue, gross profit, operating income, and net income trends over these four years.

Gap, Inc.
Income Statements (US\$ millions, except per share data), 2005–2008

	2008	2007	2006	2005
Total revenues	\$15,763	\$15,923	\$16,019	\$16,267
Cost of goods sold	<u>10,071</u>	<u>10,266</u>	<u>10,145</u>	<u>9,886</u>
Gross profit	\$ 5,692	\$ 5,657	\$ 5,874	\$ 6,381
Total operating expense	<u>4,377</u>	<u>4,432</u>	<u>4,099</u>	<u>4,402</u>
Net operating income	\$ 1,315	\$ 1,225	\$ 1,775	\$ 1,979
Interest income (expense)	<u>91</u>	<u>90</u>	<u>48</u>	<u>(108)</u>
Earnings before taxes	\$ 1,406	\$ 1,315	\$ 1,823	\$ 1,871
Income taxes	<u>539</u>	<u>506</u>	<u>692</u>	<u>721</u>
Net income	<u>\$ 867</u>	<u>\$ 809</u>	<u>\$ 1,131</u>	<u>\$ 1,150</u>

After contemplating the assignment, you decide to calculate the gross profit margin, operating profit margin, and net profit margin for each of these years. It is your hope that by evaluating these profit margins you will be able to pinpoint any problems that the firm may be experiencing.

Finally, your boss points out that the firm may need to raise additional capital in the near future and suggests that you review the firm's past financing decisions using both the firm's balance sheets and its statements of cash flows. Specifically, she asks that you summarize your assessment of the firm's use of debt financing over these four years.

Gap, Inc.
Balance Sheets (US\$ millions, except per share data), 2005–2008

	2008	2007	2006	2005
Cash and short-term investments	1,901.00	2,600.00	2,987.00	3,062.00
Inventory	1,575.00	1,796.00	1,696.00	1,814.00
Other current assets	<u>610.00</u>	<u>633.00</u>	<u>556.00</u>	<u>1,428.00</u>
Total current assets	4,086.00	5,029.00	5,239.00	6,304.00
Gross plant and equipment	7,320.00	7,135.00	6,958.00	7,169.00
Other long-term assets	<u>485.00</u>	<u>318.00</u>	<u>336.00</u>	<u>368.00</u>
Total assets	<u>7,838.00</u>	<u>8,544.00</u>	<u>8,821.00</u>	<u>10,048.00</u>
Accounts payable	1,006.00	772.00	1,132.00	1,240.00
Accrued expenses	1,259.00	1,159.00	725.00	924.00
Notes payable/short-term debt	0.00	0.00	0.00	0.00
Current portion of long-term debt and leases	138.00	325.00	0.00	0.00
Other current liabilities	<u>30.00</u>	<u>16.00</u>	<u>85.00</u>	<u>78.00</u>
Total current liabilities	2,433.00	2,272.00	1,942.00	2,242.00
Long-term debt	50.00	188.00	513.00	1,886.00
Other liabilities	<u>1,081.00</u>	<u>910.00</u>	<u>941.00</u>	<u>984.00</u>
Total liabilities	<u>3,564.00</u>	<u>3,370.00</u>	<u>3,396.00</u>	<u>5,112.00</u>
Common stock	55.00	55.00	54.00	49.00
Additional paid-in capital	2,783.00	2,631.00	2,402.00	904.00
Retained earnings (accumulated deficit)	9,223.00	8,646.00	8,133.00	7,181.00
Treasury stock—common	(7,912.00)	(6,225.00)	(5,210.00)	(3,238.00)
Other equity	<u>125.00</u>	<u>77.00</u>	<u>46.00</u>	<u>40.00</u>
Total stockholders' equity	<u>4,274.00</u>	<u>5,174.00</u>	<u>5,425.00</u>	<u>4,936.00</u>
Total liabilities and stockholders' equity	7,838.00	8,544.00	8,821.00	10,048.00

Legend:

Treasury stock—shares of a firm's common stock that had previously been issued to the public but that have been repurchased in the equity market by the firm.

Gap, Inc.**Statements of Cash Flows (US\$ millions, except per share data), 2006–2008**

	2008	2007	2006
Net income	\$ 833	\$ 778	\$ 1,113
Depreciation	547	530	625
Deferred taxes	(51)	(41)	(46)
Noncash items	107	67	(28)
Changes in working capital	<u>645</u>	<u>(84)</u>	<u>(113)</u>
Cash flow from operating activities	\$ 2,081	\$ 1,250	\$ 1,551
Capital expenditures	(682)	(572)	(600)
Other investing cash flow items, total	<u>408</u>	<u>422</u>	<u>886</u>
Cash flow from investing activities	\$ (274)	\$ (150)	\$ 286
Financing cash flow items	132	213	0
Total cash dividends paid	(252)	(265)	(179)
Issuance (retirement) of stock, net	(1,700)	(1,050)	(1,861)
Issuance (retirement) of debt, net	<u>(326)</u>	<u>0</u>	<u>0</u>
Cash flow from financing activities	\$(2,146)	\$(1,102)	\$(2,040)
Foreign exchange effects	<u>33</u>	<u>(3)</u>	<u>(7)</u>
Net change in cash	<u>\$ (306)</u>	<u>\$ (5)</u>	<u>(210)</u>

Legend:

Deferred taxes—a liability account that reflects the accumulated difference between the amount of income tax the firm shows each year as an expense on its financial statements and the amount of income tax, usually lower, the firm pays to the government.

Foreign exchange effects—the cash flow consequences of foreign exchange gains (losses) during the year.