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Part II

Essential Concepts in Finance



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Essential Concepts in Finance are those subjects that you need to understand in order for the financial management lessons to make sense. They are the “floor on which the furniture sits” so to speak. Chapter 4, Review of Accounting, reintroduces you to accounting, which is the “language” of finance. Chapter 5, Analysis of Financial Statements, illustrates how to read the “story” that the accounting financial statements have to tell. Chapter 6, Forecasting for Financial Planning, takes you one step further by addressing the question: Now that you know the story, what is likely to happen in the future? You can never be sure about what will happen in the future, of course, so Chapter 7, Risk and Reward, explains the nature of the risks that financial managers face, and describes some of the measures that can be taken to deal with risk. Chapter 7 also explores what has been called “the iron law of finance”: Increasing reward comes only with increasing risk. Chapter 8, The Time Value of Money, contains what is perhaps the most important topic in the book. This chapter introduces you to the concept that the value of a dollar received today is not the same as the value of a dollar to be received tomorrow. This seemingly simple issue has profound implications that reach throughout the entire field of finance.

CHAPTERS

- 4 Review of Accounting
- 5 Analysis of Financial Statements
- 6 Forecasting for Financial Planning
- 7 Risk and Return
- 8 The Time Value of Money

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4

Review of Accounting

“Anyone who isn’t confused here doesn’t really understand what is going on.”

—Anonymous

A Little Accounting History

Accounting is as old as civilization, key to important phases of history, among the most important professions in economics and business, and fascinating. Accountants participated in the development of cities, trade, and the concepts of wealth and numbers. Accountants invented writing, participated in the development of money and banking, invented double entry bookkeeping that fueled the Italian Renaissance, saved many Industrial Revolution inventors and entrepreneurs from bankruptcy, helped develop the confidence in capital markets necessary for western capitalism, and are central to the information revolution that is transforming the global economy.

There are no household names among the accounting innovators; in fact, virtually no names survive before the Italian Renaissance. It took archaeologists to dig up the early history and scholars from many fields to demonstrate the importance of accounting to so many aspects of economics and culture. The role of accountants in the ancient world is coming into clearer focus with new archaeological discoveries and innovative interpretations of the artifacts. It is now evident that writing developed over at least 5,000 years—by accountants. It is difficult to overestimate the importance of double entry bookkeeping. It was central to the success of Italian merchants, necessary to the birth of the Renaissance. Industrial Revolution firms required accountants to provide the information necessary to avoid bankruptcy and their role developed into a profession. Big business required capital markets that depended on accurate and useful information. This was supplied by the expanding accounting profession. Today, a global real-time integrated information system is a near reality, suggesting new accounting paradigms.

Source: Adapted from the Accounting History Page posted at <http://acct.tamu.edu/giroux/history.html> by Dr. Gary Giroux, Mays Business School at Texas A&M University. Used with permission.



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Chapter Overview

Accounting plays an important role in a firm's financial success. Accountants prepare financial statements that financial managers use to analyze the condition of a firm and to plan for its future. Financial managers must understand, then, how to analyze and interpret financial statements as they make decisions. The financial manager who knows how to use financial statements can help create value for the firm's owners.

In this chapter we will review the three major financial statements: the income statement, the balance sheet, and the statement of cash flows. We will also study how depreciation and taxes affect a firm's cash flows.

Review of Accounting Fundamentals

All public corporations in the United States must follow certain accounting guidelines known as Generally Accepted Accounting Principles (GAAP), which require that public corporations prepare financial statements that comply with GAAP rules. The Financial Accounting Standards Board (abbreviated FASB and pronounced Fahz-bee), a private, professional accounting body, publishes these rules governing how public corporations must account for their business activities.

The Securities and Exchange Commission (SEC) requires all public corporations to file financial statements, and make them available to the public, on 10-K and 10-Q reports. The **10-K reports** contain audited financial

Learning Objectives

After reading this chapter, you should be able to:

1. Explain how financial managers use the three basic accounting financial statements: the income statement, the balance sheet, and the statement of cash flows.
2. Discuss how depreciation affects cash flow and compute depreciation expense.
3. Explain how taxes affect a firm's value and calculate marginal and average tax rates.

statements submitted annually to the SEC for distribution to the public. The **10-Q reports** contain unaudited financial statements submitted quarterly, also for public distribution.

The following basic accounting equation is central to understanding the financial condition of a firm:

$$\text{Assets} = \text{Liabilities} + \text{Equity}$$

Assets are the items of value a business owns. Liabilities are claims on the business by nonowners, and equity is the owners' claim on the business. The sum of the liabilities and equity is the total **capital** contributed to the business. Capital contributions come from two main sources: creditors (including bondholders and banks) and common stockholders. Some firms also have preferred stock that has a claim on the firm after creditors but before common stockholders.

Basic Accounting Financial Statements

You can get a good picture of how a firm is doing by looking at its financial statements. The three basic financial statements are the *income statement*, the *balance sheet*, and the *statement of cash flows*. Each of these statements gives a slightly different view of the firm. Let's look at these financial statements and how they interrelate.

The Income Statement

We can compare the **income statement** to a video: It measures a firm's profitability over a period of time. The firm can choose the length of the reporting time period. It can be a month, a quarter, or a year. (By law, a publicly traded corporation must report its activities at least quarterly but may report more frequently.)

The income statement shows *revenues*, *expenses*, and *income*. Revenues represent gross income the firm earned during a particular period of time (usually from sales). Expenses represent the cost of providing goods and services during a given period of time. Net income is what is left after expenses are subtracted from revenues.

Figure 4-1 shows an income statement for Acme Corporation, a firm that manufactures birdseed, anvils, rockets, explosives, and giant springs. Acme Corporation is primarily a mail-order company, with many customers in the southwestern United States. The income statement is for the year ended December 31, 2006. This income statement describes sales, expenses, and net income for Acme Company from the beginning of the business day on January 1, 2006, until the end of the business day on December 31, 2006.

Revenues As Figure 4-1 shows, Acme's sales totaled \$15 million during 2006. Generally, the income statement does not distinguish between cash and credit sales. As a result, we are not sure how much actual cash came into the firm from the \$15 million in reported sales.

Expenses Expenses include costs incurred while conducting the operations of the firm and financial expenses, such as interest on debt and taxes owed. These items are matched to the revenues that were generated as the expenses were incurred.

Net Sales	\$15,000,000
Cost of Goods Sold	<u>5,000,000</u>
Gross Profit	10,000,000
Depreciation	2,000,000
S&A Expenses	<u>800,000</u>
Operating Income (EBIT)	7,200,000
Interest Expense	<u>1,710,000</u>
Income before Taxes	5,490,000
Income Taxes (42%)	<u>2,306,000</u>
Net Income	<u>\$ 3,184,000</u>
Earnings per Share (4,000,000 shares)	\$ 0.80
Dividends Paid	<u>\$ 400,000</u>
Change in Retained Earnings	<u>\$ 2,784,000</u>

Figure 4-1 Acme Corporation
Income Statement
for the Year Ended
December 31, 2006

Cost of Goods Sold The first expense subtracted from sales is *cost of goods sold*, which consists of the labor, materials, and overhead expenses allocated to those goods and services sold during the year.

Subtracting cost of goods sold of \$5 million from sales of \$15 million gives Acme's *gross profit*, which equals \$10 million.

Selling and Administrative Expenses From gross profit, we next subtract Acme's selling and administrative expenses (\$800,000). Selling expenses include marketing and salespeople's salaries. Administrative expenses are for expenses that are difficult to associate directly with sales for a specified time period. These would include office support, insurance, and security.

Depreciation Expense Depreciation expense is subtracted next—\$2 million for Acme in 2006. Depreciation expense is the year's allocation of the cost of plant and equipment that have been purchased this year and in previous years. Because assets provide their benefits to the firm over several years, accountants subtract the cost of long-lived assets a little at a time over a number of years. The allocated portion of the cost of a firm's assets for the income statement's period of time is the depreciation expense.¹ Depreciation expense is a noncash expense. However, because it is a tax-deductible expense, it increases the cash flows of the firm.

Operating Income and Interest Expense When we subtract selling and administrative expenses and depreciation expense from gross profit, we are left with Acme's *earnings before interest and taxes (EBIT)*, also known as operating income. This figure is \$7,200,000.

Take Note

Notice that cost of goods sold is not called cost of goods produced. Only cost of goods sold is reported on this year's income statement. Goods produced but not sold are considered inventory.

¹We will discuss further the role of depreciation, and depreciation rules, later in this chapter.

Gross Profit	=	10,000,000
Selling and Administrative Expenses	-	800,000
Depreciation Expense	-	2,000,000
Earnings before Interest and Taxes (EBIT, or Operating Income)	=	7,200,000

EBIT is the profit that the firm receives from its business operations before subtracting any financing expenses. From EBIT, we then subtract *interest expense* associated with any debts of the company to arrive at Acme's *earnings before taxes (EBT)*. Acme has \$1,710,000 in interest expense. When we subtract this figure from the \$7,200,000 EBIT figure, we find Acme had earnings before taxes (EBT) of \$5,490,000.

All the expenses subtracted so far are tax deductible. In other words, the Internal Revenue Service (IRS) allows firms to subtract these expenses from their gross income before computing the tax they owe. We will discuss income taxes later in the chapter.

Net Income Finally, after we subtract all operating expenses, financing expenses, and taxes from revenues, we arrive at the firm's net income (NI). For Acme, net income in 2006 was \$3,184,000. This is the firm's accounting net profit for the year.

Earnings per Share (EPS) Acme's stockholders are very interested in their individual share of the corporation's earnings. Therefore, under the entry earnings per share (EPS), the income statement shows total earnings available to common stockholders divided by the number of shares of common stock outstanding. The earnings available to common stockholders figure comes straight from the income statement.

Net Income (NI)	=	3,184,000
Earnings per Share (EPS) (4 million shares)	=	\$0.80

The number of shares outstanding comes from the balance sheet. Acme has 4 million shares of common stock outstanding.

To calculate EPS, divide earnings available to common stockholders by the number of outstanding common stock shares. For Acme, we calculate EPS as follows:

$$\begin{aligned}
 \text{EPS} &= \frac{\text{Net Income}}{\text{Number of shares of common stock outstanding}} \\
 &= \frac{\$3,184,000}{4,000,000} \\
 &= \$0.80
 \end{aligned}$$

Common Stock Dividends and Retained Earnings A company has two options as to what to do with net income. It can pay stockholder dividends, or it can retain the earnings. Retaining the earnings will likely lead to greater future growth in sales and net income as new assets are purchased or existing liabilities are paid. In 2006, Acme has chosen to pay \$400,000 (12.6 percent of its available earnings) in dividends to its common stockholders. The remaining \$2,784,000 is an addition to retained earnings of the firm. As shown in Figure 4-1, this amount is to be added to the earnings retained from past years.

Financial Management and You

A Special Earnings Category: EBITDA

Financial analysts often make use of another measure of a company's earnings called earnings before interest, taxes, depreciation, and amortization, or EBITDA (pronounced "ee'-bid-dah"). EBITDA is found by adding depreciation expense and amortization expense back to EBIT. Because depreciation and amortizations are noncash expenses, which will be discussed later in this chapter, the result of adding depreciation and amortization back into EBIT is a figure that represents revenues minus cash expenses, or approximately the amount of cash earned by the daily operations of a business.

Although EBITDA is of great interest to financial analysts, it is not required to be reported by the Financial

Accounting Standards Board and, thus, is not usually shown as a specific line item on most income statements. As a result, it usually must be calculated manually. Acme's EBITDA for 2006 is

Operating Income (EBIT)	\$7,200,000
+ Depreciation and Amortization	<u>2,000,000</u>
= EBITDA	\$9,200,000

Having made this calculation, a financial analyst would proceed with the knowledge that Acme's normal business operations threw off approximately \$9.2 million in cash during 2006.

In addition to the income statement, many firms prepare a short statement of retained earnings, as shown in Figure 4-2, that records dividend and retained earnings information. Assuming that Acme's end-of-2005 retained earnings were \$7,216,000, Acme's accountants add the 2006 net income less the 2006 dividends paid to those stockholders (\$3,184,000 – \$400,000 = \$2,784,000) to the end-of-2005 retained earnings. The result is \$10 million (\$7,216,000 + \$2,784,000 = \$10,000,000).

The Balance Sheet

If the income statement is like a video, a balance sheet is like a still photograph. The **balance sheet** shows the firm's assets, liabilities, and equity at a given point in time. This snapshot of a company's financial position tells us nothing about the firm's financial position before or after that point in time. Let's examine the end-of-2006 balance sheet for Acme. Figure 4-3 shows the balance sheet for Acme as of the end of the business day, December 31, 2006.

On the balance sheet, the firm's assets are listed in order of their liquidity. As we learned in Chapter 1, liquidity is the ease with which you can convert an asset to cash. This means that cash and near-cash assets, **current assets**, are listed first. Assets that are difficult to convert to cash are listed later. On the other side of the balance sheet, the liabilities that are due earliest, **current liabilities**, are listed first. Current liabilities are almost always due within one year. The liabilities due later, such as long-term debt, are listed later on the balance sheet.

Take Note

If the amount remaining after paying dividends had been negative, then we would have subtracted our number from retained earnings instead of adding to it. For Acme, there is a positive number to add to retained earnings—\$2,784,000.

Retained Earnings, Dec 31, 2005	\$ 7,216,000
+ 2006 Net Income	+ 3,184,000
– 2006 Dividends Paid to Common Stockholders	<u>– 400,000</u>
Retained Earnings, Dec 31, 2006	\$ 10,000,000

Figure 4-2 Acme Corporation Statement of Retained Earnings for the Year Ended December 31, 2006

Assets:

Cash	\$ 10,000,000
Marketable Securities	8,000,000
Accounts Receivable	1,000,000
Inventory	10,000,000
Prepaid Expenses	<u>1,000,000</u>
Total Current Assets	30,000,000
Fixed Assets, Gross	28,000,000
Less Accumulated Depreciation	<u>(8,000,000)</u>
Fixed Assets, Net	<u>20,000,000</u>
Total Assets	<u>\$ 50,000,000</u>

Liabilities and Equity:

Accounts Payable	\$ 4,000,000
Notes Payable	3,000,000
Accrued Expenses	<u>2,000,000</u>
Total Current Liabilities	9,000,000
Long-Term Debt	<u>15,000,000</u>
Total Liabilities	24,000,000
Common Stock (\$1 par)	4,000,000
Capital in Excess of Par	12,000,000
Retained Earnings	<u>10,000,000</u>
Total Common Equity	<u>26,000,000</u>
Total Liabilities and Equity	<u>\$ 50,000,000</u>

Figure 4-3 Acme Corporation Balance Sheet for the Year Ended December 31, 2006

The equity section lists the claims of the owners (Acme's common stockholders). The owners' claims include both the amount the owners contributed when the common stock was first issued and the total earnings retained by the firm at the time of the balance sheet.

The Asset Accounts Acme has both current and fixed assets. Current assets provide short-term benefits, whereas fixed assets provide long-term benefits to the firm.

Current Assets Acme has \$10 million in cash at the end of 2006. Marketable securities—securities that can quickly and easily be converted to extra cash—are listed next. Acme has \$8 million in these securities. Customers owe the company \$1 million, the amount of accounts receivable.

The company has \$10 million of inventory and \$1 million in prepaid expenses. The inventory figure reflects the amount of goods produced but not yet sold to customers. The prepaid expense figure represents future expenses that have been paid in advance. An example of a prepaid expense is the premium paid on an insurance policy. You pay

the premium in advance, so the insurance coverage is “owed” to you until the term of coverage expires. Because prepaid expenses, such as insurance premiums, have been paid for but not yet received, they are owed to the company and are considered assets.

The sum of all current assets, including cash, marketable securities, net accounts receivable, inventory, and prepaid expenses, is often referred to as working capital. For Acme, this figure is \$30 million.

Fixed Assets Next to be listed are the fixed assets of the firm. Fixed assets are assets that are expected to provide a benefit to the firm for more than one year. These assets are generally less liquid than the current assets. Acme has \$28 million of gross fixed assets, which is listed at the original cost of these assets. The accumulated depreciation figure is the sum of all the depreciation expenses ever taken on the firm’s income statements for the assets still carried on the books. Acme’s accumulated depreciation figure is \$8 million. To find the net fixed assets figure—sometimes called net plant and equipment—subtract the amount of accumulated depreciation from gross fixed assets (\$28 million minus \$8 million). The result is \$20 million.

The \$30 million in current assets plus the \$20 million in net fixed assets are the total assets of the firm. At the end of 2006, Acme’s total assets were \$50 million.

The Liabilities and Equity Accounts The liabilities and equity sections of the balance sheet show how the company’s assets were financed. The funds come from those who have liability (debt) claims against the firm or from those who have equity (ownership) claims against the firm.

Liabilities In the liability section of the balance sheet, current liabilities are listed first. Acme has accounts payable at the end of 2006 of \$4 million. Accounts payable represent money a business owes to suppliers that have sold the firm materials on account.

Notes payable are \$3 million for this company. Notes payable are legal IOUs that represent the debt of the borrower (Acme) and the claim the lender has against that borrower. Acme also has accrued expenses of \$2 million. Accrued expenses are business expenses that have not been paid yet. For example, universities often make professors work for a full month before they are paid. The universities accrue wages payable for the month before the payroll checks are finally issued. Acme’s accounts payable, notes payable, and accrued expenses add up to \$9 million in current liabilities.

Net working capital is current assets minus current liabilities. For Acme, this would be \$21 million (\$30 million current assets – \$9 million current liabilities).

Next, long-term liabilities are listed. Long-term liabilities are liabilities that are not due within one year. Acme has \$15 million in long-term bonds payable that mature in 2019. The \$15 million figure listed on the balance sheet refers only to the principal on these bonds.

Common Stock and Retained Earnings The equity section of the balance sheet contains three items: common stock, capital in excess of par, and retained earnings. The *common stock* entry shows that Acme’s common stock is \$3 million, reflecting the 3 million shares issued to investors, each with a \$1 par value. Par value is the stated value printed on the stock certificate. This figure is almost always very low, sometimes even zero.

Take Note

Do not fall into the trap of thinking that the retained earnings account contains cash. Remember, equity accounts, including this one, represent owners' claims on assets. They are not assets themselves. The earnings not paid out as dividends have already been used to accumulate additional assets or to pay off liabilities.

Take Note

Be careful not to confuse the statement of cash flows with the income statement. The income statement lists revenues and expenses over a period of time. The statement of cash flows lists where cash came from and what it was used for during a period of time.

The next common stock equity entry is *capital in excess of par*. Capital in excess of par is the original market price per share value of the stock sold minus that stock's par value times the number of shares issued. If Acme originally sold 4 million shares of common stock to the public for \$4 each, and the par value of each share was \$1, then the price of the stock was \$3 in excess of par. Multiplying 4 million shares times \$3 gives Acme's \$12 million figure for capital in excess of par. You can see that the common stock and the capital in excess of par values together represent the equity capital raised when new common stock was sold.

The last entry in the common stock equity section is retained earnings. The retained earnings figure represents the sum of all the net income of a business during its entire history, minus the sum of all the common stock dividends that it has ever paid.² Those earnings that were not paid out were, by definition, retained. The retained earnings figure for Acme at the end of 2006 is \$10 million.

The Statement of Cash Flows

The third major financial statement required of all publicly traded corporations by the FASB is the *statement of cash flows*. This statement, like the income statement, can be compared to a video: It shows how cash flows into and out of a company over a given period of time.

We construct the statement of cash flows by adjusting the income statement to distinguish between income and cash flow and by comparing balance sheets at the beginning and end of the relevant time period. The statement of cash flows shows cash flows in operating, investing, and financing activities, as well as the overall net increase or decrease in cash for the firm. You can see Acme's statement of cash flows for 2006 in Figure 4-4.

Operating Activities Operating activities on the statement of cash flows shows that Acme had \$3,184,000 in net income for 2006. This number represents what was left after Acme paid all the firm's expenses for that year. We adjust that number to determine the operating cash flows for 2006.

Adjustment for Depreciation Expense Although depreciation expense is a legitimate reduction of income for accounting purposes, it is not a cash outlay. In other words, firms record depreciation expense on financial statements but do not write checks to pay it. We must add the \$2 million in depreciation expense because net income was reduced by this amount—even though depreciation is a noncash expense.

Changes in Balance Sheet Accounts Changes in asset accounts on the balance sheet indicate changes in the company's cash flow. Because firms must pay cash to accumulate new assets, any increase in an asset account between the time one balance sheet is published and the time the next balance sheet is published indicates a cash outflow. Likewise, because firms sell assets to raise cash, any decrease in an asset account indicates a cash inflow. For Acme, balance sheet changes in marketable securities, accounts payable, accounts receivable (net), and inventory are shown in the operations section of Figure 4-4.

²There are exceptions. If a company pays a dividend in the form of new common stock instead of cash, then there could be a transfer from retained earnings to the other common stock equity accounts. We will skip this exception for now. The use of stock dividends instead of cash dividends, and the resulting accounting treatment, will be examined in Chapter 16.

Cash Received from (used in) Operations:

Net Income	\$ 3,184,000
Depreciation	2,000,000
Decrease (increase) Accounts Receivable	(300,000)
Decrease (increase) Inventory	7,300,000
Decrease (increase) Marketable Securities	1,000,000
Decrease (increase) Prepaid Expenses	0
Increase (decrease) Accounts Payable	(3,000,000)
Increase (decrease) Accrued Expenses	(1,000,000)
Total Cash from Operations	<u>\$ 9,184,000</u>

Cash Received from (used for) Investments:

New Fixed Asset Purchases	(\$ 14,000,000)
Total Cash from Investments	<u>(\$ 14,000,000)</u>

Cash Received from (used for) Financing Activities:

Proceeds from New Long-Term Debt Issue	\$ 4,216,000
Proceeds from New Common Stock Issue	\$ 3,000,000
Short-Term Notes Paid Off	(1,000,000)
Dividends	(400,000)
Total Cash from Financing	<u>\$ 5,816,000</u>
Net Change in Cash Balance	\$ 1,000,000
Beginning Cash Balance	\$ 9,000,000
Ending Cash Balance	<u>\$ 10,000,000</u>

Figure 4-4 Acme Corporation Statement of Cash Flows for the Year Ended December 31, 2006

Changes in the liabilities and equity sections of the balance sheet also signal cash flow changes. Because firms must use cash to pay off obligations, any decrease in liability, preferred stock, or common stock equity accounts between the time one balance sheet is published and the time the next balance sheet is published indicates a cash outflow during that time period. To raise additional cash, firms can incur debt or equity obligations; so any increase in liability, preferred stock, or common stock items indicates a cash inflow.

Figure 4-5, on the next page, shows two balance sheets for Acme side by side. We can compare them and note where the cash inflows and outflows that appear on the statement of cash flows came from.

Operating Activities In the asset section of the balance sheet, we see that marketable securities decreased by \$1 million, signaling that Acme sold some marketable securities to generate a cash inflow of \$1 million. Similarly, accounts receivable rose from \$700,000 to \$1 million, a \$300,000 increase. In effect, Acme had a cash outflow of \$300,000 in the form of funds recognized as revenue but not collected from its credit

	Dec. 31, 2005	Dec. 31, 2006	Change
Assets:			
Cash	\$ 9,000,000	\$ 10,000,000	+ 1,000,000
Marketable Securities	9,000,000	8,000,000	– 1,000,000
Accounts Receivable	700,000	1,000,000	+ 300,000
Inventory	17,300,000	10,000,000	– 7,300,000
Prepaid Expenses	<u>1,000,000</u>	<u>1,000,000</u>	<u>0</u>
Total Current Assets	37,000,000	30,000,000	– 7,000,000
Fixed Assets, Gross	14,000,000	28,000,000	+14,000,000
Less Accumulated Depreciation	<u>(6,000,000)</u>	<u>(8,000,000)</u>	<u>– 2,000,000</u>
Fixed Assets, Net	<u>8,000,000</u>	<u>20,000,000</u>	<u>+12,000,000</u>
Total Assets	\$45,000,000	\$ 50,000,000	+ 5,000,000
Liabilities and Equity:			
Accounts Payable	\$ 7,000,000	\$ 4,000,000	– 3,000,000
Notes Payable	4,000,000	3,000,000	– 1,000,000
Accrued Expenses	<u>3,000,000</u>	<u>2,000,000</u>	<u>– 1,000,000</u>
Total Current Liabilities	14,000,000	9,000,000	– 5,000,000
Long-Term Debt	<u>10,784,000</u>	<u>15,000,000</u>	<u>+ 4,216,000</u>
Total Liabilities	24,784,000	24,000,000	– 784,000
Common Stock (\$1 par)	1,000,000	4,000,000	+ 3,000,000
Capital in Excess of Par	12,000,000	12,000,000	0
Retained Earnings	7,216,000	10,000,000	+ 2,784,000
Total Common Equity	<u>20,216,000</u>	<u>26,000,000</u>	<u>+ 5,784,000</u>
Total Liabilities and Equity	\$45,000,000	\$ 50,000,000	+ 5,000,000

Figure 4-5 Acme Corporation Balance Sheet Changes between Dec. 31, 2005, and Dec. 31, 2006

Take Note

We do not mention the change in accumulated depreciation in the statement of cash flows. The additional accumulated depreciation of \$2 million is already included in the depreciation expense figure on the income statement. We don't want to count this twice.

customers. In contrast, inventory decreased from \$17.3 million to \$10 million, which represents a \$7.3 million source of cash in the form of inventory items sold that Acme did not have to make or buy.

In the liabilities and equity section of the balance sheet, observe that accounts payable decreased by \$3 million. Acme must have paid \$3 million in cash to its suppliers to decrease the amount owed by that amount; therefore, this represents a cash outflow. Likewise, the accrued expenses account decreased by \$1 million, indicating that Acme used \$1 million in cash to pay them.

Investment Activities The investments section of the statement of cash flows shows investing activities in long-term securities or fixed assets. Increasing investments require a cash outflow, and decreasing investments signal a cash inflow. For instance, observe in Figure 4-5 that Acme's fixed assets increased to \$28 million in 2006, up from \$14 million in 2005. This \$14 million increase reflects a cash outlay used to buy additional assets.

Financing Activities The financing section of the statement of cash flows shows financing activities related to the sales and retirement of notes, bonds, preferred and common stock, and other corporate securities. The retirement (i.e., buying back) of previously issued securities signals a cash outflow. The issuing of securities is a cash inflow. On the Acme balance sheet, for example, notes payable decreased from \$4 million to \$3 million. The decrease shows that the firm spent \$1 million to pay off outstanding notes.

Further down in the liabilities and equity sections of the balance sheet (Figure 4-5), we see that the common stock account increased by \$3 million. This increase is the result of \$3 million in cash received from a new issue of 3 million shares of common stock at \$1 per share. Because the par value of the stock is \$1 per share, \$3 million is credited to the common stock account, and no changes occurred to the capital in excess of par account.

In the equity section of the balance sheet, we see that retained earnings increased from \$7,216,000 to \$10 million. Although this \$2,784,000 increase in retained earnings represents a cash inflow to the firm, it is not recorded on the statement of cash flows. Why? Because the cash inflow it represents was recorded on the statement of cash flows as net income (\$3,184,000) less common stock dividends (\$400,000). To include the increase in retained earnings again would result in double counting.

Net Cash Flow during the Period We have now completed the adjustments necessary to convert Acme's net income for 2006 into actual cash flows. Figure 4-4 shows that the cash inflows exceeded the cash outflows, resulting in a net cash inflow of \$1 million for Acme in 2006. (Notice in Figure 4-5 that Acme's cash balance of \$10 million on December 31, 2006, is \$1 million higher than it was on December 31, 2005.)

Depreciation

Depreciation is important to financial managers because it directly affects a firm's tax liabilities—which, in turn, affect cash flows. Here's how: Taxes paid are negative cash flows. Tax savings realized by deducting expenses generate more cash for the firm—the equivalent of a cash inflow.

Accounting depreciation is the allocation of an asset's initial cost over time. Let's look at why it is important to depreciate fixed assets over time. Suppose Acme bought a piece of equipment in 2006 that was expected to last seven years. If Acme paid \$5 million cash for the asset and the entire cost were charged as an expense in 2006, the transaction would wipe out all but \$490,000 of Acme's earnings before taxes for the year (\$5,490,000 earnings before taxes – \$5,000,000 fixed-asset cost). Nothing would show that Acme had acquired an asset worth \$5 million. Then, for the next six years, Acme's income statements would show increases in profits generated by the asset—but there would be no corresponding accounting for the cost of that asset. In effect, it would look like Acme spent a lot of money in 2006, got nothing for it, and increased its profits for no reason over the next six years. This clearly would be misleading.

To get around the problem, accountants apply the *matching principle*: Expenses should be matched to the revenues they help generate. In other words, if you buy an asset and the asset is expected to last for seven years, then you should recognize the



Interactive Module

Go to Downloadable Companion Material, chapter 4. Then go to the Interactive Spreadsheet for chapter 4. Follow the instructions there. See how the income statement, balance sheet, and statement of cash flows relate to each other. Move about the various cells to see how values from one financial statement relate to those of another.

cost of the asset over the entire seven-year period. The cost is *amortized*, or spread out, over the seven-year period. In that way, the value of the asset will be properly shown on the financial statements in proportion to its contribution to profits.

Accounting depreciation is very different from economic depreciation. The latter attempts to measure the actual change in the value of an asset. Because this involves making value estimates that may turn out to be wrong, accountants use an established set of rules to determine the amount of depreciation to allocate to a certain time period.

Calculating the Amount of Depreciation Expense

Depreciation expense for a given period is determined by calculating the total amount to be depreciated (the *depreciation basis*) and then calculating the percentage of that total to be allocated to a given time period (the *depreciation rules*).

The total amount to be depreciated over the accounting life of the asset is known as the **depreciation basis**. It is equal to the cost of the asset plus any setup or delivery costs that may be incurred.³

Depreciation Methods The cost of an asset can be allocated over time by using any of several sets of depreciation rules. The two most common depreciation rules used in tax reporting are *straight-line depreciation* and *modified accelerated cost recovery system (MACRS)*.

Straight-Line Depreciation The simplest method of depreciation is the straight-line depreciation (SL) method. To use the straight-line depreciation method, you divide the cost of the asset by the number of years of life for the asset, according to classification rules, and charge the result off as depreciation expense each year. For instance, if the managers at Acme bought a \$5 million piece of equipment that belonged to the seven-year-asset class, then straight-line depreciation for the asset would be computed as follows:

Asset's initial cost: \$5,000,000
 Divided by length of service: 7 years
 Equals depreciation expense each year: \$714,286⁴

The Modified Accelerated Cost Recovery System Since the Tax Reform Act of 1986, Congress has allowed firms to use the modified accelerated cost recovery system, or MACRS (pronounced “makers”), to compute depreciation expense for tax purposes. MACRS specifies that some percentage of the cost of assets will be charged each year as depreciation expense during the assets' life. Table 4-1 shows the 2006 MACRS percentages for various classes of personal property assets.⁵

³Although in financial statements prepared by public corporations for reporting purposes, salvage value—the value of the asset if sold for salvage—may be subtracted in arriving at the depreciation basis, it is not considered part of the depreciation basis for tax reporting purposes.

⁴To be more precise, we would use what is known as the half-year convention in determining the annual depreciation. One-half a year's depreciation would be taken the year the asset was put into service and one-half in the final year. For example, for the preceding asset with a stated seven-year life, depreciation would in fact be spread over eight years. In this case, \$357,143 in years 1 and 8, and \$714,286 in years 2 through 7.

⁵The half-year convention is built into the MACRS depreciation percentages shown in Table 4-1.

Table 4-1 MACRS Asset-Class Depreciation

Asset Class	3-Year Research Equipment and Special Tools	5-Year Computers, Copiers, Cars, and Similar Assets	7-Year Furniture, Fixtures, and Most Manufacturing Equipment	10-Year Equipment for Tobacco, Food, and Petroleum Production
Year	Depreciation Percentages			
1	33.33%	20.00%	14.29%	10.00%
2	44.45%	32.00%	24.49%	18.00%
3	14.81%	19.20%	17.49%	14.40%
4	7.41%	11.52%	12.49%	11.52%
5		11.52%	8.93%	9.22%
6		5.76%	8.92%	7.37%
7			8.93%	6.55%
8			4.46%	6.55%
9				6.56%
10				6.55%
11				3.28%

Table 4-1 lists MACRS asset-class depreciation percentage for 3-year to 10-year assets and examples of assets in each class.
Source: <http://www.irs.gov/publications/p946/ar02.html#d0e11297>

So, under the MACRS, Acme's \$5 million, seven-year asset would be depreciated 14.29 percent during its first year of life, 24.49 percent during the second year, and so on. Note that a seven-year asset is depreciated over eight years because of the half-year convention built into the table. Note also that MACRS is an accelerated depreciation method—greater percentages of the depreciation basis are subtracted from income in the early years, compared with the percentage applied in the later years. The acceleration is important because the more quickly firms can write off the cost of an asset, the sooner they save taxes from the tax-deductible expenses.

Income Taxes

Federal tax rates are set by Congress. The Internal Revenue Service (IRS) determines the amount of federal income tax a firm owes. Federal tax rules dictate that different rates apply to different blocks of income. For instance, the first \$50,000 of taxable income is taxed at a 15 percent rate, whereas the next \$25,000 of taxable income is taxed at a 25 percent rate.

The tax rate that applies to the next dollar of taxable income earned, the **marginal tax rate**, changes as the level of taxable income changes. This pattern—tax rate increases

Table 4-2 Corporate Marginal Tax Rates as of December 2005

Earnings before Taxes (EBT)	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%

Table 4-2 shows marginal tax rates for corporations. The marginal tax rates do not increase continuously for higher brackets because Congress has established rates that take away certain tax benefits for higher-income corporations.

as taxable income increases—reflects the **progressive tax rate structure** imposed by the federal government.⁶

Table 4-2 shows the marginal tax rates for corporations as of December 2005.

Acme's EBT is \$5,490,000, so its marginal tax bracket is 34 percent. Its next dollar of taxable income would be taxed at 34 percent. The federal income tax bill in 2006 would be

	\$ 50,000 × .15	= \$ 7,500
	+ \$ 25,000 × .25	= \$ 6,250
	+ \$ 25,000 × .34	= \$ 8,500
	+ \$ 235,000 × .39	= \$ 91,650
	+ \$5,155,000 × .34	= \$1,752,700
Taxable Income =	\$5,490,000	Taxes = \$1,866,600

Financial managers use marginal tax rates to estimate the future after-tax cash flow from investments. Often managers want to know how dollars generated by a new investment will affect tax rates. If a new investment results in a huge jump in the company's tax rate, the project will be less desirable.

Average Tax Rates

Financial managers use average, or effective, tax rates, to determine what percentage of the firm's total before-tax income is owed to the government. Average tax rates are calculated by dividing tax dollars paid by earnings before taxes, or EBT. Acme's effective, or federal average tax rate, for 2006 is

$$\frac{\$1,866,600 \text{ (federal taxes paid)}}{\$5,490,000 \text{ (EBT)}} = .34, \text{ or } 34\%$$

Take Note

In the income statement shown in Figure 4-1, Acme Corporation's taxes are \$2,306,000 on before-tax income of \$5,490,000. The figure includes Acme's state and local tax obligations as well as the federal amount due.

⁶The federal corporate tax rate schedule is not strictly progressive for every tax bracket, as shown in Table 4-2. Generally speaking, as a corporation's taxable income increases, its marginal tax rate increases. The exceptions, seen in the tax rate schedule, usually apply to firms in upper-income tax brackets.

Often the marginal tax rate will be greater than the average tax rate. Sometimes, however, the marginal and average tax rates are the same, as is the case for Acme. This occurred because the marginal tax rate changed from 34 percent to 39 percent and dropped to 34 percent again when Acme's tax bill was calculated.

Taxes are paid with cash. Because cash flow affects the value of a business, taxes are an important financial consideration. Financial managers need to understand marginal tax rates to see the marginal impact of taxes on cash flows.

What's Next

In this chapter we reviewed basic accounting principles and explained how financial managers use accounting information to create value for the firm. In Chapter 5 we will discuss how to analyze financial statements.

Summary

1. Explain how financial managers use the three basic accounting financial statements: the income statement, balance sheet, and statement of cash flows.

Financial managers need to understand the key elements of financial statements to analyze a firm's finances and plan for its future.

- income statement shows the amount of revenues, expenses, and income a firm has over a specified period of time.
- balance sheet describes the assets, liabilities, and equity values for a company at a specific point in time.
- statement of cash flows describes a firm's cash inflows and outflows over a period of time.

2. Discuss how depreciation affects cash flow and compute depreciation expense.

Depreciation is a noncash, tax-deductible expense. Because depreciation is tax deductible, it affects cash flow—the greater a firm's depreciation, the greater its cash flow. Cash flow, in turn, affects the value of the firm. The more cash a firm has, the greater its value.

To allocate the cost of an asset over time, accountants use different depreciation methods, such as straight-line depreciation or the modified accelerated cost recovery system (MACRS). Whatever method is used, accountants must first find the depreciation basis—the total cost of the asset plus setup and delivery costs. Then they calculate the percentage of that total allocated for the time period at issue, as determined by either the straight-line depreciation method or MACRS.

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3. Explain how taxes affect a firm's cash flow and calculate marginal and average tax rates.

The marginal tax rate—the rate that would apply to the next dollar of taxable income—aids financial decisions because financial managers use it to assess the impact that a new investment will have on cash flow. If the new investment results in such a big jump in taxes that cash flow is affected negatively, the investment may be rejected. The amount of taxes owed is computed by multiplying each bracket of income by the corresponding tax rate set by Congress and adding the totals for each income bracket.

The average tax rate is calculated by dividing the amount of taxes paid by earnings before taxes.

Self-Test

- ST-1.** Brother Mel's Bar-B-Q Restaurant has \$80,000 in assets and \$20,000 in liabilities. What is the equity of this firm?
- ST-2.** Cantwell Corporation has sales revenue of \$2 million. Cost of goods sold is \$1,500,000. What is Cantwell Corporation's gross profit?
- ST-3.** Adams Computer Store had accumulated depreciation of \$75,000 at the end of 2006, and at the end of 2005 this figure was \$60,000. Earnings before interest and taxes for 2006 were \$850,000. Assuming that no assets were sold in 2006, what was the amount of depreciation expense for 2006?
- ST-4.** Shattuck Corporation had operating income (EBIT) of \$2,500,000 in 2006, depreciation expense of \$500,000, and dividends paid of \$400,000. What is Shattuck's operating cash flow (EBITDA) for 2006?
- ST-5.** Bubba's Sporting Goods Company had retained earnings of \$3 million at the end of 2005. During 2006, the company had net income of \$500,000 and of this paid out \$100,000 in dividends. What is the retained earnings figure for the end of 2006?
- ST-6.** Ron's In-Line Skating Corporation had retained earnings at the end of 2006 of \$120,000. At the end of 2005, this figure was \$90,000. If the company paid \$5,000 in dividends to common stockholders during 2006, what was the amount of earnings available to common stockholders?
- ST-7.** Hayes Company recently bought a new computer system. The total cost, including setup, was \$8,000. If this is five-year asset-class equipment, what would be the amount of depreciation taken on this system in year 2 using MACRS rules?
- ST-8.** If Burns Corporation has taxable income of \$800,000, how much federal income taxes are owed?
- ST-9.** If Badeusz Quarry Corporation has taxable income of \$4 million, what is the average tax rate for this company?
- ST-10.** If Parmenter Corporation has taxable income of \$20 million, what is the marginal tax rate for this company?



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Review Questions

1. Why do total assets equal the sum of total liabilities and equity? Explain.
2. What are the time dimensions of the income statement, the balance sheet, and the statement of cash flows? Hint: Are they videos or still pictures? Explain.
3. Define depreciation expense as it appears on an income statement. How does depreciation affect cash flow?
4. What are retained earnings? Why are they important?
5. Explain how earnings available to common stockholders and common stock dividends paid, as shown on the current income statement, affect the balance sheet item retained earnings.
6. What is accumulated depreciation?
7. What are the three major sections of the statement of cash flows?
8. How do financial managers calculate the average tax rate?
9. Why do financial managers calculate the marginal tax rate?
10. Identify whether the following items belong on the income statement or the balance sheet.
 - a. Interest Expense
 - b. Preferred Stock Dividends Paid
 - c. Plant and Equipment
 - d. Sales
 - e. Notes Payable
 - f. Common Stock
 - g. Accounts Receivable
 - h. Accrued Expenses
 - i. Cost of Goods Sold
 - j. Preferred Stock
 - k. Long-Term Debt
 - l. Cash
 - m. Capital in Excess of Par
 - n. Operating Income
 - o. Depreciation Expense
 - p. Marketable Securities
 - q. Accounts Payable
 - r. Prepaid Expenses
 - s. Inventory
 - t. Net Income
 - u. Retained Earnings
11. Indicate to which section the following balance sheet items belong (current assets, fixed assets, current liabilities, long-term liabilities, or equity).
 - a. Cash
 - b. Notes Payable
 - c. Common Stock
 - d. Accounts Receivable
 - e. Accrued Expenses
 - f. Preferred Stock
 - g. Plant and Equipment
 - h. Capital in Excess of Par
 - i. Marketable Securities
 - j. Accounts Payable
 - k. Prepaid Expenses
 - l. Inventory
 - m. Retained Earnings

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Build Your Communication Skills

CS-1. Interview a manager or an owner of an accounting firm. Ask that person what kinds of oral communication skills he or she needs to communicate financial information. Also ask what kinds of writing skills are required. What kinds of communications skills does this accounting firm executive look for when hiring a new person to do accounting or finance work for the firm? Report your findings to the class.

CS-2. Write a report that describes the best sources of financial information about publicly traded corporations. Discuss where you can find the basic financial statements for a corporation, which sources are the easiest to use, and what information sources—the library, the corporation, a brokerage firm, or the Internet—were most useful.

Problems

Financial Statement Connections



4-1. You are interviewing for an entry-level financial analyst position with Zeppelin Associates. Monte Rutledge, the senior partner, wants to be sure all the people he hires are very familiar with basic accounting principles. He gives you the following data and asks you to fill in the missing information. Each column is an independent case. Month and day reference are for the current year.

	Case A	Case B
Revenues	200,000	_____
Expenses	_____	70,000
Net Income	_____	_____
Retained Earnings, Jan 1	300,000	100,000
Dividends Paid	70,000	30,000
Retained Earnings, Dec 31	270,000	_____
Current Assets, Dec 31	80,000	_____
Noncurrent Assets, Dec 31	_____	180,000
Total Assets, Dec 31	_____	410,000
Current Liabilities, Dec 31	40,000	60,000
Noncurrent Liabilities, Dec 31	_____	_____
Total Liabilities, Dec 31	140,000	_____
CS and Capital in Excess of Par, Dec 31	520,000	100,000
Total Stockholders' Equity, Dec 31	_____	210,000

- 4-2. Fill in the following missing income statement values. The cases are independent.

	Case A	Case B
Sales	_____	250,000
COGS	200,000	_____
Gross Profit	_____	150,000
Operating Expenses	60,000	60,000
Operating Income (EBIT)	_____	_____
Interest Expense	10,000	_____
Income before Taxes (EBT)	_____	80,000
Tax Expense (40%)	92,000	_____
Net Income	_____	_____

 **Financial Statement Connections**



- 4-3. Lightning, Inc. has earnings before taxes of \$48,000.
- Using the tax rate schedule from Table 4-2, calculate the tax obligation for Lightning, Inc.
 - What is Lightning's average (effective) tax rate?

 **Tax Rates**

- 4-4. Thunder, Inc. has earnings before taxes of \$150,000.
- Using the tax rate schedule from Table 4-2, calculate the tax obligation for Thunder, Inc.
 - What is Thunder's average (effective) tax rate?

 **Tax Rates**

- 4-5. Jetaire's EBT is \$3,200,000. What is the marginal tax rate? What is the average tax rate?

 **Tax Rates**

Earnings Before Taxes	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%

- 4-6. Following is a portion of Hitchcock Haven, Inc.'s balance sheet.

 **Equity**

Common Stock (\$1 par; 400,000 shares authorized; 200,000 shares issued)	\$200,000
Capital in Excess of Par	\$400,000
Retained Earnings	\$100,000

What was the market price per share of the stock when it was originally sold?

After-Tax Earnings 

4-7. This year the Simon and Pieman Corporation had \$10 million in sales, \$5.2 million in operating costs, and \$200,000 in interest expense. It also paid 40 percent of its pre-tax income to the government as income tax expense. What was Simon's net after-tax income for the year?

Depreciation 

4-8. A portion of Hitchcock Haven, Inc.'s comparative balance sheet follows. What is the amount of depreciation expense you would expect to see on the 2006 income statement? No assets that were on the books at the end of 2005 were sold or otherwise disposed of in 2006.

**Hitchcock Haven, Inc.
Balance Sheet as of December 31**

	2005	2006
Plant and Equipment	\$200,000	\$250,000
Less: Accumulated Depreciation	(\$60,000)	(\$70,000)
Net Plant and Equipment	\$140,000	\$180,000

Balance Sheet 

4-9. Use the following table to calculate (a) current assets, (b) net fixed assets, (c) current liabilities, and (d) net working capital.

Notes Payable	=	4,000,000
Cash	=	11,000,000
Long-Term Debt	=	16,000,000
Marketable Securities	=	9,000,000
Depreciation	=	8,000,000
Inventory	=	11,000,000
Accounts Receivable	=	3,000,000
Accrued Expenses	=	2,000,000
Fixed Assets	=	30,000,000
Prepaid Expenses	=	1,000,000

Income Statement 

4-10. The following financial data correspond to Callahan Corporation's 2006 operations.

Cost of Goods Sold		\$200,000
Selling and Administrative Expenses		40,000
Depreciation Expense		85,000
Sales		440,000
Interest Expense		40,000
Applicable Income Tax Rate		40%

Calculate the following income statement items.

- a. Gross Profit
- b. Operating Income (EBIT)
- c. Earnings before Taxes (EBT)
- d. Income Taxes
- e. Net Income

4-11. Simon and Pieman began the year with \$1,000,000 in total assets and ended the year with \$1,500,000 in total assets. It had no debt at the beginning of the year, but it had \$200,000 at the end of the year. What was Simon's net worth (that is, total stockholders' equity) at the end of the year?

 **Net Worth**

4-12. Wet Dog Perfume Company (WDPC), a profit-making company, purchased a process line for \$131,000 and spent another \$12,000 on its installation. The line was commissioned in January 2005, and it falls into the MACRS seven-year class life. Applicable income tax rate for WDPC is 40 percent, and there is no investment tax credit. Calculate the following:

 **Depreciation**

- a. 2006 depreciation expense for this process line
- b. Amount of tax savings due to this investment

4-13. Refer to the following income statement for Target Telecom (TT):

 **EBITDA**

Total Revenue	\$4,125,000
Direct Costs	1,237,500
Gross Profit	2,887,500
Operating Expenses:	
Marketing	825,000
Depreciation	42,000
Amortization	15,000
General and Administrative	1,237,500
Total Operating Expenses	2,119,500
Operating Profit	768,000
Interest Expense	10,000
Before-Tax Profit	758,000
Taxes	265,300
After-Tax Profit	\$ 492,700

What was TT's Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA) for the year?

4-14. In 2006, Goodwill Construction Company purchased \$130,000 worth of construction equipment. Goodwill's taxable income for 2006 without considering the new construction equipment would have been \$400,000. The new equipment falls into the MACRS five-year class. Assume the applicable income tax rate is 34 percent.

 **Taxes**

- a. What is the company's 2006 taxable income?
- b. How much income tax will Goodwill pay?

4-15. Last year Johnson Flow Measurement Systems, Inc. had an operating profit of \$600,000 and paid \$50,000 in interest expenses and \$63,000 in preferred stock dividends. The applicable income tax rate for the year was 34 percent. The company had 100,000 shares of common stock outstanding at the end of last year.

 **Income Statements**

- a. What was the amount of Johnson's earnings per share last year?
- b. If the company paid \$1.00 per share to its common stockholders, what was the addition to retained earnings last year?



Use the comparative figures of Pinewood Company and Subsidiaries to answer problems 4-16 through 4-20 that follow.

**Pinewood Company and Subsidiaries
As of December 31**

	2005	2006
Assets:		
Cash	\$ 5,534	\$ 9,037
Marketable Securities	952	1,801
Accounts Receivable (gross)	14,956	16,110
Less: Allowance for Bad Debts	211	167
Accounts Receivable (net)	14,745	15,943
Inventory	10,733	11,574
Prepaid Expenses	3,234	2,357
Plant and Equipment (gross)	57,340	60,374
Less: Accumulated Depreciation	29,080	32,478
Plant and Equipment (net)	28,260	27,896
Land	1,010	1,007
Long-Term Investments	2,503	4,743
Liabilities:		
Accounts Payable	3,253	2,450
Notes Payable	—	—
Accrued Expenses	6,821	7,330
Bonds Payable	2,389	2,112
Stockholders' Equity:		
Common Stock	8,549	10,879
Retained Earnings	45,959	51,587

Balance Sheet

4-16. Compute the following totals for the end of 2005 and 2006.

- a. Current Assets
- b. Total Assets
- c. Current Liabilities
- d. Total Liabilities
- e. Total Stockholders' Equity

Basic Accounting Equation

4-17. Show whether the basic accounting equation is satisfied in problem 4-16.

Balance Sheet

4-18. Calculate the cash flows from the changes in the following from the end of 2005 to the end of 2006. Indicate inflow or outflow.

- | | |
|------------------------------------|---------------------------------|
| a. Accumulated Depreciation | g. Plant and Equipment |
| b. Accounts Receivable | h. Marketable Securities |
| c. Inventories | i. Land |
| d. Prepaid Expenses | j. Long-Term Investments |
| e. Accounts Payable | k. Common Stock |
| f. Accrued Expenses | l. Bonds Payable |

- 4-19.** Prepare a statement of cash flows in proper form using the inflows and outflows from question 4-18. Assume net income (earnings after taxes) from the 2006 income statement was \$10,628, and \$5,000 in common stock dividends were paid. Ignore the income tax effect on the change in depreciation.
- 4-20.** Show whether your net cash flow matches the change in cash between the end-of 2005 and end-of-2006 balance sheets.

 **Statement of Cash Flows**

 **Financial Statement Corrections**

- 4-21.** Fill in the missing income statement values for Edelen Enterprises:

Sales	900,000
COGS	_____
Gross Profit	600,000
Operating Expenses	_____
Operating Income (EBIT)	400,000
Interest Expense	_____
Income before Taxes (EBT)	300,000
Tax Expense (30%)	_____
Net Income	_____

 **Income Statement Values**

- 4-22.** Flannery Pharmaceuticals' retained earnings at the end of 2005 was \$8,000,000; 2006 earnings available to common stockholders was \$1,500,000; and retained earnings for the end of 2006 was \$8,700,000. What was the amount paid in dividends to common stockholders in 2006?

 **Dividends Paid**

- 4-23.** The Wet Dog Microbrewery bought a new mash tun in 2005 for \$385,000. The mash tun is expected to last for 12 years, but the asset falls into the MACRS 10-year class for depreciation purposes. Calculate the depreciation expense for the new mash tun that should be recorded during each of the next 10 years.

 **MACRS Depreciation**

- 4-24.** Mortenson has purchased new equipment that initially costs \$1,000,000. Setup costs are \$100,000 and delivery costs are \$50,000. Calculate the year 3 MACRS depreciation of this equipment, which falls into the three-year asset class.

 **MACRS Depreciation**

- 4-25.** CaliCalm just purchased some new machinery for \$7,000,000, and they are going to use the MACRS method for depreciation. The machinery falls into the MACRS asset class of 10 years. What is the amount of depreciation for each year?

 **MACRS Depreciation**

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Answers to Self-Test

- ST-1.** $\$80,000 \text{ assets} - \$20,000 \text{ liabilities} = \$60,000 \text{ equity}$
- ST-2.** $\text{Cost of goods sold} = \$1,500,000$
 $\text{Gross profit} = \$2,000,000 \text{ sales revenue} - \$1,500,000 \text{ cost of goods sold} = \$500,000$
- ST-3.** $\$75,000 \text{ end-of-2006 accumulated depreciation} - \$60,000 \text{ end-of-2005 accumulated depreciation} = \$15,000 \text{ 2006 depreciation expense}$
- ST-4.** $\$2,500,000 \text{ EBIT} + \$500,000 = \$3,000,000 \text{ cash flow from operations}$
 (Dividend payments are not operating cash flows; they are financial cash flows)
- ST-5.** $\$3,000,000 \text{ end-of-2005 retained earnings} + \$500,000 \text{ net income} - \$100,000 \text{ dividends paid} = \$3,400,000 \text{ end-of-2006 retained earnings}$
- ST-6.** $\text{Beginning retained earnings} + \text{net income} - \text{dividends paid} = \text{ending retained earnings}$
 Therefore:
 $\text{Net income} = \text{ending retained earnings} - \text{beginning retained earnings} + \text{dividends paid}$
- So, for Ron's In-Line Skating Corporation:
 $\text{Net income} = \$120,000 - \$90,000 + \$5,000 = \$35,000$
- ST-7.** $\$8,000 \text{ depreciation basis} \times .32 \text{ (second-year MACRS depreciation percentage for a five-year class asset)} = \$2,560 \text{ year} - \text{depreciation expense}$
- ST-8.** $(\$50,000 \times .15) + (\$25,000 \times .25) + (\$25,000 \times .34) + (\$235,000 \times .39) + (\$465,000 \times .34) = \$272,000 \text{ federal income taxes owed}$
 Note: $\$50,000 + \$25,000 + \$25,000 + \$235,000 + \$465,000 = \$800,000 \text{ taxable income}$
- ST-9.** $(\$50,000 \times .15) + (\$25,000 \times .25) + (\$25,000 \times .34) + (\$235,000 \times .39) + (\$3,665,000 \times .34) = \$1,360,000 \text{ taxes owed}; \$1,360,000 \div \$4 \text{ million} = .34 = 34\% \text{ average tax rate}$
 Note: $\$50,000 + \$25,000 + \$25,000 + \$235,000 + \$3,665,000 = \$4 \text{ million taxable income}$
- ST-10.** Taxable income over \$18,333,333 is taxed at a 35% rate. Therefore the marginal tax rate at \$20 million in taxable income is 35%.

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