

method prevails. Interestingly, foreign companies that are listed on U.S. stock exchanges are permitted to file IFRS financial statements and many do.

Are financial statements prepared under IFRS substantially different from those prepared under U.S. GAAP? At a broad level, the answer is no. Both are prepared using accrual accounting and utilize similar conceptual frameworks. Both require the same set of financial statements: a balance sheet, an income statement, a statement of cash flows, a statement of stockholders' equity, and a set of explanatory footnotes. That does not mean that no differences exist. However, the differences are typically technical in nature, and do not differ on broad principles discussed in this book.

At the end of each module, we summarize key differences between U.S. GAAP and IFRS. Also, there are a variety of sources that provide more detailed and technical analysis of similarities and differences between U.S. GAAP and IFRS. The FASB, the IASB, and each of the "Big 4" accounting firms also maintain Websites devoted to this issue. Search under IFRS and PwC, KPMG, EY and Deloitte. The two standard-setting bodies also provide useful information, see: FASB ([www.fasb.org/intl/](http://www.fasb.org/intl/)) and IASB ([www.ifrs.org](http://www.ifrs.org)).

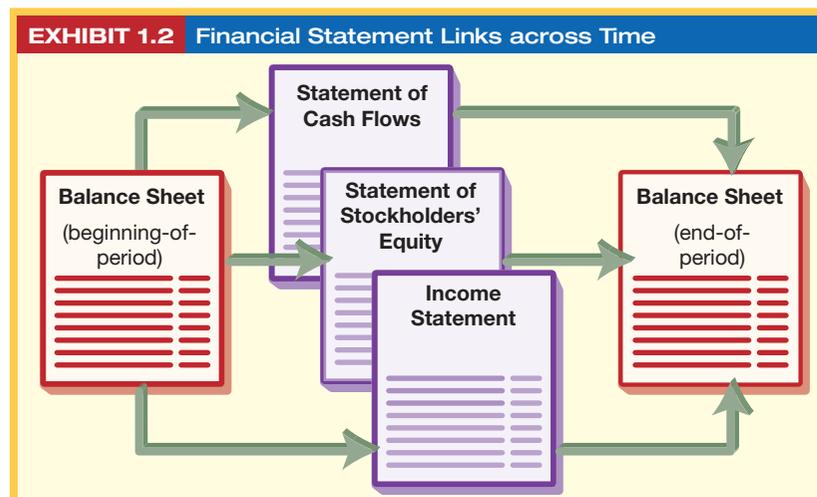
**BUSINESS INSIGHT Accounting Quality**

In the bear market that followed the bursting of the **dot.com** bubble in the early 2000s, and amid a series of corporate scandals such as **Enron**, **Tyco**, and **WorldCom**, Congress passed the **Sarbanes-Oxley Act**, often referred to as SOX. SOX sought to rectify perceived problems in accounting, including weak audit committees and deficient internal controls. Increased scrutiny of financial reporting and internal controls has had some success. A report by **Glass, Lewis and Co.**, a corporate-governance research firm, shows that the number of financial restatements by publicly traded companies surged to a record 1,295 in 2005—which is one restatement for each 12 public companies, and more than triple the 2002 total, the year SOX passed. The Glass, Lewis and Co. report concluded that “when so many companies produce inaccurate financial statements, it seriously calls into question the quality of information that investors relied upon to make capital-allocation decisions” (**CFO.Com**). Bottom line: we must be critical readers of financial reports.

## FINANCIAL STATEMENTS

**LO2** Identify and explain the four financial statements, and define the accounting equation.

Companies use four financial statements to periodically report on business activities. These statements are the: balance sheet, income statement, statement of stockholders' equity, and statement of cash flows. Exhibit 1.2 shows how these statements are linked across time. A balance sheet reports on a company's financial position at a *point in time*. The income statement, statement of stockholders' equity, and the statement of cash flows report on performance over a *period of time*. The three statements in the middle of Exhibit 1.2 (period-of-time statements) link the balance sheet from the beginning to the end of a period.



A one-year, or annual, reporting period is common and is called the *accounting, or fiscal, year*. Of course, firms prepare financial statements more frequently; semiannual, quarterly, and monthly financial statements are common. *Calendar-year* companies have reporting periods beginning on January 1 and ending on December 31. **Berkshire Hathaway** is a calendar-year company. Some companies choose a fiscal year ending on a date other than December 31, such as when sales and inventory are low. For example, **Target**'s fiscal year ends on the Saturday nearest January 31, after the busy holiday season.

## Balance Sheet

A balance sheet reports a company's financial position at a point in time. The balance sheet reports the company's *resources (assets)*, namely, what the company owns. The balance sheet also reports the *sources* of asset financing. There are two ways a company can finance its assets. It can raise money from stockholders; this is *owner financing*. It can also raise money from banks or other creditors and suppliers; this is *nonowner financing*. This means that both owners and nonowners hold claims on company assets. Owner claims on assets are referred to as *equity* and nonowner claims are referred to as *liabilities* (or debt). Since all financing must be invested in something, we obtain the following basic relation: *investing equals financing*. This equality is called the **accounting equation**, which follows:



The accounting equation works for all companies at all points in time.

The balance sheet for **Berkshire Hathaway** is in Exhibit 1.3 (condensed). Refer to this balance sheet to verify the following amounts: assets = \$427,452 million; liabilities = \$235,864 million; and equity = \$191,588 million. Assets equal liabilities plus equity, which reflects the accounting equation: investing equals financing.

## Investing Activities

Balance sheets are organized like the accounting equation. Investing activities are represented by the company's assets. These assets are financed by a combination of nonowner financing (liabilities) and owner financing (equity).

EXHIBIT 1.3 Balance Sheet (\$ millions)	
<b>BERKSHIRE HATHAWAY</b>	
<b>Balance Sheet*</b>	
<b>December 31, 2012</b>	
<b>Assets</b>	
Cash . . . . .	\$ 46,992
Noncash assets . . . . .	380,460
Total assets . . . . .	<u>\$427,452</u>
<b>Liabilities and equity</b>	
Total liabilities . . . . .	\$235,864
Equity	
Contributed capital (common stock and paid-in capital) . . . . .	37,238
Retained earnings . . . . .	124,272
Other equity . . . . .	26,137
Berkshire Hathaway equity . . . . .	<u>187,647</u>
Noncontrolling interest . . . . .	3,941
Total equity † . . . . .	<u>191,588</u>
Total liabilities and equity † . . . . .	<u>\$427,452</u>

Report amounts at a point in time

Investing

Total resources

Financing

Nonowner claim on resources

Berkshire Hathaway owners' claim on resources

All owners' claim on resources

\* Financial statement titles often begin with the word *consolidated*. This means that the financial statement includes a parent company and one or more subsidiaries, companies that the parent company controls.  
 † Components of equity are explained as part of Exhibit 1.5. For Berkshire Hathaway, other equity includes accumulated other comprehensive income and treasury stock.

riod. This is due to timing differences between when revenue and expense items are recognized on the income statement and when cash is received and paid. (We discuss this concept further in subsequent modules.)

Both cash flow and net income numbers are important for business decisions. Each is used in security valuation models, and both help users of accounting reports understand and assess a company's past, present, and future business activities. As a sneak preview, we might consider the following questions regarding the statement of cash flows:

- What is the usefulness of the statement of cash flows? Do the balance sheet and income statement provide sufficient cash flow information?
- What types of information are disclosed in the statement of cash flows and why are they important?
- What kinds of activities are reported in each of the operating, investing, and financing sections of the statement of cash flows? How is this information useful?
- Is it important for a company to report net cash inflows (positive amounts) relating to operating activities over the longer term? What are the implications if operating cash flows are negative for an extended period of time?
- Why is it important to know the composition of a company's investment activities? What kind of information might we look for? Are positive investing cash flows favorable?
- Is it important to know the sources of a company's financing activities? What questions might that information help us answer?
- How might the composition of operating, investing, and financing cash flows change over a company's life cycle?
- Is the bottom line increase in cash flow the key number? Why or why not?

Review the Berkshire Hathaway statement of cash flows summarized in Exhibit 1.6 and think about these questions. We provide answers for each of these questions as we progress through the book.

## Financial Statement Linkages

The four financial statements are linked within and across periods—consider the following:

- The income statement and the balance sheet are linked via retained earnings. For Berkshire Hathaway, the \$14,824 million increase in retained earnings (reported on the balance sheet) equals its net income (reported on the income statement) (see Exhibit 1.4). Berkshire Hathaway did not pay dividends in 2012.
- Retained earnings, contributed capital, and other equity balances appear both on the statement of stockholders' equity and the balance sheet.
- The statement of cash flows is linked to the income statement as net income is a component of operating cash flow. The statement of cash flows is also linked to the balance sheet as the change in the balance sheet cash account reflects the net cash inflows and outflows for the period.

Items that impact one financial statement ripple through the others. Linkages among the four financial statements are an important feature of the accounting system.

## Information Beyond Financial Statements

Important financial information about a company is communicated to various decision makers through means other than the four financial statements. These include the following:

- Management Discussion and Analysis (MD&A)
- Independent auditor report
- Financial statement footnotes
- Regulatory filings, including proxy statements and other SEC filings

We describe and explain the usefulness of these additional information sources throughout the book.

# Module

# 2

## Introducing Financial Statements and Transaction Analysis

### LEARNING OBJECTIVES

- LO1** Describe information conveyed by the financial statements. (p. 2-3)
- LO2** Explain and illustrate linkages among the four financial statements. (p. 2-20)
- LO3** Illustrate use of the financial statement effects template to summarize accounting transactions. (p. 2-22)

### APPLE

The Financial Times reported in August of 1980 that:

Apple Computer, the fast growing Californian manufacturer of small computers for the consumer, business and educational markets, is planning to go public later this year. [It] is the largest private manufacturer in the U.S. of small computers. Founded about five years ago as a small workshop business, it has become the second largest manufacturer of small computers, after the Radio Shack division of the Tandy company.

On December 12, 1980, Apple had its initial public offering at a price of \$22. During the next 24 years (through fiscal 2004), Apple reported *cumulative* income of \$3.8 billion on \$128.5 billion in sales, a 3% net profit margin, and its market capitalization (share price  $\times$  common shares outstanding) was just over \$15 billion at the end of fiscal 2004. However, for its 2012 fiscal year alone, Apple reported income of \$41.7 billion on sales of \$156.5 billion, which represented a 26.6% net profit margin. In fact, over the past decade, Apple reported cumulative income of \$103.2 billion on sales of \$482.1 billion, which is a 21.4% profit margin. Its market capitalization at the end of fiscal 2012 was \$627 billion, greater than Google, IBM, Microsoft, Oracle, Cisco, and Intel. Apple's meteoric rise over that decade is the result of a number of iconic product introductions: iPod and iTunes in 2001, iPhone in 2007, and iPad in 2010. The rise in the market value of Apple stock has mirrored its product successes.

However, 2012 saw a pullback in stock price as cash and other liquid nonproductive assets began to pile up; some saw Apple as a giant ship without a rudder.

Information in financial statements helps us assess a company's financial strength and judge the performance of managers and the company as a whole. This module defines and explains the components of each financial statement: the balance sheet, the income statement, the statement of cash flows, and the statement of stockholders' equity. We begin with a preview of Apple's financial condition and performance through a review of its financial statements.

Apple's balance sheet is quite liquid due to a solid record of generating operating cash flow. Apple ended its 2012 year with \$121 billion of cash and marketable investments.



- d. Compute net nonoperating obligations (NNO) for 2012 and 2011. Confirm the relation:  $\text{NOA} = \text{NNO} + \text{Total equity}$ .
- e. Compute return on equity (ROE) for 2012.
- f. What is the nonoperating return component of ROE for 2012?
- g. Comment on the difference between ROE and RNOA. What inference can we draw from this comparison?

**BT Group plc**

**I4-53.<sup>B</sup> Analysis and Interpretation of Liquidity and Solvency (LO4)**

**BT Group** is one of the largest telecommunications services companies in the world, headquartered in London, United Kingdom. Refer to the financial information for BT Group in [I4-52](#) to answer the following requirements.

**Required**

- a. Compute the current ratio and quick ratio for 2012 and 2011. Comment on any observed trends.
- b. Compute times interest earned and liabilities-to-equity ratios for 2012 and 2011. Comment on any noticeable changes.
- c. Summarize the findings about the company's liquidity and solvency. Do we have any concerns about its ability to meet its debt obligations?

## MANAGEMENT APPLICATIONS

**MA4-54. Gross Profit and Strategic Management (LO2)**

One way to increase overall profitability is to increase gross profit. This can be accomplished by raising prices and/or by reducing manufacturing costs.

**Required**

- a. Will raising prices and/or reducing manufacturing costs unambiguously increase gross profit? Explain.
- b. What strategy might you develop as a manager to (i) increase product prices, or (ii) reduce product manufacturing cost?

**MA4-55. Asset Turnover and Strategic Management (LO2)**

Increasing net operating asset turnover requires some combination of increasing sales and/or decreasing net operating assets. For the latter, many companies consider ways to reduce their investment in working capital (current assets less current liabilities). This can be accomplished by reducing the level of accounts receivable and inventories, or by increasing the level of accounts payable.

**Required**

- a. Develop a list of suggested actions that you, as a manager, could undertake to achieve these three objectives.
- b. Describe the marketing implications of reducing receivables and inventories, and the supplier implications of delaying payment. How can a company reduce working capital without negatively impacting its performance?

**MA4-56. Ethics and Governance: Earnings Management (LO1)**

Companies are aware that analysts focus on profitability in evaluating financial performance. Managers have historically utilized a number of methods to improve reported profitability that are cosmetic in nature and do not affect "real" operating performance. These methods are subsumed under the general heading of "earnings management." Justification for such actions typically includes the following arguments:

- Increasing stock price by managing earnings benefits stockholders; thus, no one is hurt by these actions.
- Earnings management is a temporary fix; such actions will be curtailed once "real" profitability improves, as managers expect.

**Required**

- a. Identify the affected parties in any scheme to manage profits to prop up stock price.
- b. Do the ends (of earnings management) justify the means? Explain.
- c. To what extent are the objectives of managers different from those of stockholders?
- d. What governance structure can you envision that might inhibit earnings management?

Financial statements prepared according to U.S. GAAP must be reported in \$US. This means that the financial statements of any foreign subsidiaries must be translated into \$US before consolidation with the U.S. parent company. This translation process can markedly alter both the balance sheet and income statement. We discuss income statement effects of foreign currency translation in this module; we discuss the effects on stockholders' equity in Module 8.

### Effects of Foreign Currency Transactions on Income

A change in the strength of the \$US vis-à-vis foreign currencies has a direct effect on the \$US equivalent for revenues, expenses, and income of the foreign subsidiary because revenues and expenses are translated at the average exchange rate for the period. Exhibit 5.7 shows those financial effects.

EXHIBIT 5.7 Income Statement Effects from Foreign Currency Movements					
	Revenues	–	Expenses	=	Net Income (or Loss)
\$US Weakens . . . . .	Increase		Increase		Increase
\$US Strengthens . . . . .	Decrease		Decrease		Decrease

Specifically, when the foreign currency strengthens (implying \$US weakens), the subsidiary's revenues and expenses translate into more \$US and, thus, reported income is higher than if the currencies had not fluctuated. On the other hand, when the \$US strengthens, the subsidiary's revenues, expenses, and income decrease in \$US terms. (The profit effect assumes that revenues exceed expenses; if expenses exceed revenues, a loss occurs, which increases if the \$US weakens and decreases if the \$US strengthens.)

**Pfizer** discusses how currency fluctuations affect its income statement in the following excerpt from its MD&A to the company's 2012 10-K.

Revenues decreased 10% in 2012 to \$59.0 billion, compared to \$65.3 billion in 2011, which reflects an operational decline of \$4.8 billion or 8%, primarily the result of the loss of exclusivity of Lipitor in most major markets, including the U.S. on November 30, 2011, and most of developed Europe in March and May 2012, **and the unfavorable impact of foreign exchange of \$1.5 billion, or 2%**. Lipitor and other product losses of exclusivity, as well as the final-year terms of our collaboration agreements in certain markets for Spiriva, negatively impacted revenues by approximately \$7.7 billion, or 12%, in 2012 compared to 2011 (emphasis added).

In 2012, the \$US strengthened against many foreign currencies in which Pfizer conducts its business. That strengthening of the \$US reduces the \$US equivalent of transactions denominated in foreign currencies, thus decreasing Pfizer's revenues by \$1.5 billion (2%). Even if unit volumes remained unchanged around the world, the resulting revenues (in dollars) would be lower. In 2011, by contrast, the \$US weakened against those same currencies, resulting in an increase of Pfizer's reported revenues of \$1.9 billion (3%). Fluctuations in the relative exchange value of the \$US are common, thus leading to fluctuations in reported revenues, expenses, and income. Pfizer discloses that it utilizes a variety of measures in an attempt to mitigate the income statement impact of these fluctuations:

**Foreign Exchange Risk** Significant portions of our revenues and earnings are exposed to changes in foreign exchange rates. We seek to manage our foreign exchange risk in part through operational means, including managing same-currency revenues in relation to same-currency costs and same-currency assets in relation to same-currency liabilities. Depending on market conditions, foreign exchange risk also is managed through the use of derivative financial instruments and foreign currency debt. As we operate in multiple foreign currencies, including the euro, the Japanese yen, the U.K. pound, the Chinese renminbi, the Canadian dollar and approximately 100 other currencies, changes in those currencies relative to the U.S. dollar will impact our revenues and expenses. If the U.S. dollar weakens against a specific foreign currency, our revenues will increase, having a positive impact, and our overall expenses will increase, having a negative impact, on net income. Likewise, if the U.S. dollar strengthens against a specific foreign currency, our revenues will decrease, having a negative impact, and our overall expenses will decrease, having a positive impact on net income. Therefore, significant changes in foreign exchange rates can impact our results and our financial guidance.

**Divestitures** On November 30, 2012, we completed the sale of our Nutrition business to Nestlé for \$11.85 billion in cash, and recognized a gain of approximately \$4.8 billion, net of tax, in *Gain/(loss) on sale of discontinued operations—net of tax*. . . . The operating results of this business are reported as *Income/(loss) from discontinued operations—net of tax* in our consolidated statements of income for all periods presented. In addition, in our consolidated balance sheet as of December 31, 2011, the assets and liabilities associated with this discontinued operation are classified as *Assets of discontinued operations and other assets held for sale* and *Liabilities of discontinued operations*, as appropriate.

Pfizer sold its nutrition business to Nestlé for \$11.85 billion. At the time of sale, that subsidiary was reported on Pfizer's balance sheet at \$7.05 billion (we discuss the reporting for subsidiaries in Module 9). The sale of an asset (the nutrition business) with a book value of \$7.05 billion at a sale price of \$11.85 billion resulted in a gain on sale of \$4.8 billion, reported below the line. This income statement placement is important: Pfizer will not sell this business again. So, the gain is a *transitory item*. Segregating it in this manner identifies it as such for analysts so that they can consider how the elimination of this business unit affects forecasts of Pfizer's revenues, income and cash flow for 2013 and beyond. For the current and prior years' analysis, we need to understand that the appreciation in the value of the nutrition business did not occur only in the current year. Consequently, in our analysis, we might consider spreading the gain out over the prior years during which the nutrition business was owned by Pfizer.

The footnote also points out that Pfizer segregates the assets and liabilities relating to this business unit on its consolidated balance sheet. Companies do not frequently provide the same segregation of the assets and liabilities of the discontinued operation that they do in the income statement. Typically, information about these assets and liabilities of the discontinued operations are provided in footnotes. GAAP prescribes that this disclosure must be made, but allows for disclosure in the balance sheet or in the footnotes.

An additional note about the discontinued nutrition business: from January 1, 2012, until the date of sale, November 30, 2012, these operations generated an after-tax net income of \$297 million. Discontinued operations resulted in net income of \$350 million for 2011 and a loss of \$19 million for 2010. Some of the prior year results relate to the nutrition business that was discontinued in 2012 so that the income statement columns are comparable. Segregating net income from continuing operations allows analysts to better focus on the income and cash flow that will likely continue into the future.

## Extraordinary Items

To simplify the income statement presentation, in 2015 the FASB issued an Update to eliminate the disclosure of *extraordinary items*. Instead, those items, which are both unusual and infrequent, are now treated the same as items classified as unusual in nature *or* infrequent in occurrence. This Update was effective for fiscal years beginning after December 15, 2015 (affecting annual reports filed in late-2016 and all filings for 2017 and thereafter).

For analysis of annual reports issued prior to late-2016, we present a brief discussion. Historically, **extraordinary items** referred to events that were both unusual *and* infrequent. Their effects were reported following income from continuing operations. Management would determine whether an event was unusual and infrequent (with auditor approval) for financial reporting purposes. Further, management would often have incentives to classify unfavorable items as extraordinary because they would be reported separately, after income from continuing operations (*below-the-line*). These incentives derived from managers' beliefs that investors tend to focus more on items included in income from continuing operations and less on nonrecurring items that are not included in continuing operations. More specifically, GAAP provided the following guidance in determining whether an item was extraordinary:

- **Unusual nature.** The underlying event or transaction must possess a high degree of abnormality and be clearly unrelated to, or only incidentally related to, the ordinary activities of the entity.

- *Infrequency of occurrence.* The underlying event or transaction must be of a type that would not reasonably be expected to recur in the foreseeable future.

Again, historically, extraordinary items were reported separately (net of tax) and below income from continuing operations on the income statement. However, going forward, this is not the case, and those items are treated the same as items that are unusual *or* infrequent.



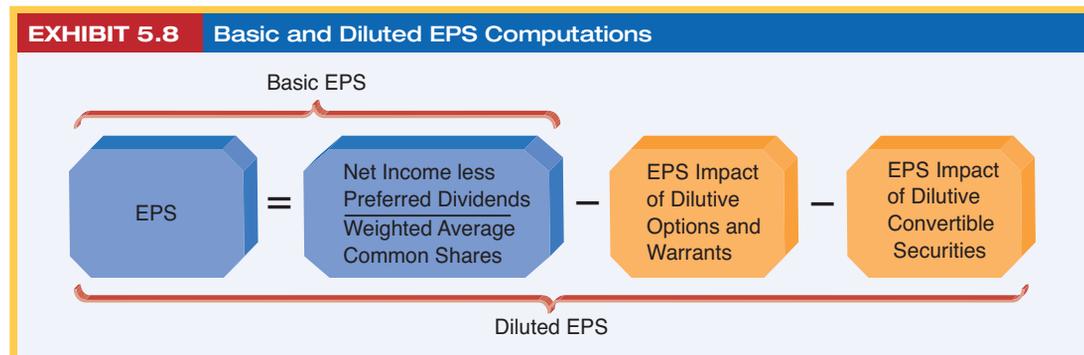
**IFRS INSIGHT** Extraordinary Items and IFRS

IFRS does not permit the reporting of income and expense items as “extraordinary.” The IASB justified its position in IAS 1 as follows: “The Board decided that items treated as extraordinary result from the normal business risks faced by an entity and do not warrant presentation in a separate component of the income statement. The nature or function of a transaction or other event, rather than its frequency, should determine its presentation within the income statement. Items currently classified as ‘extraordinary’ are only a subset of the items of income and expense that may warrant disclosure to assist users in predicting an entity’s future performance” (IAS 1).

## Earnings Per Share

**LO5** Compute earnings per share and explain the effect of dilutive securities.

The income statement reports earnings per share (EPS) numbers. Most firms report two EPS numbers: basic and diluted. The difference between the two measures is shown in Exhibit 5.8.



**Basic EPS** is computed as: (Net income – Dividends on preferred stock)/Weighted average number of common shares outstanding during the year. Subtracting preferred stock dividends yields the income available for dividend payments to common shareholders. Computation of **diluted EPS** reflects the additional shares that would be issued if all stock options, warrants, and convertible securities had been converted into common shares at the beginning of the year or when issued, if issued during the year. Diluted EPS never exceeds basic EPS.

Pfizer reports Basic EPS from continuing operations of \$1.27 in 2012 and diluted EPS from continuing operations of \$1.26. Given the near identical results for basic and diluted EPS, we know that Pfizer has few dilutive securities. **Virgin Media, Inc.**, however, reports a dilution of 16% in its EPS as evident from its following disclosure:

Fiscal year ended December 31 (in thousands, except per share)	2012	2011	2010
Basic net income per share . . . . .	£10.40	£0.25	£(0.52)
Diluted net income per share . . . . .	£ 8.75	£0.24	£(0.52)

Virgin Media, Inc. reports the following dilutive effects on EPS:

Year Ended December 31 (\$ millions)	2012
Net sales . . . . .	\$39,874
Cost of products sold . . . . .	(15,120)
Research and development* . . . . .	(4,610)
Selling, general and administrative . . . . .	(12,059)
Pretax operating earnings . . . . .	\$ 8,085

\* Includes acquired in process research and development.

- Compute the percent of net sales that Abbott Laboratories spends on research and development (R&D). Compare this level of expenditure with the percentages for other companies that are discussed in the Business Insight box on page 5-15. How would you assess the appropriateness of its R&D expense level?
- Describe how accounting for R&D expenditures affects Abbott Laboratories' balance sheet and income statement.

**M5-17. Interpreting Foreign Currency Translation Disclosure (LO4)**

**Bristol-Myers Squibb (BMY)** reports the following table in its 10-K report relating to the change in sales from 2011 to 2012.



Net Sales	Total Change	Analysis of % Change		
		Volume	Price	Foreign Exchange
United States <sup>(a)</sup> . . . . .	(26)%	(30)%	4%	—
Europe <sup>(b)</sup> . . . . .	(4)%	6%	(3)%	(7)%
Rest of the World <sup>(c)</sup> . . . . .	(1)%	2%	(1)%	(2)%
Total . . . . .	(17)%	(17)%	2%	(2)%

- Includes Puerto Rico.
- Includes Russia and Turkey.
- Includes Japan, China, Canada, Australia and Brazil, among other countries.

~~\*\* Change in excess of 100%.~~

- Did U.S. net sales increase or decrease during the year? By what percentage? How much of this change is attributable to volume versus price changes?
- By what percentage did foreign net sales change during the year? How much of this change is attributable to volume versus price changes?
- Why does the change in total net sales (17%) not equal the sum of the changes in U.S. of (26%), Europe net sales of (4)% and "Rest of the World" net sales of (1)%?

**M5-18. Analyzing Income Tax Disclosure (LO3)**

**Dell Inc.** reports the following footnote disclosure to its 2013 10-K report (\$ millions).



The provision for income taxes consisted of the following:

Fiscal Year Ended	February 1, 2013
Federal	
Current . . . . .	\$630
Deferred . . . . .	(297)
	333
State	
Current . . . . .	76
Deferred . . . . .	(23)
	53
Foreign	
Current . . . . .	191
Deferred . . . . .	(108)
	83
Total . . . . .	\$469

- c. Apply the test of impairment to this equipment as of the end of the fourth year. Is the equipment impaired? Show supporting computations.
- d. If the equipment is impaired at the end of the fourth year, compute the impairment loss.

## PROBLEMS

### P6-38. Evaluating Turnover Rates for Different Companies (LO1, 2, 3)

Following are asset turnover rates for accounts receivable; inventory; and property, plant, and equipment (PPE) for **Best Buy Co., Inc.** (BBY) (retailer), **Caterpillar Inc.** (CAT) (manufacturer of heavy equipment), **Dell Inc.** (DELL) (computers), **Verizon Communications, Inc.** (VZ) (communications), and **Walmart Stores, Inc.** (WMT) (department store).

**Best Buy Co., Inc. (BBY)**  
**Caterpillar Inc. (CAT)**  
**Dell Inc. (DELL)**  
**Verizon Communications, Inc. (VZ)**  
**Walmart Stores, Inc. (WMT)**

Company	Accounts Receivable Turnover	Inventory Turnover	Plant, Property and Equipment Turnover
Best Buy Co. . . . .	18.06	5.60	13.38
Caterpillar Inc. . . . .	3.57	3.13	4.27
Dell . . . . .	8.69	32.13	26.80
Verizon . . . . .	9.51	45.93	1.31
Walmart . . . . .	73.85	8.34	4.20

**Required**

- a. Interpret and explain difference in receivables turnover for the retailer (Best Buy) vis-à-vis that for the manufacturer (Caterpillar). What reason can you give for a 73.85 turnover for Walmart?
- b. Interpret and explain the difference in inventory turnover for Dell versus Caterpillar.
- c. Why is the PPE turnover for Verizon low compared with other companies on this list?
- d. What are some general observations you might draw regarding the relative levels of these turnover rates across the different industries?

### P6-39. Interpreting Accounts Receivable and Related Footnote Disclosure (LO1)

Following is the current asset section from the **W.W. Grainger, Inc.**, balance sheet.



**W.W. Grainger, Inc. (GWW)**

and \$24,552

As of December 31 (\$ 000s)	2012	2011	2010
Cash and cash equivalents . . . . .	\$ 452,063	\$ 335,491	\$ 313,454
Accounts receivable (less allowances for doubtful accounts of \$19,449, \$18,801, respectively) . . . .	940,020	888,697	762,895
Inventories—net . . . . .	1,301,935	1,268,647	991,577
Prepaid expenses and other assets . . . . .	110,414	100,081	87,125
Deferred income taxes . . . . .	55,967	47,410	44,627
Prepaid income taxes . . . . .	40,241	54,574	38,393
Total current assets . . . . .	<u>\$2,900,640</u>	<u>\$2,694,900</u>	<u>\$2,238,071</u>

Grainger reports the following footnote relating to its receivables.

**Allowance for Doubtful Accounts** The following table shows the activity in the allowance for doubtful accounts.

For Years Ended December 31 (\$ 000s)	2012	2011	2010
Balance at beginning of period . . . . .	\$18,801	\$24,552	\$25,850
Provision for uncollectible accounts . . . . .	9,504	4,761	6,718
Write-off of uncollectible accounts, net of recoveries . .	(9,100)	(8,138)	(8,302)
Business acquisitions, foreign currency and other . . . .	244	(2,374)	286
Balance at end of period . . . . .	<u>\$19,449</u>	<u>\$18,801</u>	<u>\$24,552</u>

profitable (from an operating standpoint) and more capital intensive than we would infer from a review of its unadjusted income statement and balance sheet.

Southwest's ROE increases by 1.4 percentage points (from 6.0% to 7.4%). The analysis reveals that the nonoperating return component of its ROE increases from (0.9)% using reported figures to an adjusted 0.7%. The adjusted figures reveal the effect of a much greater financial leverage from capitalized lease obligations that is not apparent prior to capitalization. Specifically, financial leverage is 51% of equity using adjusted figures versus 3% of equity using reported figures. Financial leverage is, therefore, revealed to play a greater role in ROE in partially offsetting the lower spread. In sum, Southwest's adjusted figures reveal a company with a **higher** ROE and with more assets and more financial leverage than was apparent from reported figures.

Adjusted assets and liabilities arguably present a more realistic picture of the invested capital required to operate Southwest Airlines and of the amount of leverage represented by its leases. Similarly, operating profitability is revealed to be higher than reported, since a portion of Southwest's rent payments represents repayment of the lease liability (a nonoperating cash outflow) rather than operating expense.

### MID-MODULE REVIEW

Following is the leasing footnote disclosure from **United Parcel Service's (UPS)** 2012 10-K report.

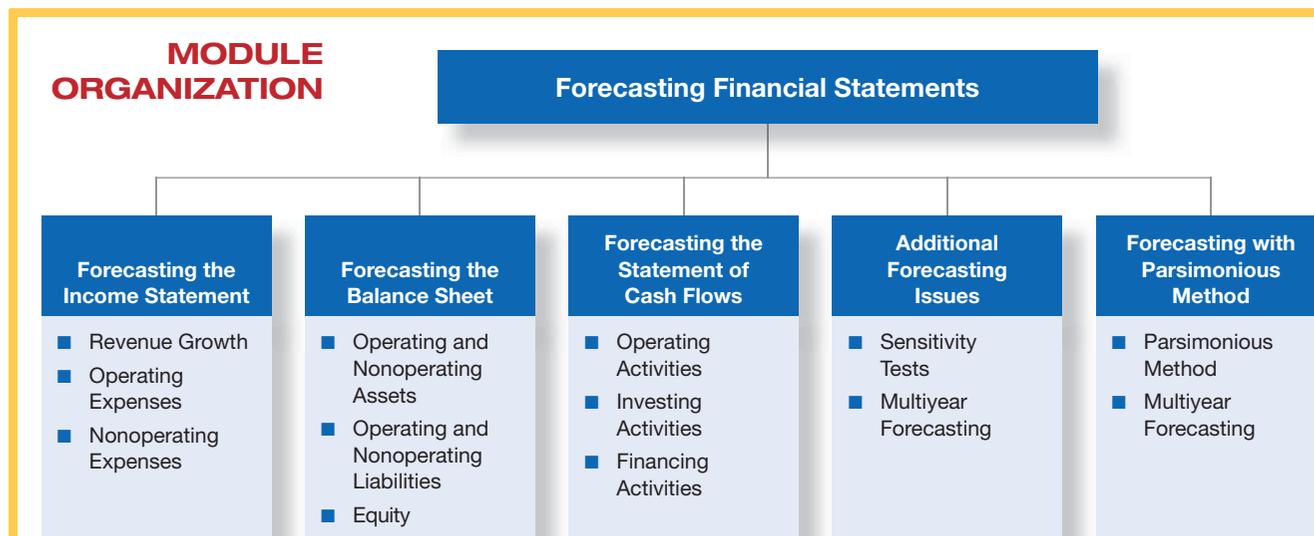
We lease certain aircraft, facilities, land, equipment and vehicles under operating leases, which expire at various dates through 2038. Certain of the leases contain escalation clauses and renewal or purchase options. Rent expense related to our operating leases was \$619, \$629 and \$615 million for 2012, 2011 and 2010, respectively. The following table sets forth the aggregate minimum lease payments under capital and operating leases (in millions).

Year	Capital Leases	Operating Leases
2013	\$ 55	\$ 342
2014	52	271
2015	50	203
2016	49	145
2017	48	118
After 2017	426	358
Total	680	<u>\$1,437</u>
Less: imputed interest	(240)	
Present value of minimum capitalized lease payments	\$440	
Less: current portion	(31)	
Long-term capitalized lease obligations	<u>\$409</u>	

### Required

1. Impute the discount rate that UPS uses, on average, to compute the present value of its capital leases.
2. What adjustments would we make to UPS's balance sheet to capitalize the operating leases at the end of 2012? (*Hint:* The implicit rate on its capital leases is approximately 7%; use this approximation to solve parts 2 and 3 if one cannot solve for the implicit rate.)
3. Assuming the same facts as in part 2, what income statement adjustments might we consider?

The solution is on page 10-53.



Forecasting financial performance is integral to a variety of business decisions ranging from investing to managing a company effectively. We might, for example, wish to value a company’s common stock before purchasing its shares. To that end, we might use one of the valuation models we discuss in Module 12 that rely on financial statement forecasts as a crucial input. Or, we might be interested in evaluating the creditworthiness of a prospective borrower. In that case, we forecast the borrower’s cash flows to estimate its ability to repay its obligations. We might also be interested in evaluating alternative strategic investment decisions. In this case, we can use our forecasts to evaluate the shareholder value that the strategic investment alternatives will create. All of these decisions require accurate financial forecasts. In this module, we illustrate the most common method to forecast the income statement, balance sheet, and statement of cash flows.

## FORECASTING PROCESS

**LO1** Explain the process of forecasting financial statements.

The forecasting process estimates future income statements, balance sheets, and statements of cash flows, in that order. The reason for this ordering is that each statement uses information from the preceding statement(s). For example, we update retained earnings on the balance sheet to reflect our forecast of the company’s net income. And, the forecasted income statement and balance sheets are used in preparing forecasts for the statement of cash flows, which follows the same process described in Modules 2 and 3 for preparing the historical statement of cash flows.

### Overview of Forecasting Process

Before we focus on the mechanics of forecasting, we take a moment to consider some overarching principles that guide us in the forecasting process.

#### Reformulated (Adjusted) Financial Statements

The forecasting process begins with a retrospective analysis. That is, we analyze current and prior years’ statements to be sure that they accurately reflect the company’s financial condition and performance. If we believe that they do not, we adjust those statements to reflect the company’s net operating assets and the operating income that we expect to persist into the future. Once we’ve adjusted the historical results, we are ready to forecast future results. Why would we need to adjust historical results? The answer resides in the fact that financial statements prepared in conformity with GAAP do not always accurately reflect the ~~“true”~~ financial condition and performance of the company. This *adjusting process*, also referred to as recasting or reformulating (or *scrubbing the numbers*), is not “black and white.” It requires judgment and estimation. Repeatedly in Modules 5 through 10, we have explained estimation, accounting choice, deliberate managerial intervention in reporting, and transitory versus persistent items. These concepts are integral to adjustments we make to financial statements. It

that are most predictive of the future.

is important to distinguish between the **objectives of general purpose, GAAP-based financial statements and the adjusting** process for purposes of forecasting. Specifically, GAAP-based statements provide more than just information for forecasting. For example, financial statements are key inputs into contracts among business parties. This means that historical results, including any transitory activities, must be reported to meet management's fiduciary responsibilities. On the other hand, to forecast future performance, we need to create a set of financial statements that focus on those items that we expect to persist, with a special emphasis on persistent operating activities.

### Garbage-In, Garbage-Out

All forecasts are based on a set of forecasting assumptions. For example, to forecast the income statement, we must make assumptions about revenue growth and other assumptions about how expenses will change in relation to changes in revenues. Then, to forecast the balance sheet, we make assumptions about the relation between balance sheet accounts and changes in revenues. Consequently, before we make business decisions based on forecasted financial statements, we must understand and agree with the underlying assumptions used to produce them. The old adage, “garbage-in, garbage-out,” is apt. That is, the quality of our decision is only as good as the quality of the information on which it is based. We must be sure that our forecasting assumptions are consistent with our beliefs and predictions for future growth and key financial relations.

### Optimism vs Conservatism

Many people believe that it is appropriate to be overly conservative in their financial forecasts so as to minimize the likelihood of making a bad decision. “Let's be conservative in our forecasts so that we are certain our forecast will be met” is a frequent prelude to the forecasting process. Although this approach might appear reasonable, being too conservative can result in missed valuable opportunities that, in the end, can be very costly. Instead, our objective is not to be overly optimistic or overly conservative. The objective for forecasting is accuracy.

### Level of Precision

Computing forecasts out to the “nth decimal place” is easy using spreadsheets. This increased precision makes the resulting forecasts appear more “professional,” but not necessarily more accurate. As we discuss in this module, our financial statement forecasts are highly dependent on our revenues forecast. Whether revenues are expected to grow by 4% or 5% can markedly impact profitability and other forecasts. Estimating cost of goods sold and other items to the nth decimal place is meaningless if we have imprecise revenue forecasts. Consequently, borderline decisions that depend on a high level of forecasting precision are probably ill-advised.

### Smell Test

At the end of the forecasting process, we must step back and make sure that the numbers we predict pass the *smell test*. That is, we need to assess whether our forecasts are reasonable—do they make economic sense, do they fit with the underlying relations that drive financial forecasts? For example, if our forecasts are dependent on increasing selling prices, it is wise to explore the likely consequences of a price increase. Companies cannot raise prices without a consequent loss of demand unless the product in question is protected in some way from competitive attacks. Our forecasts must appear reasonable and consistent with basic business economics.

### Internal Consistency

The forecasted income statement, balance sheet, and statement of cash flows are linked in the same way that historical financial statements are. That is, they must articulate (link together within and across time) as we explain in Module 2. Preparing a forecasted statement of cash flows, although tedious, is often a useful way to uncover forecasting assumptions that are inconsistently applied across financial statements (examples are capital expenditures [CAPEX], depreciation, debt payments, and dividends). If the forecasted cash balance on the balance sheet agrees with that on the statement of cash flows, it is likely that our income statement and balance sheet articulate properly. We also must ensure that our forecast assumptions are internally consistent. It is nonsense to forecast an increased gross profit margin during an economic recession unless we can make compelling arguments based on economics.

Target's fiscal year 2012 consists of 53 weeks while fiscal years 2011 and 2010 are only 52-weeks long. Target's 2012 income statement includes an extra week's sales, which makes it appear as if sales are growing at a higher rate than they are. To accurately forecast revenue growth, we must use numbers and rates that reflect a consistent 52-week year. To do this, we assume that sales are recorded evenly each week and we adjust revenues for the 53-week year by multiplying reported sales by 52/53. For fiscal year 2012, the adjusted sales for the U.S. Retail Segment are  $\$71,960 \times 52/53 = \$70,602$  and the adjusted growth rate for 2012 is 3.1% ( $[\$70,602/\$68,466] - 1$ ) rather than the 5.1% reported in the table above.

- More than 47% ( $[5.1\% - 2.7\%]/5.1\% = 47.1\%$ ) of Target's 2012 sales growth is attributable to new store openings.
- The average per store planned capital expenditure is about \$47 million (\$1,090 million reported CAPEX for new stores/23 new stores opened in 2012 as reported in the MD&A). Although acquired growth provides the organic growth of the future, it comes at considerable cost per store.

**Impact of Unit Sales and Price Disclosures** Forecasts that are built from anticipated unit sales and current prices are generally more informative, and accurate, than those derived from historical dollar sales. Most companies, however, do not provide unit sales data in their 10-Ks. **Apple Inc.**, is an exception, and the following footnote disclosure from its 2012 10-K provides useful information. Like Target, Apple operates on a 52- or 53-week fiscal year. To accommodate for the extra week in 2012, we added two columns (in dark maroon color) to the data provided by Apple; one that shows pro rated sales (2012 sales multiplied by 52/53) and a second that shows the recalculated change in sales.

**Net Sales** The Company's fiscal year is the 52- or 53-week period that ends on the last Saturday of September. The Company's fiscal years 2012, 2011 and 2010 ended on September 29, 2012, September 24, 2011, and September 25, 2010, respectively. Fiscal year 2012 spanned 53 weeks, with a 14th week included in the first quarter of 2012, as is done approximately every six years to realign the Company's fiscal quarters more closely to calendar quarters. . . . The following table shows . . . net sales and unit sales by product during 2012, 2011, and 2010 (dollars in millions and units in thousands):

	2012 (52 weeks)	Recalculated 2012 Change	2012	2012 Change	2011	2011 Change	2010
<b>Net sales by product</b>							
Desktops.....	\$ 5,926	(8)%	\$ 6,040	(6)%	\$ 6,439	4%	\$ 6,201
Portables.....	16,857	10%	17,181	12%	15,344	36%	11,278
Total Mac net sales.....	22,783	5%	23,221	7%	21,783	25%	17,479
iPod.....	5,509	(26)%	5,615	(25)%	7,453	(10)%	8,274
Other music related products and services.....	8,373	33%	8,534	35%	6,314	28%	4,948
iPhone and related products and services.....	78,959	68%	80,477	71%	47,057	87%	25,179
iPad and related products and services.....	31,812	56%	32,424	59%	20,358	311%	4,958
Peripherals and other hardware.....	2,726	17%	2,778	19%	2,330	28%	1,814
Software, service, and other sales.....	3,394	15%	3,459	17%	2,954	15%	2,573
Total net sales.....	\$153,556	42%	\$156,508	45%	\$108,249	66%	\$65,225
<b>Unit sales by product</b>							
Desktops.....	4,568	(2)%	4,656	0%	4,669	1%	4,627
Portables.....	13,247	10%	13,502	12%	12,066	34%	9,035
Total Mac unit sales.....	17,815	6%	18,158	9%	16,735	22%	13,662
iPod unit sales.....	34,502	(19)%	35,165	(17)%	42,620	(15)%	50,312
iPhone units sold.....	122,687	70%	125,046	73%	72,293	81%	39,989
iPad units sold.....	57,210	77%	58,310	80%	32,394	334%	7,458

**EXHIBIT 11.7A** Revised Forecasted Income Statement for P&G

(\$ millions)	2013		Forecast Assumptions	Revised 2014 Est.	
Net sales . . . . .	\$84,167	100.0%	$\$84,167 \times 1.015$	\$85,430	100.0%
Cost of products sold . . . . .	42,428	50.4%	$\$85,430 \times 50.1\%$	42,800	50.1%
Selling, general and administrative expense . . . . .	26,950	32.0%	$\$85,430 \times 31.0\%$	26,483	31.0%
Goodwill and indefinite-lived intangibles impairment charges . . . . .	308	0.4%	assume \$0	0	0.0%
Operating income . . . . .	14,481	17.2%	subtotal	16,147	18.9%
Interest expense . . . . .	667	0.8%	computed in step 4	694	0.8%
Interest income . . . . .	87	0.1%	computed in step 4	102	0.1%
Other nonoperating income (expense), net . . . . .	942	1.1%	computed in step 4	61	0.1%
Earnings before income taxes . . . . .	14,843	17.6%	subtotal	15,616	18.3%
Income taxes on continuing operations . . . . .	3,441	4.1%	$\$15,616 \times 23.2\%$	3,623	4.2%
Net earnings . . . . .	11,402	13.5%	subtotal	11,993	14.0%
Less: Net earnings attributable to noncontrolling interests . . . . .	90	0.1%	no change	90	0.1%
Net earnings attributable to P&G . . . . .	<u>\$11,312</u>	<u>13.4%</u>	subtotal	<u>\$11,903</u>	<u>13.9%</u>

**EXHIBIT 11.7B** Forecasted Balance Sheet for P&G

(\$ millions)	2013		Forecast Assumptions	2014 Est.
<b>Current Assets</b>				
Cash and cash equivalents . . . . .	\$ 5,947	7.1%	$85,430 \times 7.1\%$	\$ 6,066
Accounts receivable . . . . .	6,508	7.7%	$85,430 \times 7.5\%$	6,407
Inventories . . . . .	6,909	8.2%	$85,430 \times 8.0\%$	6,834
Deferred income taxes . . . . .	948	1.1%	$85,430 \times 1.1\%$	940
Prepaid expenses and other current assets . . . . .	3,678	4.4%	$85,430 \times 4.4\%$	3,759
Total current assets . . . . .	23,990	28.5%	subtotal	24,006
Net property, plant and equipment . . . . .	21,666	25.7%	+ 3,844 – 2,795	22,715
Goodwill, net . . . . .	55,188	65.6%	no change	55,188
Trademarks and other intangible assets, net . . . . .	31,572	37.5%	– 355	31,217
Other noncurrent assets . . . . .	6,847	8.1%	no change	6,847
Total assets . . . . .	<u>\$139,263</u>	<u>165.5%</u>	subtotal	<u>\$139,973</u>
<b>Current Liabilities</b>				
Accounts payable . . . . .	\$ 8,777	10.4%	$85,430 \times 10.4\%$	\$ 8,885
Accrued and other liabilities . . . . .	8,828	10.5%	$85,430 \times 10.5\%$	8,970
Short-term debt . . . . .		0.0%	plug	5,223
Debt due within one year . . . . .	12,432	14.8%	– 4,506 + 3,798	11,724
Total current liabilities . . . . .	30,037	35.7%	subtotal	34,802
Long-term debt . . . . .	19,111	22.7%	– 3,798	15,313
Deferred income taxes . . . . .	10,827	12.9%	$85,430 \times 12.9\%$	11,020
Other noncurrent liabilities . . . . .	10,579	12.6%	$85,430 \times 12.6\%$	10,764
Total liabilities . . . . .	70,554	83.8%	subtotal	71,899
<b>Shareholders' equity</b>				
Preferred stock . . . . .	1,137	1.4%	no change	1,137
Non-voting Class B preferred stock . . . . .	0	0.0%	no change	0
Common stock, stated value \$1 per share . . . . .	4,009	4.8%	no change	4,009
Additional paid-in capital . . . . .	63,538	75.5%	no change	63,538
Reserve for ESOP debt retirement . . . . .	(1,352)	(1.6%)	no change	(1,352)
Accumulated other comprehensive income (loss) . . . . .	(7,499)	(8.9%)	no change	(7,499)
Treasury stock . . . . .	(71,966)	(85.5%)	– 6,000	(77,966)
Retained earnings . . . . .	80,197	95.3%	+ 11,903 – 6,628	85,472
Noncontrolling interest . . . . .	645	0.8%	+ 90	735
Total shareholders' equity . . . . .	68,709	81.6%	subtotal	68,074
Total liabilities and shareholders' equity . . . . .	<u>\$139,263</u>	<u>165.5%</u>	subtotal	<u>\$139,973</u>

a. Forecast Macy's fiscal 2014 income statement and balance sheet using the following relations (\$ in millions). Assume that all capital expenditures are purchases of property and equipment.

Net sales growth	5%
Cost of sales/Net sales	59.7%
Selling, general and administrative expenses/Net sales	30.6%
Impairments, store closing costs and gain on sale of leases	\$0
Interest expense	no change
Premium on early retirement of debt	\$0
Interest income	no change
Income tax expense/Income before income taxes	36.5%
Cash and cash equivalents/Net sales	6.6%
Receivables/Net sales	1.3%
Merchandise inventories/Net sales	19.2%
Prepaid expenses and other current assets/Net sales	1.3%
CAPEX (Increase in gross Property and equipment)/Net sales	0.9%
Goodwill	no change
Other intangible assets	no change
Other assets/Net sales	2.2%
Merchandise accounts payable/Net sales	5.7%
Accounts payable and accrued liabilities/Net sales	9.4%
Income taxes/Net sales	1.3%
Current deferred income taxes/Net sales	1.5%
Noncurrent deferred income taxes/Net sales	4.5%
Other liabilities	6.6%
Depreciation expense/Prior year gross PPE	7.3%
Common stock and APIC	no change
Treasury stock	no change
Dividends/Net income	24.3%
Long-term debt payments required in fiscal 2014	\$461
Long-term debt payments required in fiscal 2015	\$481

b. What does the forecasted adjustment to balance the accounting equation from part a reveal to us about the forecasted financing needs of the company? Explain.



**E11-21. Forecasting the Statement of Cash Flows (LO4)**

Macy's, Inc. (M)

Refer to the **Macy's, Inc.** financial information from Exercise 11-20. Prepare a forecast of its fiscal year **2014** statement of cash flows.



**E11-22. Analyzing, Forecasting, and Interpreting Income Statement and Balance Sheet (LO2, 3)**

General Mills, Inc. (GIS)

Following are the income statements and balance sheets of **General Mills, Inc.**

Income Statement, Fiscal Years Ended (in millions)	May 26, 2013	May 27, 2012	May 29, 2011
Net sales	\$17,774.1	\$16,657.9	\$14,880.2
Cost of sales	11,350.2	10,613.2	8,926.7
Selling, general and administrative expenses	3,552.3	3,380.7	3,192.0
Divestitures (gain)	—	—	(17.4)
Restructuring, impairment, and other exit costs	19.8	101.6	4.4
Operating profit	2,851.8	2,562.4	2,774.5
Interest, net	316.9	351.9	346.3
Earnings before income taxes and after-tax earnings from joint ventures	2,534.9	2,210.5	2,428.2
Income taxes	741.2	709.6	721.1
After-tax earnings from joint ventures	98.8	88.2	96.4
Net earnings, including earnings attributable to redeemable and noncontrolling interests	1,892.5	1,589.1	1,803.5
Net earnings attributable to redeemable and noncontrolling interests	37.3	21.8	5.2
Net earnings attributable to General Mills	\$ 1,855.2	\$ 1,567.3	\$ 1,798.3

we deviate from historical percentages for expense line items, we should also amend NOPM and/or NOAT. Use the forecasted percentages and not the historical ones for the parsimonious forecast.

## SOLUTIONS TO REVIEW PROBLEMS

### Mid-Module Review

#### Solution

Forecasted 2013 financial statements for Colgate-Palmolive follow.

Forecasted Income Statement			
For year ended December 31 (\$ millions)	2012	Forecast Assumptions	2013 Est.
Net sales . . . . .	\$17,085	$17,085 \times 1.02$	\$17,427
Cost of sales . . . . .	7,153	$\$17,427 \times 41.9\%$	7,302
Gross profit . . . . .	9,932	subtotal	10,125
Selling, general and administrative expenses . . . . .	5,930	$\$17,427 \times 34.7\%$	6,047
Other (income) expense, net . . . . .	113	no change	113
Operating profit . . . . .	3,889	subtotal	3,965
Interest expense, net . . . . .	15	no change	15
Income before income taxes . . . . .	3,874	subtotal	3,950
Provision for income taxes . . . . .	1,243	$\$3,950 \times 32.1\%$	1,268
Net income including noncontrolling interests . . . . .	2,631	subtotal	2,682
Less: Net income attributable to noncontrolling interests . . . . .	159	no change	159
Net income attributable to Colgate-Palmolive Company . . . . .	\$ 2,472	subtotal	\$ 2,523

Forecasted Balance Sheet			
As of December 31 (\$ millions)	2012	Forecast Assumptions	2013 Est.
<b>Assets</b>			
Cash and cash equivalents . . . . .	\$ 884	computed $17,427 \times 5.2\%$	\$ 906
Marketable securities . . . . .		plug	1,078
Receivables (net of allowances of \$61 and \$49, respectively) . . . . .	1,668	$17,427 \times 9.8\%$	1,708
Inventories . . . . .	1,365	$17,427 \times 8.0\%$	1,394
Other current assets . . . . .	639	$17,427 \times 3.7\%$	645
Total current assets . . . . .	4,556	subtotal	5,731
Property, plant and equipment, net . . . . .	3,842	+ 576   - 413	4,005
Goodwill, net . . . . .	2,500	no change	2,500
Other intangible assets, net . . . . .	1,499	- 31	1,468
Deferred income taxes . . . . .	92	no change	92
Other assets . . . . .	905	$17,427 \times 5.3\%$	924
Total assets . . . . .	\$13,394	subtotal	\$14,720
<b>Liabilities</b>			
Notes and loans payable . . . . .	\$ 54	no change	\$ 54
Current portion of long-term debt . . . . .	250	footnote disclosure	887
Accounts payable . . . . .	1,290	$17,427 \times 7.6\%$	1,324
Accrued income taxes . . . . .	254	$1,268 \times 20.4\%$	259
Other accruals . . . . .	1,888	$17,427 \times 11.1\%$	1,934
Total current liabilities . . . . .	3,736	subtotal	4,458
Long-term debt . . . . .	4,926	- 887	4,039
Deferred income taxes . . . . .	293	$17,427 \times 1.7\%$	296
Other liabilities . . . . .	2,049	$17,427 \times 12.0\%$	2,091
Total liabilities . . . . .	11,004	subtotal	10,884

continued

readily apparent when we recognize that the risk-free rate used to compute WACC is country specific; for example, following is the yield on 10-year government debt for several countries as of October 2013 ([www.bloomberg.com/markets/rates-bonds](http://www.bloomberg.com/markets/rates-bonds)). In comparison to countries such as Japan and Germany, the countries such as Greece and Brazil are riskier because of their debt levels and economic troubles. The higher the country risk, the higher the yield demanded on that country's debt.

Country	Yield to maturity
Japan .....	0.79%
Germany .....	1.66%
United States .....	2.71%
United Kingdom .....	2.40%
Australia .....	3.66%
Brazil .....	4.36%
Greece .....	9.69%

## MODULE-END REVIEW

Following are forecasts of **Procter & Gamble's** sales, net operating profit after tax (NOPAT), and net operating assets (NOA). These are taken from Exhibit 11.10 in Module 11 and we assume a terminal growth rate of 4%.

(In millions)	Reported	Horizon Period				Terminal
	2013	2014	2015	2016	2017	Period
Sales growth .....		1.5%	4.0%	4.0%	4.0%	4.0%
Sales (unrounded) .....	\$84,167	<b>\$85,429.51</b> <small>(\$84,167 × 1.015)</small>	<b>\$88,846.69</b> <small>(\$85,429.51 × 1.04)</small>	<b>\$92,400.55</b> <small>(\$88,846.69 × 1.04)</small>	<b>\$96,096.57</b> <small>(\$92,400.55 × 1.04)</small>	<b>\$99,940.44</b> <small>(\$96,096.57 × 1.04)</small>
Sales (rounded) .....	84,167	<b>\$85,430</b>	<b>\$88,847</b>	<b>\$ 92,401</b>	<b>\$ 96,097</b>	<b>\$ 99,940</b>
NOPAT .....	11,174	<b>\$11,362</b>	<b>\$11,817</b>	<b>\$ 12,289</b>	<b>\$ 12,781</b>	<b>\$ 13,292</b>
NOA .....	94,305	<b>\$95,989</b>	<b>\$99,828</b>	<b>\$103,821</b>	<b>\$107,974</b>	<b>\$112,292</b>

Use the forecasts above to compute P&G's **residual operating income (ROPI)** and an estimate of its stock value using the ROPI model. Make the following assumptions: discount rate (WACC) of 7% (Bloomberg estimate as of August, 2013), shares outstanding of 2,742.3 million, net nonoperating obligations (NNO) of \$25,596 million, and noncontrolling interest (NCI) from the balance sheet of \$645 million.

The solution is on page 12-34.

## APPENDIX 12A: Nike Financial Statements

NIKE, INC. Balance Sheet		
May 31 (In millions)	2013	2012
<b>Assets</b>		
Cash and equivalents .....	\$3,337	\$2,317
Short-term investments .....	2,628	1,440
Accounts receivable, net .....	3,117	3,132
Inventories .....	3,434	3,222
Deferred income taxes .....	308	262
Prepaid expenses and other current assets .....	802	857
Assets of discontinued operations .....	—	615
Total current assets .....	<u>13,626</u>	<u>11,845</u>

continued

- b. A busload of 30 Girl Scouts stops on its way home from the San Bernardino National Forest. The leader offers to bring them in if the scouts can all be served a meal for a total of \$180. The owner refuses, saying he would lose \$0.60 per meal if he accepted this offer. How do you think the owner arrived at the \$0.60 figure? Comment on the owner’s reasoning.
- c. A local businessman on a break overhears the conversation with the leader and offers the owner a one-year contract to feed 300 of the businessman’s employees one meal each day at a special price of \$5.50 per meal. Should the restaurant owner accept this offer? Why or why not?

**E16-21. Special Order: High-Low Cost Estimation (LO1, 2, 3)**

SafeRide, Inc. produces air bag systems that it sells to North American automobile manufacturers. Although the company has a capacity of 300,000 units per year, it is currently producing at an annual rate of 180,000 units. SafeRide, Inc. has received an order from a German manufacturer to purchase 60,000 units at \$9.00 each. Budgeted costs for 180,000 and 240,000 units are as follows:

	180,000 Units	240,000 Units
<b>Manufacturing costs</b>		
Direct materials . . . . .	\$ 450,000	\$ 600,000
Direct labor . . . . .	315,000	420,000
Factory overhead . . . . .	1,215,000	1,260,000
<b>Total . . . . .</b>	<b>1,980,000</b>	<b>2,280,000</b>
<b>Selling and administrative . . . . .</b>	<b>765,000</b>	<b>780,000</b>
<b>Total . . . . .</b>	<b>\$2,745,000</b>	<b>\$3,060,000</b>
<b>Costs per unit</b>		
Manufacturing . . . . .	\$11.00	\$ 9.50
Selling and administrative . . . . .	4.25	3.25
<b>Total . . . . .</b>	<b>\$15.25</b>	<b>\$12.75</b>

Sales to North American manufacturers are priced at \$20 per unit, but the sales manager believes the company should aggressively seek the German business even if it results in a loss of \$3.75 per unit. She believes obtaining this order would open up several new markets for the company’s product. The general manager commented that the company cannot tighten its belt to absorb the \$225,000 loss ( $3.75 \times 60,000$ ) it would incur if the order is accepted.

**Required**

- a. Determine the financial implications of accepting the order.
- b. How would your analysis differ if the company were operating at capacity? Determine the advantage or disadvantage of accepting the order under full-capacity circumstances.

**E16-22. Outsourcing (Make-or-Buy) Decision (LO1, 2, 3)**

Hewlett-Packard (HPQ)  
Sanmina-SCI (SANM)

Assume a division of **Hewlett-Packard** currently makes 10,000 circuit boards per year used in producing diagnostic electronic instruments at a cost of \$34 per board, consisting of variable costs per unit of \$24 and fixed costs per unit of \$10. Further assume **Sanmina-SCI** offers to sell Hewlett-Packard the 10,000 circuit boards for \$34 each. If Hewlett-Packard accepts this offer, the facilities currently used to make the boards could be rented to one of Hewlett-Packard’s suppliers for \$27,000 per year. In addition, \$5 per unit of the fixed overhead applied to the circuit boards would be totally eliminated.

**Required**

Should HP outsource this component from Samina-SCI? Support your answer with relevant cost calculations.

**E16-23. Outsourcing (Make-or-Buy) Decision (LO1, 2, 3)**

Mountain Air Limited manufactures a line of room air purifiers. Management is currently evaluating the possible production of an air purifier for automobiles. Based on an annual volume of 10,000 units, the predicted cost per unit of an auto air purifier follows.

Direct materials . . . . .	\$ 8.00
Direct labor . . . . .	1.50
Factory overhead . . . . .	7.00
<b>Total . . . . .</b>	<b>\$16.50</b>

These cost predictions include \$50,000 in fixed factory overhead averaged over 10,000 units.

The 100 units of beginning inventory for October had an absorption costing value of \$45,000 and a variable costing value of \$38,000. For October, assume that Boxel, Inc. produced 500 units and sold 540 units.

**Required**

Compute Boxel’s October amount of ending inventory under both absorption and variable costing if the FIFO inventory method was used.

**M17-20.<sup>A</sup> Absorption and Variable Costing; Cost of Goods Sold**

Use data from Mini Exercise 5-19.<sup>A</sup>

**Required**

Compute Boxel’s October Cost of Goods Sold using both the variable and absorption costing methods.

## EXERCISES

**E17-21. Analyzing Activity in Inventory Accounts (LO2,4)**

Selected data concerning operations of Cascade Manufacturing Company for the past fiscal year follow:



Raw materials used . . . . .	\$400,000
Total manufacturing costs charged to production during the year (includes raw materials, direct labor, and manufacturing overhead applied at a rate of 60 percent of direct labor costs) . . . . .	731,000
Cost of goods available for sale. . . . .	<b>876,000</b>
Selling and general expenses. . . . .	40,000

	Inventories	
	Beginning	Ending
Raw materials . . . . .	\$70,000	\$ 80,000
Work-in-process . . . . .	85,000	30,000
Finished goods . . . . .	90,000	110,000

**Required**

Determine each of the following:

- a. Cost of raw materials purchased
- b. Direct labor costs charged to production
- c. Cost of goods manufactured
- d. Cost of goods sold

**E17-22. Statement of Cost of Goods Manufactured and Income Statement (LO4)**

Information from the records of the Valley Manufacturing Company for August 2014 follows:

Sales . . . . .	\$210,000
Selling and administrative expenses . . . . .	85,000
Purchases of raw materials . . . . .	30,000
Direct labor . . . . .	20,000
Manufacturing overhead . . . . .	37,000

	Inventories	
	August 1	August 31
Raw materials . . . . .	\$ 8,000	\$ 5,000
Work-in-process . . . . .	14,000	11,000
Finished goods . . . . .	15,000	19,000

**Required**

Prepare a statement of cost of goods manufactured and an income statement for August 2014.

**P17-38. Weighted Average Process Costing (LO5)**



Minot Processing Company manufactures one product on a continuous basis in two departments, Processing and Finishing. All materials are added at the beginning of work on the product in the Processing Department. During November 2014, the following events occurred in the Processing Department:

Units started . . . . .	17,000 units
Units completed and transferred to Finishing Department . . . . .	14,500 units
<b>Costs assigned to processing</b>	
Raw materials (one unit of raw materials for each unit of product started) . . . . .	\$142,900
Manufacturing supplies used . . . . .	18,000
Direct labor costs incurred . . . . .	53,000
Supervisors' salaries . . . . .	12,000
Other production labor costs . . . . .	14,000
Depreciation on equipment . . . . .	6,000
Other production costs . . . . .	18,000

Additional information follows:

- Minot uses weighted average costing and applies manufacturing overhead to Work-in-Process at the rate of 100 percent of direct labor cost.
- Ending inventory in the Processing Department consists of 4,500 units that are one-third converted.
- Beginning inventory contained 2,000 units, one-half converted, with a cost of \$27,300 (\$17,300 for materials and \$10,000 for conversion).

**Required**

- Prepare a cost of production report for the Processing Department for November.
- Prepare an analysis of all changes in Work-in-Process.

**P17-39. Weighted Average Process Costing (LO5)**

JIF  
J.M. Smucker  
Company (SJM)

Assume that JIF, which is part of J.M. Smucker Company, processes its only product, 12-ounce jars of peanut butter, in a single process and uses weighted average process costing to account for inventory costs. All materials are added at the beginning of production. Assume the following inventory, production, and cost data are provided for September 2014:

<b>Production data</b>	
Beginning inventory (25% converted) . . . . .	220,000 units
Units started . . . . .	650,000 units
Ending inventory (50% converted) . . . . .	180,000 units
<b>Manufacturing costs</b>	
Beginning inventory in process:	
Materials cost . . . . .	\$154,000
Conversion cost . . . . .	88,000
Raw materials cost added at beginning of process . . . . .	739,800
Direct labor cost incurred . . . . .	410,000
Manufacturing overhead applied . . . . .	333,600

**Required**

- Prepare a cost of production report for September.
- Prepare a statement of cost of goods manufactured for September.

**P17-40. Weighted Average Process Costing with Error Correction (LO5)**

Horizon Manufacturing Company began operations on December 1. On December 31 a new accounting intern was assigned the task of calculating and costing ending inventories.

The intern estimated that the ending work-in-process inventory was 40 percent complete as to both materials and conversion, resulting in 4,000 equivalent units of materials and conversion. The ending work-in-process was then valued at \$80,000, including \$40,000 for materials and \$40,000 for conversion. A subsequent review of the intern's work revealed that although the materials portion of the ending inventory was correctly estimated to be 40 percent complete, the units in ending inventory, on average, were only 20 percent complete as to conversion.

Number of orders . . . . .	240
Sales revenue . . . . .	\$124,400
Cost of goods sold . . . . .	\$ 68,940
Number of customers . . . . .	30
Units shipped . . . . .	4,700
Pounds shipped . . . . .	70,500

**Required**

Determine the profitability of sales in Massachusetts for March 2014.

**M18-15. Stage 2 ABC for Manufacturing: Reassigning Costs to Cost Objects (LO2)**



National Technology, LTD. has developed the following activity cost information for its manufacturing activities:

Activity	Activity Cost
Machine setup . . . . .	\$65.00 per batch
Movement . . . . .	15.00 per batch move 0.10 per pound
Drilling . . . . .	4.00 per hole
Welding . . . . .	4.00 per inch
Shaping . . . . .	25.00 per hour
Assembly . . . . .	17.00 per hour
Inspection . . . . .	2.00 per unit

Filling an order for a batch of 50 fireplace inserts (each insert weighing 150 pounds) required the following:

- Three batch moves
- Two sets of inspections
- Drilling five holes in each unit
- Completing 80 inches of welds on each unit
- Thirty minutes of shaping for each unit
- One hour of assembly per unit

**Required**

Determine the activity cost of converting the raw materials into 50 fireplace inserts.

**M18-16. Two-Stage ABC for Manufacturing (LO2)**



Detroit Foundry, a large manufacturer of heavy equipment components, has determined the following activity cost pools and cost driver levels for the year:

Activity Cost Pool	Activity Cost	Activity Cost Driver
Machine setup . . . . .	\$660,000	12,000 setup hours
Material handling . . . . .	100,000	2,000 tons of materials
Machine operation . . . . .	450,000	10,000 machine hours

The following data are for the production of single batches of two products, C23 Cams and U2 Shafts during the month of August:

	C23 Cams	U2 Shafts
Units produced . . . . .	500	300
Machine hours . . . . .	4	5
Direct labor hours . . . . .	200	400
Direct labor cost . . . . .	\$5,000	\$10,000
Direct materials cost . . . . .	\$30,000	\$20,000
Tons of materials . . . . .	12.5	8
Setup hours . . . . .	3	7

**Required**

Determine the unit costs of C23 Cams and U2 Shafts using ABC.

Cost pools	
Setup . . . . .	\$ 56,000
Material handling . . . . .	12,800
Machine operation . . . . .	240,000
Packing . . . . .	<u>60,000</u>
Total indirect manufacturing costs . . . . .	<u>\$368,800</u>
Cost drivers	
Setups . . . . .	400
Material moves . . . . .	800
Machine hours . . . . .	16,000
Packing orders . . . . .	1,000

One product made by Merlot, metal casements, used the following activities during the period to produce 500 units:

Setups . . . . .	20
Material moves . . . . .	80
Machine hours . . . . .	1,900
Packing orders . . . . .	150

**Required**

- a. Calculate the cost per unit of activity for each activity cost pool for Merlot Company.
- b. Calculate the manufacturing overhead cost per metal casement manufactured during the period.

**E18-20. Calculating Manufacturing Overhead Rates (LO3)**

Glassman Company, accumulated the following data for 2014:

Milling Department manufacturing overhead . . . . .	\$362,000
Finishing Department manufacturing overhead . . . . .	\$130,000
Machine hours used	
Milling Department . . . . .	10,000 hours
Finishing Department . . . . .	2,000 hours
Labor hours used	
Milling Department . . . . .	1,000 hours
Finishing Department . . . . .	1,000 hours

**Required**

- a. Calculate the plantwide manufacturing overhead rate using machine hours as the allocation base.
- b. Calculate the plantwide manufacturing overhead rate using direct labor hours as the allocation base.
- c. Calculate department overhead rates using machine hours in Milling and direct labor hours in Finishing as the allocation bases.
- d. Calculate department overhead rates using direct labor hours in Milling and machine hours in Finishing as the allocation bases.
- e. Which of these allocation systems seems to be the most appropriate? Explain.

**E18-21. Calculating Activity-Based Costing Overhead Rates (LO2, 3, 4)**

Assume that manufacturing overhead for Glassman Company in the previous exercise consisted of the following activities and costs:

Setup (1,000 setup hours) . . . . .	\$146,000
Production scheduling (400 batches) . . . . .	60,000
Production engineering (60 change orders) . . . . .	90,000
Supervision (2,000 direct labor hours) . . . . .	56,000
Machine maintenance (12,000 machine hours) . . . . .	<u>96,000</u>
Total activity costs . . . . .	<u>\$448,000</u>



**Required**

- a. Evaluate the performance report.
- b. Prepare a more appropriate performance report.

**M22-17. Materials Variances (LO3)**

North Wind manufactures decorative weather vanes that have a standard materials cost of two pounds of raw materials at \$1.50 per pound. During September 5,000 pounds of raw materials costing \$1.75 per pound were used in making 2,400 weather vanes.



**Required**

Determine the materials price and quantity variance.

**M22-18. Materials Variances (LO3)**

Assume that **Pearle Vision** uses standard costs to control the materials in its made-to-order sunglasses. The standards call for 2 ounces of material for each pair of lenses. The standard cost per ounce of material is \$14. During July, the Santa Clara location produced 4,800 pairs of sunglasses and used 9,000 ounces of materials. The cost of the materials during July was \$14.50 per ounce, and there were no beginning or ending inventories.

Pearle Vision

**Required**

- a. Determine the flexible budget materials cost for the completion of the 4,800 pairs of glasses.
- b. Determine the actual materials cost incurred for the completion of the 4,800 pairs of glasses and compute the total materials variance.
- c. How much of the total variance was related to the price paid to purchase the materials?
- d. How much of the difference between the answers to requirements (a) and (b) was related to the quantity of materials used?

**M22-19. Direct Labor Variances (LO3)**

Assume that **Nortel** manufactures specialty electronic circuitry through a unique photoelectronic process. One of the primary products, Model ZX40, has a standard labor time of 0.5 hour and a standard labor rate of \$13.00 per hour. During February, the following activities pertaining to direct labor for ZX40 were recorded:



Nortel (NT)

Direct labor hours used	2,180
Direct labor cost	\$32,000
Units of ZX40 manufactured	4,600

**Required**

- a. Determine the labor rate variance.
- b. Determine the labor efficiency variance.
- c. Determine the total flexible budget labor cost variance.

**M22-20. Significance of Direct Labor Variances (LO3)**

The Morgan Company's April budget called for labor costs of \$125,000. Because the actual labor costs were exactly \$125,000, management concluded there were no labor variances.

**Required**

Comment on management's conclusion.

**M22-21. Variable Overhead Variances (LO3)**

Assume that the best cost driver that **Sony** has for variable factory overhead in the assembly department is machine hours. During April, the company budgeted 480,000 machine hours and \$4,000,000 for its Texas plant's assembly department. The actual variable overhead incurred was \$4,180,000, which was related to 500,000 machine hours.



Sony (SNE)

**Required**

- a. Determine the variable overhead spending variance.
- b. Determine the variable overhead efficiency variance.

**M22-22. Sales Variances (LO4)**

Presented is information pertaining to an item sold by Winding Creek General Store:



**EXHIBIT 24.9 Analysis of Capital Expenditures Including Tax Effects: Straight-Line Depreciation**

	Predicted Cash Inflows (outflows) (A)	Year(s) of Cash Flows (B)	12% Present Value Factor (C)	Present Value of Cash Flows (A) × (C)
<b>Initial investment</b>				
Vehicle and equipment . . . . .	\$(90,554)	0	1.000	\$ (90,554)
Inventory and other working capital . . . . .	(4,000)	0	1.000	(4,000)
<b>Operations</b>				
Annual taxable income without depreciation . . . . .	30,000	1–5	3.605	108,150
Taxes on income (\$30,000 × 0.34) . . . . .	(10,200)	1–5	3.605	(36,771)
Depreciation tax shield* . . . . .	5,614	1–5	3.605	20,238
<b>Disinvestment</b>				
Sale of vehicle and equipment . . . . .	8,000	5	0.567	4,536
Inventory and other working capital . . . . .	4,000	5	0.567	2,268
Net present value of all cash flows . . . . .				<u>\$ 3,867</u>

\*Computation of depreciation tax shield:

Annual straight-line depreciation . . . . .	\$16,511
Tax rate . . . . .	× 0.34
Depreciation tax shield . . . . .	<u>\$ 5,614</u>

**EXHIBIT 24.10 Analysis of Capital Expenditures Including Tax Effects: DDB Depreciation**

	Predicted Cash Inflows (outflows) (A)	Year(s) of Cash Flows (B)	12% Present Value Factor (C)	Present Value of Cash Flows (A) × (C)
<b>Initial investment</b>				
Vehicle and equipment . . . . .	\$(90,554)	0	1.000	\$ (90,554)
Inventory and other working capital . . . . .	4,000	0	1.000	(4,000)
<b>Operations</b>				
Annual taxable income without depreciation . . . . .	30,000	1–5	3.605	108,150
Taxes on income (\$30,000 × 0.34) . . . . .	(10,200)	1–5	3.605	(36,771)
<b>Depreciation tax shield*</b>				
Year 1 . . . . .	12,315	1	0.893	10,997
Year 2 . . . . .	7,389	2	0.797	5,889
Year 3 . . . . .	4,434	3	0.712	3,157
Year 4 . . . . .	2,660	4	0.636	1,692
Year 5 . . . . .	1,270	5	0.567	720
<b>Disinvestment</b>				
Sale of vehicle and equipment . . . . .	8,000	5	0.567	4,536
Inventory and other working capital . . . . .	4,000	5	0.567	2,268
Net present value of all cash flows . . . . .				<u>\$ 6,084</u>

\*Computation of depreciation tax shield:

Year	Depreciation Base† (A)	Annual Rate (B)	Annual Depreciation (C) = (A) × (B)	Tax Rate (D)	Tax Shield (E) = (C) × (D)
1 . . .	\$90,554	2/5	\$36,222	0.34	\$12,315
2 . . .	54,332	2/5	21,733	0.34	7,389
3 . . .	32,599	2/5	13,040	0.34	4,434
4 . . .	19,559	2/5	7,824	0.34	2,660
5 . . .	11,735	balance	3,735	0.34	1,270

†The depreciation base is reduced by the amount of all previous depreciation. The annual rate is twice the straight-line rate. For simplicity, we depreciated the remaining balance in the fifth year and did not switch to straight-line depreciation when the straight-line amount exceeds the double-declining balance amount. This would happen in the fourth year, when  $\$19,559 \div 2 = \$9,780$ . Although the depreciable base excludes the predicted disposal value of \$8,000, under double declining balance depreciation, an asset is only depreciated down to its disposal value. Hence, Year 5 depreciation is computed as the \$11,735 depreciable base minus the \$8,000 disposal value.