Chapter 13

How Do Managers Use Financial and Nonfinancial Performance Measures?

Sandy Masako is the CEO of a fast-food restaurant called Chicken Deluxe. The company operates hundreds of restaurants throughout North America and is choosing between two suppliers of soft drinks: Deep Fizz Company and Extreme Fizz, Inc. Consumer surveys indicate no significant preference between the two. Sandy is meeting with Dave Roberts, the CFO, and Karen Kraft, the purchasing manager, to discuss the company's options.

Sandy (CEO):	*We have a big decision to make. Our soft drink contract is up at the end of this year, and we need to decide on a supplier for next year.*

Karen (Purchasing Manager):	*I've had preliminary discussions with both Deep Fizz and Extreme Fizz, and the costs of their products are about the same.*
Dave (CFO):	*Based on extensive surveys with our customers, they are not particularly concerned about which supplier we choose, as long as it's either Deep Fizz or Extreme Fizz.*
Karen:	*Both companies would like our business. This is a big contract for either of them!*
Sandy:	*OK, so we have two companies offering the same terms, and customers who would be satisfied with either company's products. Are there any other criteria we should consider?*
Dave:	*We must have a supplier that is on solid financial ground. If our supplier were to have financial difficulties that jeopardized product quality or timing of deliveries, we would be in a bind.*
Karen:	*I agree. We need to determine whether these companies are in good financial shape.*
Dave:	*I suggest we have our accounting staff evaluate their financial information by analyzing and comparing certain key financial measures.*
Sandy:	*What do you have in mind?*
Dave:	*My staff can look at financial trends and calculate several different ratios to evaluate the strength of each company's income statement and balance sheet. We can compare these ratios for both companies and also compare them to industry standards. This analysis should give us a better idea about the financial stability of each company.*
Sandy:	*Excellent! We have a few months to make our decision. How much time do you need?*
Dave:	*We can have it ready within a few weeks.*
Sandy:	*Great, let's plan on reviewing your analysis next month.*

Chicken Deluxe is facing a supplier decision common to many companies. Financial stability is an important factor in deciding on a supplier, along with the quality of product and reliability of service. Chicken Deluxe must analyze financial information for Deep Fizz and Extreme Fizz to determine the financial condition of each company.

The analysis of a company's financial information typically follows a three-pronged approach. First, trends within a company's own financial information are analyzed, such as sales and earnings from one year to the next, using two methods—*trend analysis* and *common-size analysis*. Second, financial measures are compared between

competitors. Finally, financial ratios are compared to industry averages. We discuss these three approaches next using **Coca-Cola** as an example. We will revisit the decision facing Chicken Deluxe later in the chapter.

13.1 Trend Analysis of Financial Statements

Question: How is trend analysis used to evaluate the financial health of an organization?

Answer: **Trend analysis**[1] evaluates an organization's financial information over a period of time. Periods may be measured in months, quarters, or years, depending on the circumstances. The goal is to calculate and analyze the amount change and percent change from one period to the next.

For example, in fiscal years 2010 and 2009, **Coca-Cola** had the operating income shown as follows. (Amounts are in millions. To convert to the actual amount, simply multiply the amount given times one million. For example, $8,449 × 1,000,000 = $8,449,000,000. Thus **Coca-Cola** had operating income of $8,449,000,000 in 2010.)

	Amount 2010	Amount 2009	Amount Change	Percent Change
Operating income	$8,449	$8,231	?	?

Although readers of the financial information can see that operating income increased from 2009 to 2010, the exact dollar amount of the change and the percent change is more helpful in evaluating the company's performance. The dollar amount of change is calculated as follows:

> ### Key Equation
>
> Amount of change = Current year amount – Base year amount

1. An analysis that evaluates financial information for an organization over a period of time and is typically presented as a dollar amount change and a percentage change.

$$\text{Amount of change} = \text{Current year amount} - \text{Base year amount}$$
$$\$218 = \$8,449 - \$8,231$$

Question: As you can see, operating income increased by $218,000,000 from 2009 to 2010. Is this a significant increase for **Coca-Cola***?*

Answer: Most of us consider $218,000,000 to be a huge amount, but the only way to gauge the true significance of this amount for **Coca-Cola** is to calculate the percent change from 2009 to 2010. The **percent change**[2] is calculated as the current year amount minus the base year amount, divided by the base year amount.

Key Equation

Percent change = (Current year amount – Base year amount) ÷ Base year amount

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The calculation that follows shows operating income increased 2.6 percent from 2009 to 2010. Although not an extraordinarily significant increase, this does represent positive results for **Coca-Cola**.

$$\text{Percent change} = (\text{Current year amount} - \text{Base year amount}) \div \text{Base ye}$$
$$2.6\% = (\$8,449 - \$8,231) \div \$8,231$$

Trend Analysis for the Income Statement and Balance Sheet

*Question: Trend analysis is often used to evaluate each line item on the income statement and balance sheet. How is this analysis prepared?*

2. Calculated as the current year amount minus the base amount; this is then divided by the base year amount.

Answer: <u>Figure 13.1 "Income Statement Trend Analysis for "</u> shows **Coca-Cola's** income statement trend analysis, and <u>Figure 13.2 "Balance Sheet Trend Analysis for</u>

" shows **Coca-Cola's** balance sheet trend analysis. Carefully examine each of these figures, including the comments.

Figure 13.1   *Income Statement Trend Analysis for **Coca-Cola***
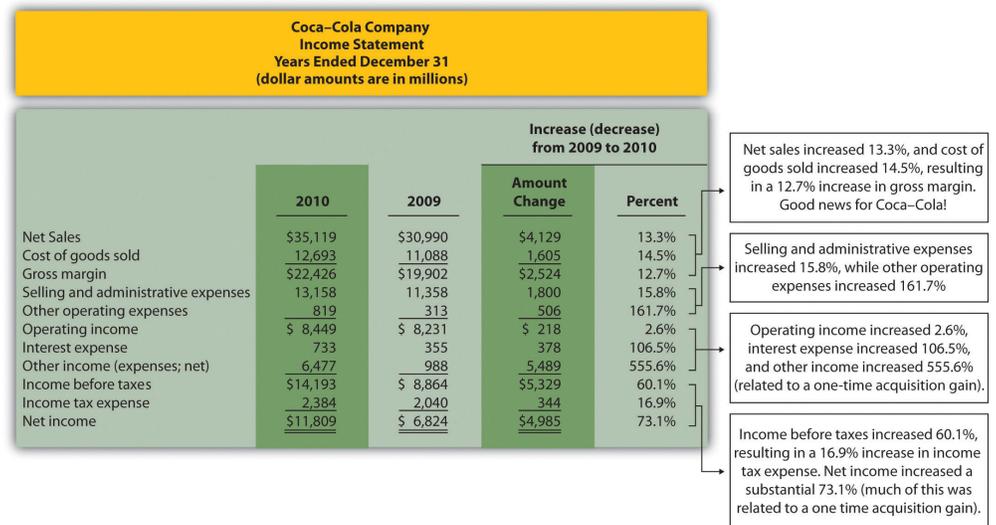
Note: Percent change for each line item is found by dividing the increase (decrease) amount by the 2009 amount. For example, net sales 13.3 percent increase equals $4,129 ÷ $30,990.

Figure 13.1 "Income Statement Trend Analysis for " shows that net sales increased by $4,129,000,000, or 13.3 percent. Cost of goods sold had a corresponding increase of $1,605,000,000, or 14.5 percent. The increase in net sales and related increase in cost of goods sold resulted in an increase in gross margin of $2,524,000,000, or 12.7 percent. The increase in selling and administrative expenses of $1,800,000,000, or 15.8 percent, outpaced the increase in net sales, resulting in a relatively small increase in operating income of $218,000,000, or 2.6 percent. The significant increase in other income (expenses), net of 555.6 percent relates to a one-time gain of $4,978,000,000 resulting from **Coca-Cola's** acquisition of **Coca-Cola Enterprises, Inc.,** in 2010 (this information comes from the notes to the financial statements). This one-time gain caused an unusually large increase in net income for 2010. This is important as we continue our analysis of **Coca-Cola Company** throughout the chapter. Net income will appear to have an unusually large increase as we cover various measures of performance, but keep in mind that the one-time gain in 2010 of $4,978,000,000 caused most of the increase from 2009 to 2010.

Figure 13.2   *Balance Sheet Trend Analysis for* **Coca-Cola**

Note: *Percent change for each line item is found by dividing the increase (decrease) amount by the 2009 amount. For example, cash and cash equivalents 22.4 percent increase equals $2,048 ÷ $9,151.*

Current Assets and Current Liabilities

Question: What does the balance sheet trend analysis in Figure 13.2 "Balance Sheet Trend Analysis for " *tell us about current assets and current liabilities for* **Coca-Cola***?*

Answer: Figure 13.2 "Balance Sheet Trend Analysis for " shows that cash and cash equivalents increased by $2,048,000,000, or 22.4 percent. **Coca-Cola's** statement of cash flows would provide detailed information regarding this increase. (Chapter 12 "How Is the Statement of Cash Flows Prepared and Used?" covers the statement of cash flows.) Marketable securities increased 122.6 percent, accounts receivable increased 17.9 percent, and merchandise inventory increased 12.6 percent. Other current assets increased 42.0 percent.

Moving to current liabilities, accounts payable and accrued liabilities increased by 33.1 percent, loans and notes payable increased 20.0 percent, and other current

liabilities decreased 391.7 percent (mostly attributable to a significant increase in the current portion of long-term debt).

Noncurrent Assets and Noncurrent Liabilities

Question: What does the balance sheet trend analysis in <u>*Figure 13.2 "Balance Sheet Trend Analysis for "*</u> *tell us about noncurrent assets and noncurrent liabilities for* **Coca-Cola**?

Answer: <u>Figure 13.2 "Balance Sheet Trend Analysis for "</u> shows that long-term investments increased 11.2 percent. Property, plant, and equipment increased 54.0 percent, and intangible assets increased by a significant 109.8 percent. Both items appearing under noncurrent liabilities increased, with a 177.5 percent increase in long-term debt and a 99.2 percent increase in other liabilities and deferred taxes.

Shareholders' Equity

Question: What does the balance sheet trend analysis in <u>*Figure 13.2 "Balance Sheet Trend Analysis for "*</u> *tell us about shareholders' equity for* **Coca-Cola**?

Answer: Common stock increased 16.1 percent, and retained earnings increased 17.8 percent. Accumulated other income (loss) went further into negative territory by 91.5 percent, and treasury stock increased 9.3 percent.

Big Picture Balance Sheet Trend Analysis

Question: What are some of the key big picture items identified in the balance sheet trend analysis shown in <u>*Figure 13.2 "Balance Sheet Trend Analysis for "*</u>?

Answer: Overall, total assets increased by $24,250,000,000, or 49.8 percent. Of course, total liabilities and shareholders' equity also increased by the same amount. The increases identified in almost every asset, liability, and shareholders' equity line item are significant. From reading the notes to the financial statements, the authors were able to identify the main source of these increases. In 2010, **Coca-Cola** acquired the remaining 67 percent of **Coca-Cola Enterprises, Inc.'s (CCE)** North

America business that **Coca-Cola** did not already own. This resulted in significant increases in noncurrent assets and noncurrent liabilities, which were acquired as part of this transaction. It also resulted in the reporting of a one-time gain on the income statement of $4,978,000,000, which came from **Coca-Cola** remeasuring its equity interest in **CCE** to fair value upon close of the transaction in 2010.

This analysis points to the reason we perform trend analysis—to identify the increases and decreases in dollar amounts from one year to the next and to take a close look at unusual trends.

Trend Analysis over Several Years

Question: The trend analysis just described works well when comparing financial data for two years. However, many prefer to review trends over more than two years. How might a trend analysis for several years be prepared?

Answer: A common approach is to establish the oldest year as the base year and compute future years as a percentage of the base year. For example, **Coca-Cola** had the following net sales and operating income for each of the past five years (in millions):

	2010	2009	2008	2007	2006
Net sales	$35,119	$30,990	$31,944	$28,857	$24,088
Operating income	$ 8,449	$ 8,231	$ 8,446	$ 7,252	$ 6,308

Assuming 2006 is the base year, the **trend percentage**[3] is calculated for each year using the following formula:

> ### Key Equation
>
> Trend percentage = Current year ÷ Base year

[3]. Calculated as the current year amount divided by the base year amount.

Figure 13.3 "Percentage Trend Analysis for " shows **Coca-Cola's** trend percentages for net sales and operating income. Most analysts would expand this analysis to include most, if not all, of the income statement line items.

Figure 13.3 *Percentage Trend Analysis for Coca-Cola*

Coca-Cola Company
Percentage Trend Analysis
(dollar amounts are in millions)

	2010	2009	2008	2007	2006
Net sales	$35,119	$30,990	$31,944	$28,857	$24,088
Trend percentage	146%	129%	133%	120%	100%
Operating income	$ 8,449	$ 8,231	$ 8,446	$ 7,252	$ 6,308
Trend percentage	134%	130%	134%	115%	100%

Note: Trend percentages are calculated as the current year divided by the base year (2006). For example, the net sales 2010 trend percentage of 146 percent equals $35,119 (net sales for 2010) divided by $24,088 (net sales for the base year 2006).

All percentages shown in <u>Figure 13.3 "Percentage Trend Analysis for "</u> are relative to the base year, which is fiscal year 2006. Notice that the increase in operating income of 34 percent (= 134 percent – 100 percent) from 2006 to 2010 was less than the increase in net sales of 46 percent for the same period. This signals that the increase in **Coca-Cola's** operating expenses outpaced the increase in net sales during this period. <u>Figure 13.4 "Five-Year Percentage Trend in Operating Income for "</u> shows the trend percentages in **Coca-Cola's** operating income from 2006 to 2010.

Figure 13.4 *Five-Year Percentage Trend in Operating Income for Coca-Cola*

Operating Income Trend at Coca-Cola
(2006 is the base year)
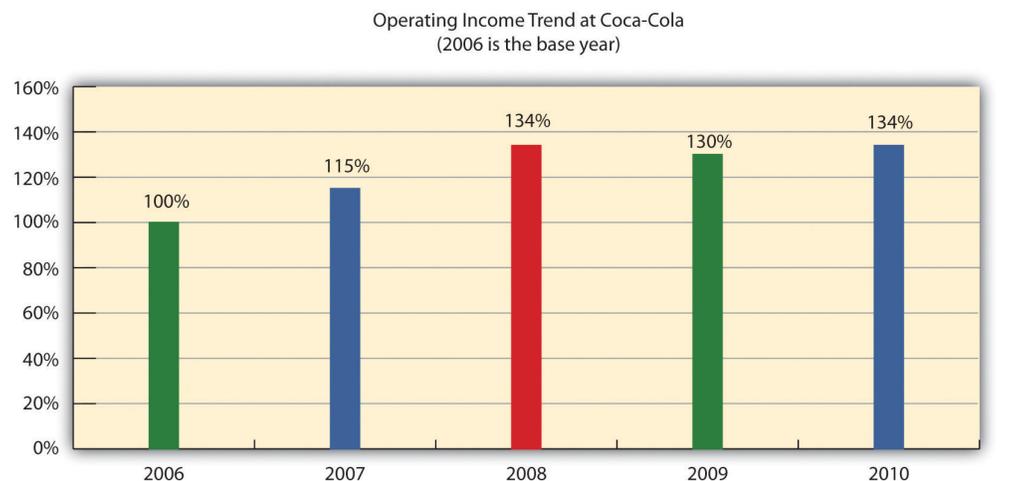
KEY TAKEAWAY

- Trend analysis provides a means to analyze company data over a period of time by focusing on the change in specific line items within the income statement and balance sheet. Changes are typically measured in dollars and percentages. Trends over several years can be evaluated by calculating the trend percentage as the current year divided by the base year.

Business in Action 13.1

Trends Presented in Annual Reports

Most public companies present trend information in their annual reports. For example, **Intel** shows net revenues, gross margin, research and development costs, operating income, and net income for the past five years. **Nike** and **PepsiCo** both show the percent change in selected income statement line items for the past two years. **Costco Wholesale Corporation** presents selected income statement information for the past five years. The fact that these financial data are provided in the annual report confirms the importance of presenting trend information to shareholders.

Sources: **Intel**, "Annual Report, 2010," http://www.intel.com; **Nike**, "Annual Report, 2010," http://www.nike.com; **PepsiCo**, "Annual Report, 2010," http://www.pepsico.com; **Costco Wholesale Corporation**, "Annual Report, 2010," http://www.costco.com.

REVIEW PROBLEM 13.1

The following income statements and balance sheets are for **PepsiCo, Inc.** We use this information in review problems throughout the chapter.

PepsiCo, Inc.
Income Statement
Years Ended December 25, 2010 and December 26, 2009
(in millions)

	2010	2009
Net sales	$57,838	$43,232
Cost of goods sold	26,575	20,099
Gross margin	$31,263	$23,133
Selling and administrative expenses	22,814	15,026
Other operating expenses	117	63
Operating income	$ 8,332	$ 8,044
Interest expense	903	397
Other income (expense; net)	785	399
Income before taxes	$ 8,214	$ 8,046
Income tax expense	1,894	2,100
Net income	$ 6,320	$ 5,946

PepsiCo, Inc.
Balance Sheet
December 25, 2010 and December 26, 2009

	2010	2009
Assets		
Currents assets		
Cash and cash equivalents	$ 5,943	$ 3,943
Marketable securities	426	192
Accounts receivable (net)	6,323	4,624
Merchandise inventory	3,372	2,618
Other current assets	1,505	1,194
Noncurrent assets		
Property, plant and equipment (net)	19,058	12,671
Intangible assets	28,469	9,157
Other assets	3,057	5,449
Total assets	$68,153	$39,848
Liabilities and shareholders' equity		
Current liabilities		
Short-term obligations	$ 4,898	$ 464
Accounts payable and other liabilities	10,923	8,127
Income taxes payable	71	165
Noncurrent liabilities		
Long-term debt	19,999	7,400
Other liabilities and deferred taxes	10,786	6,250
Shareholders' equity		
Preferred stock (net of repurchased stock)	(109)	(104)
Common stock	4,558	280
Retained earnings	37,402	34,443
Accumulated income (loss)	(3,630)	(3,794)
Treasury stock	(16,745)	(13,383)
Total liabilities and shareholder's equity	$68,153	$39,848

1. Prepare a trend analysis for **PepsiCo's** income statement using the format shown in <u>Figure 13.1 "Income Statement Trend Analysis for "</u>.
2. Prepare a trend analysis for **PepsiCo's** balance sheet using the format shown in <u>Figure 13.2 "Balance Sheet Trend Analysis for "</u>.

3. Compare **PepsiCo's** increase in net income from 2009 to 2010 to **Coca-Cola's** increase shown in <u>Figure 13.1 "Income Statement Trend Analysis for "</u>. Which company has the highest percentage growth in net income?
4. Compare **PepsiCo's** increase in total assets from 2009 to 2010 to **Coca-Cola's** increase shown in <u>Figure 13.2 "Balance Sheet Trend Analysis for "</u>. Which company has the highest percentage growth in total assets?

Solution to Review Problem 13.1

1.

PepsiCo, Inc. Income Statement Years Ended December 25, 2010 and December 26, 2009 (dollar amounts are in millions)				
			Increase (decrease) from 2009 to 2010	
	2010	**2009**	**Amount**	**Percent**
Net Sales	$57,838	$43,232	$14,606	33.8%
Cost of goods sold	26,575	20,099	6,476	32.2%
Gross margin	$31,263	$23,133	$ 8,130	35.1%
Selling and administrative expenses	22,814	15,026	7,788	51.8%
Other operating expenses	117	63	54	85.7%
Operating income	$ 8,332	$ 8,044	$ 288	3.6%
Interest expense	903	397	506	127.5%
Other income (expenses; net)	785	399	386	96.7%
Income before taxes	$ 8,214	$ 8,046	$ 168	2.1%
Income tax expense	1,894	2,100	(206)	(9.8%)
Net income	$ 6,320	$ 5,946	$ 374	6.3%

Note: Percent change for each line item is found by dividing the increase (decrease) amount by the 2009 amount. For example, net sales 33.8 percent increase equals $14,606 ÷ $43,232.

2.

			Increase (decrease) from 2009 to 2010	

PepsiCo, Inc.
Balance Sheet
Years Ended December 25, 2010 and December 26, 2009
(dollar amounts are in millions)

Assets	2010	2009	Amount	Percent
Current assets				
Cash and cash equivalents	$ 5,943	$ 3,943	$ 2,000	50.7%
Marketable securities	426	192	234	121.9%
Accounts receivable (net)	6,323	4,624	1,699	36.7%
Merchandise inventory	3,372	2,618	754	28.8%
Other current assets	1,505	1,194	311	26.0%
Noncurrent assets				
Property, plant and equipment (net)	19,058	12,671	6,387	50.4%
Intangible assets	28,469	9,157	19,312	210.9%
Other assets	3,057	5,449	(2,392)	(43.9%)
Total assets	$68,153	$39,848	$28,305	71.0%
Liabilities and shareholder's equity				
Current liabilities				
Short-term obligations	$ 4,898	$ 464	$ 4,434	955.6%
Accounts payable and accrued liabilities	10,923	8,127	2,796	34.4%
Income taxes payable	71	165	(94)	(57.0%)
Noncurrent liabilities				
Long-term debt	19,999	7,400	12,599	170.3%
Other liabilities and deferred taxes	10,786	6,250	4,536	72.6%
Shareholder's equity				
Preferred stock (net of repurchased stock)	(109)	(104)	(5)	4.8%
Common stock	4,558	280	4,278	1,527.9%
Retained earnings	37,402	34,443	2,959	8.6%
Accumulated other income (loss)	(3,630)	(3,794)	164	(4.3%)
Treasury stock	(16,745)	(13,383)	(3,362)	25.1%
Total liabilities and shareholders' equity	$68,153	$39,848	$28,305	71.0%

Note: Percent change for each line item is found by dividing the increase (decrease) amount by the 2009 amount. For example, cash and cash equivalents 50.7 percent increase equals $2,000 ÷ $3,943.

3. Net income at **PepsiCo** increased $374,000,000, or 6.3 percent, while net income at **Coca-Cola** increased $4,985,000,000, or 73.1 percent (as shown in Figure 13.1 "Income Statement Trend Analysis for "). Thus **Coca-Cola's** growth in net income far exceeded that of **PepsiCo.** As mentioned earlier, this huge increase in **Coca-Cola's** net income is largely attributable to a one-time gain in 2010 of $4,978,000,000.

4. Total assets at **PepsiCo** increased $28,305,000,000, or 71.0 percent, while total assets at **Coca-Cola** increased $24,250,000,000, or 49.8 percent (as shown in Figure 13.2 "Balance Sheet Trend Analysis for "). Thus **PepsiCo's** growth in total assets far exceeded that of **Coca-Cola.**

13.2 Common-Size Analysis of Financial Statements

> **LEARNING OBJECTIVE**
>
> 1. Perform common-size analysis to evaluate financial statement information.

Question: How is common-size analysis used to evaluate the financial health of an organization?

Answer: **Common-size analysis**[4] (also called *vertical analysis*) converts each line of financial statement data to an easily comparable, or common-size, amount measured as a percent. This is done by stating income statement items as a percent of net sales and balance sheet items as a percent of total assets (or total liabilities and shareholders' equity). For example, **Coca-Cola** had net income of $11,809,000,000 and net sales of $35,119,000,000 for 2010. The common-size percent is simply net income divided by net sales, or 33.6 percent (= $11,809 ÷ $35,119).

There are two reasons to use common-size analysis: (1) to evaluate information from one period to the next within a company and (2) to evaluate a company relative to its competitors. Common-size analysis answers such questions as "how do our current assets as a percent of total assets compare with last year?" and "how does our net income as a percent of net sales compare with that of our competitors?"

Using Common-Size Analysis to Evaluate Trends within a Company

Question: How is a formal common-size analysis prepared, and what does it tell us for **Coca-Cola***?*

4. An analysis that converts each line of financial statement data to an easily comparable amount measured in percent form. Income statement items are stated as a percent of net sales, and balance sheet items are stated as a percent of total assets (or total liabilities and shareholders' equity); also called vertical analysis.

Answer: <u>Figure 13.5 "Common-Size Income Statement Analysis for "</u> presents the common-size analysis for **Coca-Cola's** income statement, and <u>Figure 13.6</u>

"Common-Size Balance Sheet Analysis for " shows the common-size analysis for **Coca-Cola's** balance sheet. As you look at these figures, notice that net sales are used as the base for the income statement, and total assets (or total liabilities and shareholders' equity) are used as the base for the balance sheet. That is, for the income statement, each item is measured as a percent of net sales, and for the balance sheet, each item is measured as a percent of total assets (or total liabilities and shareholders' equity).

*Figure 13.5   Common-Size Income Statement Analysis for **Coca-Cola***
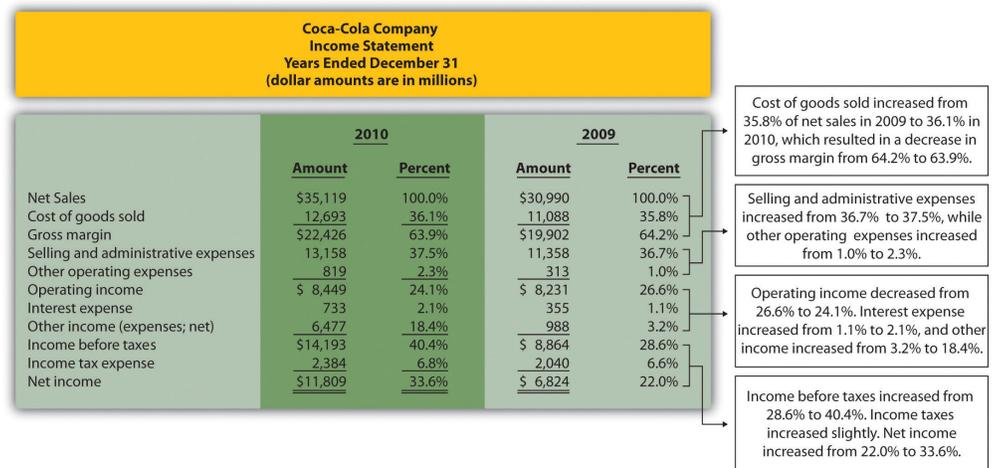
Note: All percentages use net sales as the base. For example, 2010 cost of goods sold percent of 36.1 percent equals $12,693 cost of goods sold ÷ $35,119 net sales. Note that rounding issues sometimes cause subtotals in the percent column to be off by a small amount.

In general, managers prefer expenses as a percent of net sales to *decrease* over time, and profit figures as a percent of net sales to *increase* over time. As you can see in Figure 13.5 "Common-Size Income Statement Analysis for ", **Coca-Cola's** gross margin as a percent of net sales decreased from 2009 to 2010 (64.2 percent versus 63.9 percent). Operating income declined as well (26.6 percent versus 24.1 percent). Income before taxes increased significantly from 28.6 percent in 2009 to 40.4 percent in 2010, again mainly due to a one-time gain of $4,978,000,000 in 2010. This caused net income to increase as well, from 22.0 percent in 2009 to 33.6 percent in 2010. In the expense category, cost of goods sold as a percent of net sales increased, as did other operating expenses, interest expense, and income tax expense. Selling and administrative expenses increased from 36.7 percent in 2009 to 37.5 percent in 2010.

Figure 13.6 *Common-Size Balance Sheet Analysis for **Coca-Cola***

Coca-Cola Company Balance Sheet December 31 (dollar amounts are in millions)				
	2010		**2009**	
	Amount	**Percent**	**Amount**	**Percent**
Assets				
Current assets				
Cash and cash equivalents	$11,199	15.4%	$ 9,151	18.8%
Marketable securities	138	0.2%	62	0.1%
Accounts receivable (net)	4,430	6.1%	3,758	7.7%
Merchandise inventory	2,650	3.6%	2,354	4.8%
Other current assets	3,162	4.3%	2,226	4.6%
Noncurrent assets				
Long-term investments	9,706	13.3%	8,731	17.9%
Property, plant and equipment (net)	14,727	20.2%	9,561	19.6%
Intangible assets	26,909	36.9%	12,828	26.4%
Total assets	$72,921	100.0%	$48,671	100.0%
Liabilities and shareholder's equity				
Current liabilities				
Accounts payable and accrued liabilities	$ 8,859	12.1%	$ 6,657	13.7%
Loans and notes payable	8,100	11.1%	6,749	13.9%
Other liabilities	1,549	2.1%	315	0.6%
Noncurrent liabilities				
Long-term debt	14,041	19.3%	5,059	10.4%
Other liabilities and deferred taxes	9,055	12.4%	4,545	9.3%
Shareholder's equity				
Common stock	10,937	15.0%	9,417	19.3%
Retained earnings	49,592	68.0%	42,084	86.5%
Accumulated other income (loss)	(1,450)	(2.0%)	(757)	(1.6%)
Treasury stock	(27,762)	(38.1%)	(25,398)	(52.2%)
Total liabilities and shareholders' equity	$72,921	100.0%	$48,671	100.0%

Callout boxes:

Cash and cash equivalents decreased from 18.8% of total assets to 15.4%. Marketable securities increased, and the remaining current assets decreased as a percent of total assets.

Long-term investments decreased as a percent of total assets. Property, plant and equipment increased slightly, and intangible assets had a notable increase.

Accounts payable and accrued liabilities decreased along with loans and notes payable. Other liabilities increased.

Long-term debt increased significantly from 10.4% to 19.3%. Other liabilities and deferred taxes increased from 9.3% to 12.4%.

Common stock and retained earnings decreased. Accumulated loss increased, and treasury stock decreased as a percent of total liabilities and shareholders' equity.

As you can see from Figure 13.6 "Common-Size Balance Sheet Analysis for ", the composition of assets, liabilities, and shareholders' equity accounts changed from 2009 to 2010. Notable changes occurred for intangible assets (26.4 percent in 2009 versus 36.9 percent in 2010), long-term debt (10.4 percent in 2009 versus 19.3 percent in 2010), retained earnings (86.5 percent in 2009 versus 68.0 percent in 2010), and treasury stock (52.2 percent in 2009 versus 38.1 percent in 2010).

Using Common-Size Analysis to Evaluate Competitors

Question: To this point, we have used common-size analysis to evaluate just one company, **Coca-Cola***. Common-size analysis is, however, also an effective way of comparing two companies with different levels of revenues and assets. For example, suppose one company has operating income of $100,000, and a competing company has operating income of $2,000,000. If both companies have similar levels of net sales and total assets, it is reasonable to assume that the more profitable company is the better performer. However, most companies are not the same size. How do we compare companies of different sizes?*

Answer: This is where common-size analysis can help. Figure 13.7 "Common-Size Income Statement Analysis for " shows an income statement comparison for **Coca-Cola** and **PepsiCo** using common-size analysis. (The information for **Coca-Cola** comes from Figure 13.5 "Common-Size Income Statement Analysis for ", and the information for **PepsiCo** comes from the solution to part **1** of Note 13.15 "Review Problem 13.2" at the end of this segment.)

Figure 13.7 *Common-Size Income Statement Analysis for* ***Coca-Cola*** *and* ***PepsiCo***

Coca-Cola Company and PepsiCo Inc.
Comparative Income Statements
Fiscal Year 2010
(dollar amounts are in millions)

	Amount		Percent	
	Coca-Cola	PepsiCo	Coca-Cola	PepsiCo
Net sales	$35,119	$57,838	100.0%	100.0%
Cost of good sold	12,693	26,575	36.1%	45.9%
Gross margin	$22,426	$31,263	63.9%	54.1%
Selling and administrative expenses	13,158	22,814	37.5%	39.4%
Other operating expenses	819	117	2.3%	0.2%
Operating income	$ 8,449	$ 8,332	24.1%	14.4%
Interest expense	733	903	2.1%	1.6%
Other income (expenses; net)	6,477	785	18.4%	1.4%
Income before taxes	$14,193	$ 8,214	40.4%	14.2%
Income tax expense	2,384	1,894	6.8%	3.3%
Net income	$11,809	$ 6,320	33.6%	10.9%

Coca–Cola's cost of goods sold as a percent of net sales is substantially less than PepsiCo, resulting in a much higher gross margin percentage.

Selling and administrative expenses percentage for Coca-Cola is less than for PepsiCo.

Operating income percentage is significantly higher for Coca–Cola.

Income before taxes and net income percentages are significantly higher for Coca–Cola.

Note that rounding issues sometimes cause subtotals in the percent column to be off by a small amount.

Notice that **PepsiCo** has the highest net sales at $57,838,000,000 versus **Coca-Cola** at $35,119,000,000. Once converted to common-size percentages, however, we see that **Coca-Cola** outperforms **PepsiCo** in virtually every income statement category. **Coca-Cola's** cost of goods sold is 36.1 percent of net sales compared to 45.9 percent at **PepsiCo**. **Coca-Cola's** gross margin is 63.9 percent of net sales compared to 54.1 percent at **PepsiCo**. **Coca-Cola's** operating income is 24.1 percent of sales compared to 14.4 percent at **PepsiCo**. Figure 13.8 "Comparison of Common-Size Gross Margin and Operating Income for " compares common-size gross margin and operating income for **Coca-Cola** and **PepsiCo**.

Figure 13.8 *Comparison of Common-Size Gross Margin and Operating Income for **Coca-Cola** and **PepsiCo***
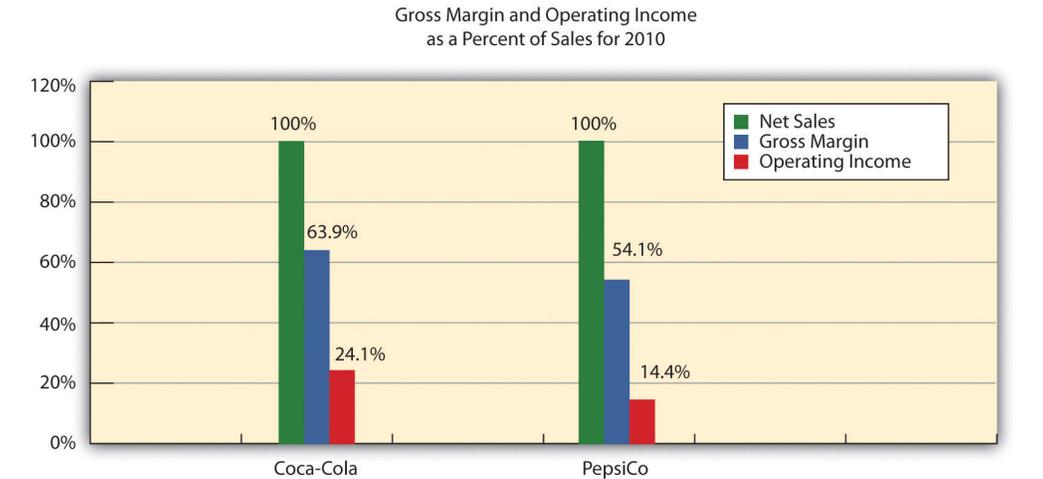
Common-size analysis enables us to compare companies on equal ground, and as this analysis shows, **Coca-Cola** is outperforming **PepsiCo** in terms of income statement information. However, as you will learn in this chapter, there are many other measures to consider before concluding that **Coca-Cola** is winning the financial performance battle.

Common-size analysis is obviously crucial to comparative analysis. In fact, some sources of industry data present the information exclusively in a common-size format, and most of the accounting software available today has been engineered to facilitate this type of analysis.

Business in Action 13.2

Common-Size Analysis Using Accounting Software

Most accounting computer programs, including QuickBooks, Peachtree, and MAS 90, provide common-size analysis reports. You simply select the appropriate report format and financial statement date, and the system prints the report. Thus accountants using this type of software can focus more on analyzing common-size information than on preparing it.

KEY TAKEAWAY

- Common-size analysis converts each line of financial statement data to an easily comparable amount measured as a percent. Income statement items are stated as a percent of net sales and balance sheet items are stated as a percent of total assets (or total liabilities and shareholders' equity). Common-size analysis allows for the evaluation of information from one period to the next within a company and between competing companies.

REVIEW PROBLEM 13.2

Refer to the information presented in Note 13.10 "Review Problem 13.1" for **PepsiCo**, and perform the following:

1. Prepare a common-size analysis for **PepsiCo's** income statement using the format shown in Figure 13.5 "Common-Size Income Statement Analysis for ".
2. Prepare a common-size analysis for **PepsiCo's** balance sheet using the format shown in Figure 13.6 "Common-Size Balance Sheet Analysis for ".
3. Briefly describe any significant changes from 2009 to 2010 identified in parts **1** and **2**.

Solution to Review Problem 13.2

1.

PepsiCo, Inc. Income Statement Years Ended December 25, 2010 and December 26, 2009 (dollar amounts are in millions)				
	2010		**2009**	
	Amount	**Percent**	**Amount**	**Percent**
Net sales	$57,838	100.0%	$43,232	100.0%
Cost of goods sold	26,575	45.9%	20,099	46.5%
Gross margin	$31,263	54.1%	$23,133	53.5%
Selling and administrative expenses	22,814	39.4%	15,026	34.8%
Other operating expenses	117	0.2%	63	0.1%
Operating income	$ 8,332	14.4%	$ 8,044	18.6%
Interest expense	903	1.6%	397	0.9%
Other income (expenses; net)	785	1.4%	399	0.9%
Income before taxes	$ 8,214	14.2%	$ 8,046	18.6%
Income tax expense	1,894	3.3%	2,100	4.9%
Net income	$ 6,320	10.9%	$ 5,946	13.8%

Note: All percentages use net sales as the base. For example, 2010 cost of goods sold percent of 45.9 percent equals $26,575 cost of goods sold ÷ $57,838 net sales. Note that rounding issues sometimes cause subtotals in the percent column to be off by a small amount.

2.

PepsiCo, Inc. Balance Sheet December 25, 2010 and December 26, 2009 (dollar amounts are in millions)				
	2010		**2009**	
	Amount	**Percent**	**Amount**	**Percent**
Assets				
Current assets				
Cash and cash equivalents	$ 5,943	8.7%	$ 3,943	9.9%
Marketable securities	426	0.6%	192	0.5%
Accounts receivable (net)	6,323	9.3%	4,624	11.6%
Merchandise inventory	3,372	4.9%	2,618	6.6%
Other current assets	1,505	2.2%	1,194	3.0%
Noncurrent assets				
Property, plant and equipment (net)	19,058	28.0%	12,671	31.8%
Intangible assets	28,469	41.8%	9,157	23.0%
Other assets	3,057	4.5%	5,449	13.7%
Total assets	$68,153	100.0%	$39,848	100.0%
Liabilities and shareholders' equity				
Current liabilities				
Short-term obligations	4,898	7.2%	464	1.2%
Accounts payable and other liabilities	10,923	16.0%	8,127	20.4%
Income taxes payable	71	0.1%	165	0.4%
Noncurrent liabilities				
Long-term debt	19,999	29.3%	7,400	18.6%
Other liabilities and deferred taxes	10,786	15.8%	6,250	15.7%
Shareholders' equity				
Preferred stock (net of repurchased stock)	(109)	(0.2%)	(104)	(0.3%)
Common stock	4,558	6.7%	280	0.7%
Retained earnings	37,402	54.9%	34,443	86.4%
Accumulated income (loss)	(3,630)	(5.3%)	(3,794)	(9.5%)
treasury stock	(16,745)	(24.6%)	(13,383)	(33.6%)
Total liabilities and shareholders' equity	$68,153	100.0%	$39,848	100.0%

Note: All percentages use total assets or total liabilities and shareholders' equity as the base. For example, 2010 cash and cash equivalents percent of 8.7 percent equals $5,943 ÷ $68,153. Note that rounding issues sometimes cause subtotals in the percent column to be off by a small amount.

3. The composition of **PepsiCo's** income statement remained relatively consistent from 2009 to 2010. The most notable change occurred with selling and administrative expenses, which increased from 34.8 percent of sales in 2009 to 39.4 percent of sales in 2010. This in turn drove down operating income from 18.6 percent in 2009 to 14.4 percent in 2010. This also likely caused the decrease in income before taxes, income tax expense, and net income.

    The composition of **PepsiCo's** balance sheet had some significant changes from 2009 to 2010. The most notable changes occurred with intangible assets (23.0 percent in 2009 versus 41.8 percent in 2010), other assets (13.7 percent in 2009 versus 4.5 percent in 2010), short-term obligations (1.2 percent in 2009 versus 7.2 percent in 2010), long-term debt (18.6 percent in 2009 versus 29.3

percent in 2010), common stock (0.7 percent in 2009 versus 6.7 percent in 2010), and retained earnings (86.4 percent in 2009 versus 54.9 percent in 2010).

13.3 Ratio Analysis of Financial Information

<div>

LEARNING OBJECTIVE

1. Use ratio analysis to measure profitability, short-term liquidity, long-term solvency, and market valuation.

</div>

Question: Although reviewing trends and using common-size analysis provides an excellent starting point for analyzing financial information, managers, investors, and other stakeholders also use various ratios to assess the financial performance and financial condition of organizations. What are the four categories of ratios used to evaluate the financial health of an organization?

Answer: The four categories of ratios presented in this chapter are as follows (in order of presentation):

1. Ratios used to measure *profitability* (focus is on the income statement)
2. Ratios used to measure *short-term liquidity* (focus is on short-term liabilities)
3. Ratios used to measure *long-term solvency* (focus is on long-term liabilities)
4. Ratios used to measure *market valuation* (focus is on market value of the company)

For each ratio, we (1) explain the meaning, (2) provide the formula, (3) calculate the ratio for **Coca-Cola** for two years, and (4) compare the ratio for **Coca-Cola** to **PepsiCo's** ratio and industry averages. (Note: All industry averages throughout this chapter were obtained from http://moneycentral.msn.com. Some averages are not available or not applicable and will be noted as such.)

Table 13.1 "Financial Ratio Formulas" summarizes the formulas for all the ratios presented in this section, and Table 13.2 "Summary of Financial Ratios for " shows the ratio results for **Coca-Cola**, **PepsiCo**, and the industry averages that will be covered throughout this section.

Table 13.1 Financial Ratio Formulas

Profitability Measures

1.

$$\text{Gross margin ratio} = \frac{\text{Gross margin}}{\text{Net sales}}$$

Indicates the gross margin generated for each dollar in net sales.

2.

$$\text{Profit margin ratio} = \frac{\text{Net income}}{\text{Net sales}}$$

Indicates the profit generated for each dollar in net sales.

3.

$$\text{Return on assets} = \frac{\text{Net income}}{\text{Average total assets}}$$

Indicates how much net income was generated from each dollar in average ass

4.

$$\text{Return on common shareholders' equity} = \frac{\text{Net income} - \text{Pref}}{\text{Average common sha}}$$

Indicates how much net income was generated from each dollar of common sh
equity.

5.

$$\text{Earnings per share} = \frac{\text{Net income} - \text{Preferred divid}}{\text{Weighted average common shares ou}}$$

Indicates how much net income was earned for each share of common stock ou

Short-Term Liquidity Measures

6.

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

Indicates whether a company has sufficient current assets to cover current liab

7.

$$\text{Quick ratio} = \frac{\text{Cash} \; + \; \text{Marketable securities} \; + \; \text{Short-term}}{\text{Current liabilities}}$$

Indicates whether a company has sufficient quick assets to cover current liabil

8.

$$\text{Receivables turnover ratio} = \frac{\text{Credit sales}}{\text{Average accounts receiv}}$$

Indicates how many times receivables are collected in a given period.

9.

$$\text{Average collection period} = \frac{\text{365 days}}{\text{Receivables turnover r}}$$

Indicates how many days it takes on average to collect on credit sales.

10.

$$\text{Inventory turnover ratio} = \frac{\text{Cost of goods sold}}{\text{Average inventory}}$$

Indicates how many times inventory is sold and restocked in a given period.

11.

$$\text{Average sale period} = \frac{\text{365 days}}{\text{Inventory turnover ratio}}$$

Indicates how many days it takes on average to sell the company's inventory.

Long-Term Solvency Measures

12.

$$\text{Debt to assets} = \frac{\text{Total liabilities}}{\text{Total assets}}$$

Indicates the percentage of assets funded by creditors.

13.

$$\text{Debt to equity} = \frac{\text{Total liabilities}}{\text{Total shareholders' equity}}$$

Indicates the amount of debt incurred for each dollar that owners provide.

14.

$$\text{Times interest earned} = \frac{\text{Net income } + \text{ Income tax expense } + }{\text{Interest expense}}$$

Indicates the company's ability to cover its interest expense related to long-ter current period earnings.

Market Valuation Measures

15.

$$\text{Market capitalization} = \text{Market price per share} \times \text{Number of sh}$$

Indicates the value of a company at a point in time.

16.

$$\text{Price-earnings ratio} = \frac{\text{Market price per share}}{\text{Earnings per share}}$$

Indicates the premium investors are willing to pay for shares of stock relative t
earnings.

Table 13.2 Summary of Financial Ratios for **Coca-Cola**, **PepsiCo**, and the Industry
Average

		Coca-Cola 2010	PepsiCo 2010	Industry Average 2010
Profitability Measures				
1.	Gross margin ratio	63.9 percent	54.1 percent	56.1 percent
2.	Profit margin ratio	33.6 percent	10.9 percent	19.2 percent
3.	Return on assets	19.4 percent	11.7 percent	14.2 percent
4.	Return on common shareholders' equity	41.7 percent	32.3 percent	34.7 percent
5.	Earnings per share	$5.12	$3.97	Not applicable
Short-Term Liquidity Measures				
6.	Current ratio	1.17 to 1	1.11 to 1	1.20 to 1
7.	Quick ratio	0.85 to 1	0.80 to 1	1.10 to 1
8.	Receivables turnover ratio	8.58 times	10.57 times	9.70 times
9.	Average collection period	42.54 days	34.53 days	37.63 days
10.	Inventory turnover ratio	5.07 times	8.87 times	7.50 times
11.	Average sale period	71.99 days	41.15 days	48.67 days
Long-Term Solvency Measures				
12.	Debt to assets	0.57 to 1	0.68 to 1	0.48 to 1
13.	Debt to equity	1.33 to 1	2.17 to 1	0.94 to 1
14.	Times interest earned	20.36 times	10.10 times	10.70 times
Market Valuation Measures				

		Coca-Cola 2010	PepsiCo 2010	Industry Average 2010
15.	Market capitalization	$146,500,000,000	$100,700,000,000	$87,500,000,000
16.	Price-earnings ratio	12.48 times	16.04 times	14.60 times

Before we discuss the various ratios, it is important to note that different terms are often used in financial statements to describe the same item. For example, some companies use the term *net revenues* instead of *net sales*, and the income statement is often called the *statement of earnings*, or *consolidated statement of earnings*. Also be sure to review the income statement and balance sheet information for **Coca-Cola** shown in <u>Figure 13.5 "Common-Size Income Statement Analysis for "</u> and <u>Figure 13.6 "Common-Size Balance Sheet Analysis for "</u>. We refer to these figures throughout this section. (All the dollar amounts given for **Coca-Cola** are in millions unless stated otherwise.)

Profitability Ratios

Question: Analysts, shareholders, suppliers, and other stakeholders often want to evaluate profit trends within a company and compare a company's profits with competitors' profits. What are the five common ratios used to evaluate company profitability?

Answer: The five ratios used to evaluate *profitability* are as follows:

1. Gross margin ratio
2. Profit margin ratio
3. Return on assets
4. Return on common shareholders' equity
5. Earnings per share

Gross Margin Ratio

*Question: How is the gross margin ratio calculated, and what does it tell us about **Coca-Cola** relative to **PepsiCo** and the industry average?*

Answer: The **gross margin ratio**[5] indicates the gross margin generated for each dollar in net sales and is calculated as gross margin (which is net sales minus cost of goods sold) divided by net sales:

Key Equation

$$\text{Gross margin ratio} = \frac{\text{Gross margin}}{\text{Net sales}}$$

The gross margin ratio for **Coca-Cola** using 2010 information is calculated as follows, with **PepsiCo** and industry average information following it:

$$\text{Gross margin ratio} = \frac{\$22{,}426}{\$35{,}119} = 63.9\%$$

	Coca-Cola 2010	Coca-Cola 2009	PepsiCo 2010	Industry Average 2010
Gross margin ratio	63.9 percent	64.2 percent	54.1 percent	56.1 percent

The gross margin ratio indicates **Coca-Cola** generated 63.9 cents in gross margin for every dollar in net sales. This ratio decreased slightly from 2009 to 2010 and is substantially higher than **PepsiCo's** 54.1 percent. **Coca-Cola** is also higher than the industry average of 56.1 percent. (Alternative terms: Gross margin is often called *gross profit*, net sales is often called *net revenues*, and cost of goods sold is often called *cost of sales*.)

Profit Margin Ratio

*Question: How is the profit margin ratio calculated, and what does it tell us about **Coca-Cola** relative to **PepsiCo** and the industry average?*

5. Indicates the gross margin generated for each dollar in net sales. Calculated as gross margin divided by net sales.

6. Indicates the profit generated from each dollar in net sales. Calculated as net income divided by net sales.

Answer: The **profit margin ratio**[6] shows the profit generated for each dollar in net sales. It is calculated as net income divided by net sales:

> ### Key Equation
>
> $$\text{Profit margin ratio} = \frac{\text{Net income}}{\text{Net sales}}$$

The profit margin ratio for **Coca-Cola** using 2010 information is calculated as follows, with **PepsiCo** and industry average information following it:

$$\text{Profit margin ratio} = \frac{\$11{,}809}{\$35{,}119} = 33.6\%$$

	Coca-Cola 2010	Coca-Cola 2009	PepsiCo 2010	Industry Average 2010
Profit margin ratio	33.6 percent	22.0 percent	10.9 percent	19.2 percent

The profit margin ratio indicates **Coca-Cola** generated 33.6 cents in net income for every dollar in net sales. This ratio increased significantly from 2009 to 2010 and is substantially higher than **PepsiCo's** 10.9 percent. **Coca-Cola** is also higher than the industry average of 19.2 percent. (Alternative term: Net income is often called *net earnings*.)

Return on Assets

*Question: The gross margin ratio and profit margin ratio focus solely on income statement information. Analysts also want to know what size asset base generated the net income. For example, a company with assets of $100,000 and net income of $15,000 is likely performing better than a company with assets of $300,000 and identical net income of $15,000. A measure that considers the assets required to generate net income is called return on assets. How is return on assets calculated, and what does it tell us about **Coca-Cola** relative to **PepsiCo** and the industry average?*

7. Indicates the net income generated from each dollar in average assets. Calculated as net income divided by average total assets.

Answer: The **return on assets**[7] ratio is used to evaluate how much net income was generated from each dollar in average assets invested. Return on assets is net income divided by average total assets:

> ## Key Equation
>
> $$\text{Return on assets} = \frac{\text{Net income}}{\text{Average total assets}}$$

The average total assets amount is found by adding together total assets at the end of the current year and previous year (2010 and 2009 for this example) and dividing by two. The return on assets ratio for **Coca-Cola** for 2010 is calculated as follows, with **PepsiCo** and industry average information following it:

$$\text{Return on assets} = \frac{\$11,809}{(\$72,921 + \$48,671) \div 2} = \frac{\$11,809}{\$60,796} = 19.4\%$$

	Coca-Cola 2010	Coca-Cola 2009	PepsiCo 2010	Industry Average 2010
Return on assets	19.4 percent	15.3 percent	11.7 percent	14.2 percent

The return on assets ratio indicates **Coca-Cola** generated 19.4 cents in net income for every dollar in average assets. This ratio increased from 2009 to 2010 and is higher than **PepsiCo's** 11.7 percent. **Coca-Cola** exceeded the industry average of 14.2 percent.

(Note: There are several variations on the return on assets calculation. Some prefer to use *average operating assets* in the denominator. Others adjust net income in the numerator by adding back interest expense net of the interest expense tax benefit. We leave these variations to advanced cost and intermediate accounting textbooks.)

Return on Common Shareholders' Equity

Question: How is the return on common shareholders' equity ratio calculated, and what does it tell us about **Coca-Cola** *relative to* **PepsiCo** *and the industry average?*

8. Indicates the net income generated from each dollar of common shareholders' equity. Calculated as net income minus preferred dividends divided by average common shareholders' equity.

Answer: Common shareholders are interested in the **return on common shareholders' equity**[8] ratio because this ratio tells them how much net income was

generated from each dollar of common shareholders' equity. The return on common shareholders' equity ratio is calculated as follows:

> **Key Equation**
>
> $$\text{Return on common shareholders' equity} = \frac{\text{Net income} - \text{Preferred di}}{\text{Average common shareholder}}$$

Note that preferred dividends are deducted from net income in the numerator. If the company does not have any outstanding preferred stock, as is the case with **Coca-Cola**, the preferred dividends amount is zero.

Average common shareholders' equity in the denominator is found by adding together all items in the shareholders' equity section of the balance sheet at the end of the current year and previous year (2010 and 2009 for this example), *except preferred stock items*, and dividing by two.

Because **Coca-Cola** does not have preferred stock, an average of all items in the shareholders' equity section is in the denominator. The return on common shareholders' equity ratio for **Coca-Cola** for 2010 is calculated as follows, with **PepsiCo** and industry average information following it:

$$
\begin{aligned}
\text{Return on common shareholders' equity} &= \frac{\$11,809}{[(\$10,937 + \$49,592 - \$1,450 - \$27,762) + (\$} \\
&= \frac{\$11,809}{\$28,332} \\
&= 41.7\%
\end{aligned}
$$

	Coca-Cola 2010	Coca-Cola 2009	PepsiCo 2010	Industry Average 2010
Return on common shareholders' equity	41.7 percent	29.5 percent	32.3 percent	34.7 percent

The return on common shareholders' equity ratio indicates **Coca-Cola** generated 41.7 cents in net income for every dollar in average common shareholders' equity.

This ratio increased significantly from 2009 to 2010 and is higher than **PepsiCo's** 32.3 percent. **Coca-Cola** exceeded the industry average of 34.7 percent.

Coca-Cola's return on common shareholders' equity of 41.7 percent is higher than its return on assets of 19.4 percent, indicating that the company has positive *financial leverage*. **Financial leverage**[9] describes a company's ability to leverage common shareholders' equity by taking on debt at an interest rate lower than the company's return on assets. For example, assume a company has equity of $10,000 earning 10 percent. The company can leverage this equity by borrowing $8,000 with a 6 percent interest rate. Assuming the company uses this $8,000 to purchase assets that earn 10 percent, the company has created positive financial leverage since the cost of borrowing is lower than the return on assets. This results in a return on equity that is higher than the return on assets. (Note: For a one-year period, the return on assets is $1,800 [= $18,000 × 10 percent] less the cost of debt of $480 [= 6 percent × $8,000], or $1,320. This results in a return on assets of 7.3 percent [= $1,320 ÷ $18,000]. Positive financial leverage causes the return on equity to be much higher at 13.2 percent [= $1,320 ÷ $10,000 equity].)

Although some level of financial leverage is generally regarded as healthy, companies that are highly leveraged tend to be riskier than similar companies with less leverage. Analysts and shareholders should avoid drawing quick conclusions that increases in return on common shareholders' equity are always better than decreases without thoroughly reviewing the rest of the data.

Figure 13.9 "Return on Assets and Return on Equity for " shows the return on assets and return on equity for **Coca-Cola, PepsiCo**, and the industry average.

Figure 13.9   *Return on Assets and Return on Equity for **Coca-Cola, PepsiCo**, and the Industry Average*
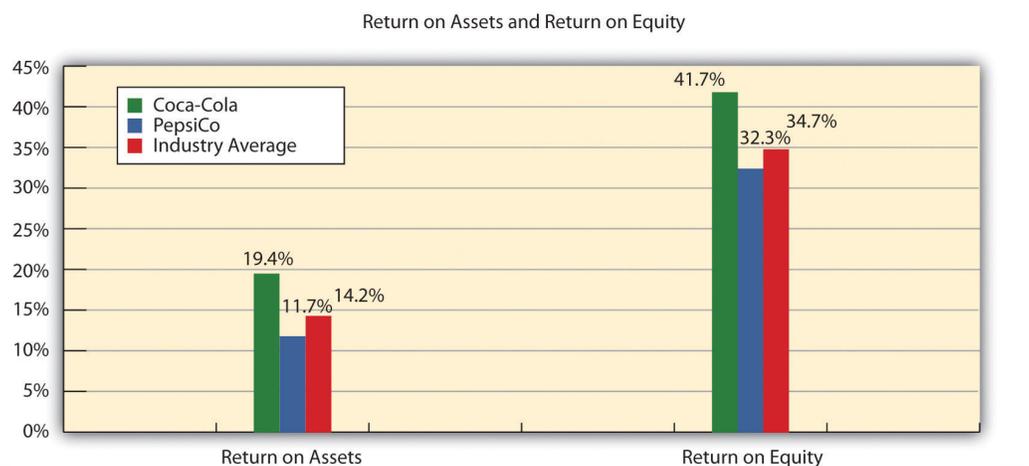
9. Indicates the ability of a company to leverage common shareholders' equity by taking on debt at an interest rate lower than the company's return on assets.

Earnings per Share

Question: How is earnings per share calculated, and what does it tell us about **Coca-Cola** *relative to* **PepsiCo** *and the industry average?*

Answer: **Earnings per share**[10] indicates how much net income was earned for each share of common stock outstanding. The earnings per share ratio states net income on a per share basis and is calculated as the following:

Key Equation

$$\text{Earnings per share} = \frac{\text{Net income} - \text{Preferred dividends}}{\text{Weighted average common shares outstanding}}$$

Note that preferred dividends are deducted from net income in the numerator. If the company does not have any outstanding preferred stock, as is the case with **Coca-Cola**, the preferred dividends amount is zero. The weighted average common shares outstanding amount used in the denominator is typically provided in the financial statements, either on the income statement or in the notes to the financial statements. (More advanced intermediate accounting textbooks discuss this calculation in detail. Throughout this chapter, we provide the number of weighted average common shares outstanding.)

Earnings per share for **Coca-Cola** using 2010 information is calculated as follows, with **PepsiCo** and industry average information following it (dollar amount and shares are in millions, except per share amount):

$$\text{Earnings per share} = \frac{\$11,809 - \$0}{2,308 \text{ shares}} = \$5.12 \text{ per share}$$

10. Indicates how much net income was earned for each share of common stock outstanding. Calculated as net income minus preferred dividends divided by weighted average common shares outstanding.

	Coca-Cola 2010	Coca-Cola 2009	PepsiCo 2010	Industry Average 2010
Earnings per share	$5.12	$2.95	$3.97	Not applicable

The earnings per share amount at **Coca-Cola** indicates the company earned $5.12 for each share of common stock outstanding. This ratio increased from 2009 to 2010. Although earnings per share is useful for looking at trends over time *within* a company, it cannot be compared in any meaningful way from one company to another because different companies have different numbers of shares outstanding.

For example, assume two identical companies earn $10,000 for the year. One company has one share of common stock outstanding, and the other has two shares outstanding. Thus one company has earnings per share of $10,000 (= $10,000 ÷ 1 share) and the other company has earnings per share of $5,000 (= $10,000 ÷ 2 shares). The second company is not performing any worse; it simply has more shares outstanding. This is why you should not compare earnings per share across companies. (Alternative terms: Earnings per share are often called *EPS* or *income per share*.)

Business in Action 13.3

Source: Photo courtesy of DangApricot, http://commons.wikimedia.org/wiki/File:AnnTaylorLoftSign.JPG.

The Importance of Earnings per Share

The business press often uses earnings per share to announce a company's earnings. For example, the Associated Press addressed earnings at **AnnTaylor Stores Corporation**, a retailer of women's clothing, as follows: "Quarterly income fell to $7,100,000, or 10 cents per share, from $30,100,000, or 41 cents, the year before. Setting aside relocation costs, adjusted earnings were 18 cents per share, a penny higher than the average estimate from analysts polled by Thomson Financial."

This quote demonstrates not only that earnings per share data are important when announcing a company's earnings but also that analysts use these data when making predictions about a company's performance. A quick perusal of

any business publication, such as *The Wall Street Journal*, or a review of online business press releases at sites like http://finance.yahoo.com will confirm that earnings per share data are commonly used to announce a company's financial results.

Source: Associated Press, "AnnTaylor's 2Q Profit Plummets on Charge," August 19, 2005.

REVIEW PROBLEM 13.3

Refer to the information presented in <u>Note 13.10 "Review Problem 13.1"</u> for **PepsiCo**, and perform the following for 2010:

1. Calculate the gross margin ratio, and briefly describe what it means for **PepsiCo**.
2. Calculate the profit margin ratio, and briefly describe what it means for **PepsiCo**.
3. Calculate return on assets, and briefly describe what it means for **PepsiCo**.
4. Calculate return on common shareholders' equity, and briefly describe what it means for **PepsiCo**. Assume **PepsiCo** recorded preferred dividends of $6,000,000 in 2010.
5. Calculate earnings per share, and briefly describe what it means for **PepsiCo**. Assume weighted average common shares outstanding totaled 1,590,000,000 shares.

Solutions to Review Problem 13.3

1.

$$\text{Gross margin ratio} = \frac{\text{Gross margin}}{\text{Net sales}}$$
$$= \frac{\$31{,}263}{\$57{,}838}$$
$$= 54.1\%$$

For every dollar in net sales, **PepsiCo** generated 54.1 cents in gross margin.

2.

$$\text{Profit margin ratio} = \frac{\text{Net income}}{\text{Net sales}}$$

$$= \frac{\$6,320}{\$57,838}$$

$$= 10.9\%$$

For every dollar in net sales, **PepsiCo** generated 10.9 cents in net income.

3.

$$\text{Return on assets} = \frac{\text{Net income}}{\text{Average total assets}}$$

$$= \frac{\$6,320}{(\$68,153 + \$39,848) \div 2}$$

$$= \frac{\$6,320}{\$54,001}$$

$$= 11.7\%$$

For every dollar in average assets, **PepsiCo** generated 11.7 cents in net income.

4.

$$\begin{array}{l}\text{Return on common} \\ \text{shareholders' equity}\end{array} = \frac{\text{Net income} - \text{Preferred dividends}}{\text{Average common shareholders' equity}}$$

$$= \frac{\$}{\left[(\$4,558 + \$37,402 - \$3,630 - \$16,745\right.}$$

$$= \frac{\$6,314}{\$19,566}$$

$$= 32.3\%$$

For every dollar in average common shareholders' equity, **PepsiCo** generated 32.3 cents in net income (after deducting preferred dividends).

5.

$$\text{Earnings per share} = \frac{\text{Net income} - \text{Preferred dividends}}{\text{Weighted average common shares outstanding}}$$
$$= \frac{\$6,320 - \$6}{1,590 \text{ shares}}$$
$$= \$3.97 \text{ per share}$$

For each common share outstanding, **PepsiCo** generated $3.97 in net income (after deducting preferred dividends).

Short-Term Liquidity Ratios

Question: Suppliers and other short-term lenders often want to evaluate whether companies can meet short-term obligations. What are the four common ratios used to evaluate short-term liquidity?

Answer: The four ratios used to evaluate *short-term liquidity* are as follows:

1. Current ratio
2. Quick ratio
3. Receivables turnover ratio (often converted to *average collection period*)
4. Inventory turnover ratio (often converted to *average sale period*)

Current Ratio

*Question: How is the current ratio calculated, and what does it tell us about **Coca-Cola** relative to **PepsiCo** and the industry average?*

Answer: The **current ratio**[11] indicates whether a company has sufficient current assets to cover current liabilities. It is found by dividing current assets by current liabilities:

Key Equation

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

The current ratio for **Coca-Cola** for 2010 is calculated as follows, with **PepsiCo** and industry average information following it:

$$\text{Current ratio} = \frac{\$11,199 + \$138 + \$4,430 + \$2,650 + \$3,162}{\$8,859 + \$8,100 + \$1,549} = \frac{\$21,57}{\$18,50}$$

	Coca-Cola 2010	Coca-Cola 2009	PepsiCo 2010	Industry Average 2010
Current ratio	1.17 to 1	1.28 to 1	1.11 to 1	1.20 to 1

The current ratio indicates **Coca-Cola** had $1.17 in current assets for every dollar in current liabilities. This ratio decreased from 2009 to 2010 and is slightly higher than **PepsiCo's** 1.11 to 1 ratio. **Coca-Cola** is close to the industry average of 1.20 to 1. In general, a current ratio above 1 to 1 is preferable, which indicates the company has sufficient current assets to cover current liabilities. However, finding the ideal minimum current ratio is dependent on many factors, such as the industry, the overall financial condition of the company, and the composition of the company's current assets and current liabilities. Because of variations in these factors from one company to the next, a more stringent measure of short-term liquidity is often used. We present this measure, called the *quick ratio*, next.

Quick Ratio

Question: How is the quick ratio calculated, and what does it tell us about **Coca-Cola** *relative to* **PepsiCo** *and the industry average?*

11. Indicates whether a company has enough current assets to cover current liabilities. Calculated as current assets divided by current liabilities.

Answer: The **quick ratio**[12] (also called *acid-test ratio*) indicates whether a company has sufficient quick, or highly liquid, assets to cover current liabilities. The quick ratio is quick assets divided by current liabilities:

Key Equation

$$\text{Quick ratio} = \frac{\text{Cash } + \text{ Marketable securities} + \text{Short-term receivables}}{\text{Current liabilities}}$$

Notice the numerator excludes current assets that are not easily and quickly converted to cash. Although inventory is typically excluded from the numerator, further analysis is needed to evaluate whether inventory should be included. For example, grocery stores turn inventory over very quickly, typically within a couple of weeks, and should consider including inventory in the quick ratio. Producers of wine, on the other hand, turn inventory over very slowly, and should consider excluding inventory in the numerator of the quick ratio. For the sake of consistency, you should exclude inventory from the numerator in this chapter, unless told otherwise. (Note: Many companies provide two quick ratio calculations, one that includes inventory in the numerator and one that excludes inventory in the numerator. If two ratios are presented, it is important to label each ratio to indicate whether inventory has been included or excluded.)

It is helpful when reviewing a company's balance sheet to remember that current assets are presented in order of liquidity, with the most liquid current asset appearing first and the least liquid appearing last. This helps in determining whether a particular current asset should be included or excluded in the numerator of the quick ratio. The quick ratio for **Coca-Cola** for 2010 is calculated as follows, with **PepsiCo** and industry average information following it:

$$\text{Quick ratio} = \frac{\$11,199 + \$138 + \$4,430}{\$8,859 + \$8,100 + \$1,549} = \frac{\$15,767}{\$18,508} = 0.85 \text{ to } 1$$

	Coca-Cola 2010	Coca-Cola 2009	PepsiCo 2010	Industry Average 2010
Quick ratio	0.85 to 1	0.95 to 1	0.80 to 1	1.10 to 1

12. Indicates whether a company has enough quick assets to cover current liabilities. Calculated as quick assets divided by current liabilities; also called acid-test ratio.

The quick ratio indicates **Coca-Cola** had $0.85 in quick assets for every dollar in current liabilities. This ratio decreased from 2009 to 2010 and is slightly higher than **PepsiCo's** 0.80 to 1 ratio. **Coca-Cola** is below the industry average of 1.10 to 1.

Receivables Turnover Ratio

Question: How is the receivables turnover ratio calculated, and what does it tell us about **Coca-Cola** *relative to* **PepsiCo** *and the industry average?*

Answer: The **receivables turnover ratio**[13] indicates how many times receivables are collected in a given period and is found by dividing credit sales by average accounts receivable:

> **Key Equation**
>
> $$\text{Receivables turnover ratio} = \frac{\text{Credit sales}}{\text{Average accounts receivable}}$$

Assume all net sales presented on the income statement are on account, and therefore will be used in the numerator. The average accounts receivable amount in the denominator is found by adding together accounts receivable at the end of the current year and previous year (2010 and 2009 for this example) and dividing by two. The receivables turnover ratio for **Coca-Cola** for 2010 is calculated as follows, with **PepsiCo** and industry average information following it:

$$\text{Receivables turnover ratio} = \frac{\$35,119}{(\$4,430 + \$3,758) \div 2} = \frac{\$35,119}{\$4,094} = 8.58$$

	Coca-Cola 2010	Coca-Cola 2009	PepsiCo 2010	Industry Average 2010
Receivables turnover ratio	8.58 times	9.05 times	10.57 times	9.70 times

13. Indicates how many times receivables are collected in a given period. Calculated as credit sales divided by average accounts receivable.

The receivables turnover ratio indicates **Coca-Cola** collected receivables 8.58 times during 2010. This ratio decreased from 2009 to 2010 and is lower than **PepsiCo's** 10.57 times. **Coca-Cola** is below the industry average of 9.70 times.

Question: How is the receivables turnover ratio converted to average collection period?

Answer: The receivables turnover ratio can be converted to the **average collection period**[14], which indicates how many days it takes on average to collect on credit sales, as follows:

Key Equation

$$\text{Average collection period} = \frac{365 \text{ days}}{\text{Receivables turnover ratio}}$$

This ratio is typically compared to the company's credit terms to evaluate how effectively receivables are being collected. The average collection period for **Coca-Cola** for 2010 is calculated as follows, with **PepsiCo** and industry average information following it:

$$\text{Average collection period} = \frac{365 \text{ days}}{8.58 \text{ times}} = 42.54 \text{ days}$$

	Coca-Cola 2010	Coca-Cola 2009	PepsiCo 2010	Industry Average 2010
Average collection period	42.54 days	40.33 days	34.53 days	37.63 days

The average collection period indicates **Coca-Cola** collected credit sales in 42.54 days, on average. The number of days increased slightly from 2009 to 2010 and is higher than **PepsiCo's** 34.53 days. **Coca-Cola** is also above the industry average of 37.63 days and therefore is slower at collecting accounts receivable than the industry as a whole.

14. Indicates how many days it takes on average to collect credit sales. Calculated as 365 days divided by receivables turnover ratio.

Inventory Turnover Ratio

Question: How is the inventory turnover ratio calculated, and what does it tell us about **Coca-Cola** *relative to* **PepsiCo** *and the industry average?*

Answer: The **inventory turnover ratio**[15] indicates how many times inventory is sold and restocked in a given period. It is calculated as cost of goods sold divided by average inventory:

> **Key Equation**
>
> $$\text{Inventory turnover ratio} = \frac{\text{Cost of goods sold}}{\text{Average inventory}}$$

The average inventory amount in the denominator is found by adding together inventory at the end of the current year and previous year (2010 and 2009 for this example) and dividing by two. The inventory turnover ratio for **Coca-Cola** for 2010 is calculated as follows, with **PepsiCo** and industry average information following it:

$$\text{Inventory turnover ratio} = \frac{\$12,693}{(\$2,650 + \$2,354) \div 2} = \frac{\$12,693}{\$2,502} = 5.07 \text{ ti}$$

	Coca-Cola 2010	Coca-Cola 2009	PepsiCo 2010	Industry Average 2010
Inventory turnover ratio	5.07 times	4.88 times	8.87 times	7.50 times

The inventory turnover ratio indicates **Coca-Cola** sold and restocked inventory 5.07 times during 2010. This ratio increased slightly from 2009 to 2010 and is substantially lower than **PepsiCo's** 8.87 times. **Coca-Cola** is well below the industry average of 7.50 times.

15. Indicates how many times inventory is sold and restocked in a given period. Calculated as cost of goods sold divided by average inventory.

Question: How is the inventory turnover ratio converted to average sale period?

Answer: The inventory turnover ratio can be converted to the **average sale period**[16], which indicates how many days it takes on average to sell the company's inventory, as follows:

> **Key Equation**
>
> $$\text{Average sale period} = \frac{365 \text{ days}}{\text{Inventory turnover ratio}}$$

The average sale period for **Coca-Cola** for 2009 is calculated as follows, with **PepsiCo** and industry average information following it:

$$\text{Average sale period} = \frac{365 \text{ days}}{5.07 \text{ times}} = 71.99 \text{ days}$$

	Coca-Cola 2010	Coca-Cola 2009	PepsiCo 2010	Industry Average 2010
Average sale period	71.99 days	74.80 days	41.15 days	48.67 days

The average sale period indicates **Coca-Cola** sold its inventory in 71.99 days, on average. The number of days decreased from 2009 to 2010 and is substantially higher than **PepsiCo's** 41.15 days. **Coca-Cola** is also above the industry average of 48.67 days and therefore is slower at selling inventory than the industry as a whole.

16. Indicates how many days it takes on average to sell the company's inventory. Calculated as 365 days divided by inventory turnover ratio.

Business in Action 13.4

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Industry Variations in Inventory and Receivable Turnover

Retail grocery stores turn inventory over every 22 days, meaning that shelves are emptied and restocked about every three weeks. In addition to extremely fast inventory turnover, retail grocery stores collect credit sales in seven days. Thus it takes 29 days, on average, to convert freshly stocked inventory to cash. Very few industries are able to convert inventory to cash as quickly. Examples of inventory and receivable turnover for several industries are shown in the following.

	Receivables Turnover	Inventory Turnover
Auto manufacturers	39 days	41 days
Chemical manufacturing	51 days	61 days
Forestry and wood products	46 days	53 days
Computer systems	78 days	18 days

Source: Industry averages found at MSN Money, Home Page,"
http://moneycentral.msn.com.

REVIEW PROBLEM 13.4

Refer to the information presented in <u>Note 13.10 "Review Problem 13.1"</u> for **PepsiCo**, and perform the following requirements for 2010:

1. Calculate the current ratio, and briefly describe what it means for **PepsiCo**.
2. Calculate the quick ratio, and briefly describe what it means for **PepsiCo**.
3. Calculate the receivables turnover ratio and average collection period, and briefly describe what these measures mean for **PepsiCo**. Assume all sales are on account.
4. Calculate the inventory turnover ratio and average sale period, and briefly describe what these measures mean for **PepsiCo**.

Solution to Review Problem 13.4

1.

$$
\begin{aligned}
\text{Current ratio} &= \frac{\text{Current assets}}{\text{Current liabilities}} \\
&= \frac{\$5,943 + \$426 + \$6,323 + \$3,372 + 1,505}{\$4,898 + \$10,923 + \$71} \\
&= \frac{\$17,569}{\$15,892} \\
&= 1.11 \text{ to } 1
\end{aligned}
$$

For every dollar in current liabilities, **PepsiCo** had $1.11 in current assets.

2.

$$\text{Quick ratio} = \frac{\text{Cash } + \text{ Marketable securities } + \text{ Short-term recei}}{\text{Current liabilities}}$$

$$= \frac{\$5{,}943 + \$426 + \$6{,}323}{\$4{,}898 + \$10{,}923 + \$71}$$

$$= \frac{\$12{,}692}{\$15{,}892}$$

$$= 0.80 \text{ to } 1$$

For every dollar in current liabilities, **PepsiCo** had $0.80 in quick assets.

3.

$$\text{Receivables turnover ratio} = \frac{\text{Credit sales}}{\text{Average accounts receivable}}$$

$$= \frac{\$57{,}838}{\left(\$6{,}323 + \$4{,}624\right) \div 2}$$

$$= \frac{\$57{,}838}{\$5{,}474}$$

$$= 10.57 \text{ times}$$

PepsiCo collected receivables 10.57 times during 2010.

$$\text{Average collection period} = \frac{365 \text{ days}}{\text{Receivables turnover ratio}}$$

$$= \frac{365 \text{ days}}{10.57 \text{ times}}$$

$$= 34.53 \text{ days}$$

PepsiCo collected credit sales in 34.53 days, on average.

4.

$$\text{Inventory turnover ratio} = \frac{\text{Cost of goods sold}}{\text{Average inventory}}$$

$$= \frac{\$26,575}{(\$3,372 + \$2,618) \div 2}$$

$$= \frac{\$26,575}{\$2,995}$$

$$= 8.87 \text{ times}$$

PepsiCo sold and restocked inventory 8.87 times during 2010.

$$\text{Average sale period} = \frac{365 \text{ days}}{\text{Inventory turnover ratio}}$$

$$= \frac{365 \text{ days}}{8.87 \text{ times}}$$

$$= 41.15 \text{ days}$$

PepsiCo sold its inventory in 41.15 days, on average.

Long-Term Solvency Ratios

Question: Banks, bondholders, and other long-term lenders often want to evaluate whether companies can meet long-term obligations. What are the three common ratios used to evaluate long-term solvency?

Answer: The three ratios used to evaluate *long-term solvency* are as follows:

1. Debt to assets
2. Debt to equity
3. Times interest earned

Debt to Assets

Question: How is the debt to assets ratio calculated, and what does it tell us about **Coca-Cola** *relative to* **PepsiCo** *and the industry average?*

Answer: The **debt to assets**[17] ratio indicates the percentage of assets funded by creditors and is used to evaluate the financial leverage of a company. Debt to assets is found by dividing total liabilities by total assets:

> ## Key Equation
>
> $$\text{Debt to assets} = \frac{\text{Total liabilities}}{\text{Total assets}}$$

The higher the percentage, the higher the financial leverage. The debt to assets ratio for **Coca-Cola** for 2010 is calculated as follows, with **PepsiCo** and industry average information following it:

$$\text{Debt to assets} = \frac{\$8,859 + \$8,100 + \$1,549 + \$14,041 + \$9,055}{\$72,921} = \frac{\$41}{\$72}$$

	Coca-Cola 2010	Coca-Cola 2009	PepsiCo 2010	Industry Average 2010
Debt to assets	0.57 to 1	0.48 to 1	0.68 to 1	0.48 to 1

The debt to assets ratio indicates that creditors funded 57 percent of **Coca-Cola's** assets at the end of 2010. This ratio increased from 2009 to 2010 and is lower than **PepsiCo's** 0.68 to 1. **Coca-Cola** is higher than the industry average of 0.48 to 1.

A review of the basic balance sheet equation shows that the complement of the debt to assets ratio provides the percentage of assets funded by *shareholders.* Thus for every dollar **Coca-Cola** has in assets, creditors fund $0.57 and shareholders fund $0.43 (= $1 − $0.57):

17. Indicates the percentage of assets funded by creditors. Calculated as total liabilities divided by total assets.

$$\text{Assets} = \text{Liabilities} + \text{Shareholders' equity}$$
$$\$1.00 = \$0.57 + \$0.43$$

The debt to assets ratio reveals **Coca-Cola** (0.57 to 1) and **PepsiCo** (0.68 to 1) are more highly leveraged than the industry average of 0.48 to 1.

Debt to Equity

*Question: How is the debt to assets ratio calculated, and what does it tell us about **Coca-Cola** relative to **PepsiCo** and the industry average?*

Answer: A variation of the debt to assets ratio is the **debt to equity**[18] ratio, which measures the balance of liabilities and shareholders' equity used to fund assets. The debt to equity ratio is total liabilities divided by total shareholders' equity:

> **Key Equation**
>
> $$\text{Debt to equity} = \frac{\text{Total liabilities}}{\text{Total shareholders' equity}}$$

This ratio indicates the amount of debt incurred for each dollar that owners provide. The debt to equity ratio for **Coca-Cola** for 2010 is calculated as follows, with **PepsiCo** and industry average information following it:

$$\text{Debt to equity} = \frac{\$8,859 + \$8,100 + \$1,549 + \$14,041 + \$9,055}{\$10,937 + \$49,592 - \$1,450 - \$27,762} = \frac{\$41}{\$31}$$

	Coca-Cola 2010	Coca-Cola 2009	PepsiCo 2010	Industry Average 2010
Debt to equity	1.33 to 1	0.92 to 1	2.17 to 1	0.94 to 1

18. Indicates the balance of liabilities and shareholders' equity used to fund assets. Calculated as total liabilities divided by total shareholders' equity.

The debt to equity ratio indicates that **Coca-Cola** had $1.33 in liabilities for each dollar in shareholders' equity. This ratio increased from 2009 to 2010 and is

substantially lower than **PepsiCo's** 2.17 to 1. However, **Coca-Cola** is higher than the industry average of 0.94 to 1.

Business in Action 13.5

Source: Photo courtesy of spechtenhauser, http://www.flickr.com/photos/usinside/2931437356/.

Financial Leverage at **General Motors** and **Toyota**

Prior to the company's bankruptcy filing in 2009, **General Motors (GM)** was the largest manufacturer of automobiles and trucks in the world (ranked by revenues). However, **GM** took on substantial amounts of debt over several years. With an average debt to equity ratio of 2.5 to 1, the automobile industry is relatively highly leveraged, but **GM's** ratio was substantially higher at 11.3 to 1. This means that **GM** had $11.30 in debt for every $1 in shareholders' equity.

Toyota Motor Corporation, on the other hand, was not highly leveraged; it had a debt to equity ratio of 1 to 1. Thus **Toyota** had $1 in debt for every $1 in shareholders' equity. It is important to review other financial ratios before concluding that **Toyota** was in better financial shape than **GM**, but the fact that

> **GM** was much more highly leveraged than **Toyota** likely played a big role in **GM's** downfall!
>
> Source: Industry averages found at MSN Money, Home Page,"
> http://moneycentral.msn.com and Yahoo! Finance, "Home Page,"
> http://biz.yahoo.com.

Times Interest Earned

Question: How is times interest earned calculated, and what does it tell us about **Coca-Cola** *relative to* **PepsiCo** *and the industry average?*

Answer: The **times interest earned**[19] ratio (also called *interest coverage ratio*) measures the company's ability to cover its interest expense related to long-term debt with current period earnings. The times interest earned ratio is net income before income tax expense and interest expense divided by interest expense:

> **Key Equation**
>
> $$\text{Times interest earned} = \frac{\text{Net income } + \text{ Income tax expense } + \text{ Interest}}{\text{Interest expense}}$$

Notice that income tax expense and interest expense are added back in the numerator to find net income available to cover interest expense. The times interest earned ratio for **Coca-Cola** for 2010 is calculated as follows, with **PepsiCo** and industry average information following it:

19. Indicates the ability of a company to cover its interest expense with current period earnings. Calculated as income before income tax expense and interest expense divided by interest expense; also called interest coverage ratio.

$$\text{Times interest earned} = \frac{\$11,809 + \$2,384 + \$733}{\$733} = \frac{\$14,926}{\$733} = 20.36$$

	Coca-Cola 2010	Coca-Cola 2009	PepsiCo 2010	Industry Average 2010

Times interest earned	20.36 times	25.97 times	10.10 times	10.70 times

The times interest earned ratio indicates **Coca-Cola** had earnings to cover interest expense 20.36 times. This ratio decreased from 2009 to 2010 and is much higher than **PepsiCo's** 10.10 times. **Coca-Cola** is also higher than the industry average of 10.70 times. It appears that **Coca-Cola** has plenty of earnings to cover interest expense.

REVIEW PROBLEM 13.5

Refer to the information presented in <u>Note 13.10 "Review Problem 13.1"</u> for **PepsiCo**, and perform the following requirements for 2010:

1. Calculate the debt to assets ratio, and briefly describe what it means for **PepsiCo**.
2. Calculate the debt to equity ratio, and briefly describe what it means for **PepsiCo**.
3. Calculate the times interest earned ratio, and briefly describe what it means for **PepsiCo**.

Solution to Review Problem 13.5

1.

$$
\begin{aligned}
\text{Debt to assets} &= \frac{\text{Total liabilities}}{\text{Total assets}} \\
&= \frac{\$4,898 + \$10,923 + \$71 + \$19,999 + \$10,786}{\$68,153} \\
&= \frac{\$46,677}{\$68,153} \\
&= 0.68 \text{ to } 1
\end{aligned}
$$

Creditors funded 68 percent of **PepsiCo's** assets. Owners funded the remaining 32 percent.

2.

$$\begin{aligned}
\text{Debt to equity} &= \frac{\text{Total liabilities}}{\text{Total shareholders' equity}} \\
&= \frac{\$4{,}898 + \$10{,}923 + \$71 + \$19{,}999 + \$10{,}786}{(\$109) + \$4{,}558 + \$37{,}402 - \$3{,}630 - \$16{,}74} \\
&= \frac{\$46{,}677}{\$21{,}476} \\
&= 2.17 \text{ to } 1
\end{aligned}$$

For every dollar in shareholders' equity, **PepsiCo** had $2.17 in liabilities.

3.

$$\begin{aligned}
\text{Times interest earned} &= \frac{\text{Net income } + \text{ Income tax expense } + \text{ In}}{\text{Interest expense}} \\
&= \frac{\$6{,}320 + \$1{,}894 + \$903}{\$903} \\
&= \frac{\$9{,}117}{\$903} \\
&= 10.10 \text{ times}
\end{aligned}$$

PepsiCo had earnings to cover interest expense 10.10 times.

Market Valuation Measures

Question: Existing and potential shareholders are often interested in a company's market value. What are the two common measures used to evaluate market value?

Answer: The two measures used to determine and evaluate the *market value* of a company are as follows:

1. Market capitalization
2. Price-earnings ratio

Market Capitalization

Question: How is market capitalization calculated, and what does it tell us about **Coca-Cola** *relative to* **PepsiCo** *and the industry average?*

Answer: **Market capitalization**[20] (also called *market cap*) measures the value of a company at a point in time. It is determined by multiplying market price per share times the number of shares outstanding:

> ## Key Equation
>
> Market capitalization = Market price per share × Number of shares outstanding

Coca-Cola's market capitalization for 2010 is calculated as follows, with **PepsiCo** information following it. The number of shares outstanding at **Coca-Cola's** fiscal year ended December 31, 2010, totaled 2,292,000,000 (= 3,520,000,000 shares issued – 1,228,000,000 treasury shares). The market price per share at that time was $63.92.

Market capitalization = $63.92 per share × 2,292,000,000 shares = $146,500,000,000

	Coca-Cola 2010	Coca-Cola 2009	PepsiCo 2010	Industry Average 2010
Market capitalization	$146,500,000,000	$123,200,000,000	$100,700,000,000	$87,500,000,000

Coca-Cola's market capitalization indicates that the company's shares outstanding had a market value totaling $146,500,000,000 at the end of 2010. This amount increased significantly from 2009 to 2010 and is higher than **PepsiCo's** $100,700,000,000. Both **Coca-Cola** and **PepsiCo** are above the industry average of $87,500,000.

20. Indicates the value of a company at a point in time. Calculated as market price per share times the number of shares outstanding; also called market cap.

(Note that the *number of shares outstanding* is typically found in the shareholders' equity section of the balance sheet or in the notes to the financial statements. We provide the number of shares outstanding throughout this chapter, unless noted otherwise. This number is different than the weighted average shares outstanding used to calculate earnings per share earlier in the chapter. Also note that the price

per share amount is from Yahoo's finance Web site at http://finance.yahoo.com. We provide this information throughout the chapter, unless noted otherwise.)

Looking at a company's market capitalization is a quick way of gauging its aggregate value. But what does a number like **Coca-Cola's** $146,500,000,000 market capitalization really tell us about how a company compares to others? Note 13.54 "Business in Action 13.6" has the answer.

Business in Action 13.6

Three Categories of Market Capitalization

Most investors refer to market capitalization as *market cap*. Companies are typically classified into one of three market cap categories: small-cap, midcap, and large-cap. In general, small-cap companies have a market value of less than $1,000,000,000, midcap companies have a market value between $1,000,000,000 and $12,000,000,000, and large-cap companies have a market value greater than $12,000,000,000.

Thus small-cap mutual funds are stock funds that invest in companies with a market value of less than $1,000,000,000. Midcap mutual funds are stock funds that invest in companies with a market value between $1,000,000,000 and $12,000,000,000, and so on. These categories are important to investors because the stocks of small-cap companies tend to be more volatile than those of mid- or large-cap companies.

Source: Definitions are from the Web site of Vanguard, one of the world's largest investment management firms (http://www.vanguard.com).

Price-Earnings Ratio

Question: How is the price-earnings ratio calculated, and what does it tell us about **Coca-Cola** *relative to* **PepsiCo** *and the industry average?*

Answer: The **price-earnings ratio**[21] (also called *P/E ratio*) measures the premium investors are willing to pay for shares of stock relative to the company's earnings. The price-earnings ratio is found by dividing market price per share by earnings per share:

> **Key Equation**
>
> $$\text{Price-earnings ratio} = \frac{\text{Market price per share}}{\text{Earnings per share}}$$

In general, a relatively high price-earnings ratio indicates investors expect favorable future earnings, whereas a relatively low price-earnings ratio indicates investors expect moderate future earnings. The price-earnings ratio for **Coca-Cola** for 2010 is calculated as follows, with **PepsiCo** and industry average information following it. The market price information was given in the market capitalization example, and we calculated earnings per share earlier in the chapter.

$$\text{Price-earnings ratio} = \frac{\$63.92}{\$5.12} = 12.48 \text{ times}$$

	Coca-Cola 2010	Coca-Cola 2009	PepsiCo 2010	Industry Average 2010
Price-earnings ratio	12.48 times	18.21 times	16.04 times	14.60 times

The price-earnings ratio indicates investors were willing to pay 12.48 times the earnings for **Coca-Cola's** stock. This ratio decreased from 2009 to 2010 and is lower than **PepsiCo's** 16.04 times. **Coca-Cola** is also lower than the industry average of 14.60 times.

21. Indicates the premium investors are willing to pay for shares of stock relative to the company's earnings. Calculated as market price per share divided by earnings per share; also called P/E ratio.

> ### KEY TAKEAWAY
>
> - Shareholders, creditors, and analysts often evaluate a company's profitability. Five ratios used to evaluate *profitability* are the gross margin ratio, the profit margin ratio, return on assets, return on common shareholders' equity, and earnings per share. Suppliers and other short-term creditors often evaluate whether a company can meet short-term obligations. Four ratios used to evaluate *short-term liquidity* are the current ratio, the quick ratio, the receivables turnover ratio (often converted to average collection period), and the inventory turnover ratio (often converted to average sale period). Banks, bondholders, and other long-term lenders often evaluate whether companies can meet long-term obligations. Three ratios used to evaluate *long-term solvency* are debt to assets, debt to equity, and times interest earned. Shareholders are particularly interested in a company's market value. Two measures used to determine and evaluate the *market value* of a company are market capitalization and the price-earnings ratio.

REVIEW PROBLEM 13.6

Perform the following requirements for **PepsiCo** for 2010:

1. Calculate the market capitalization, and briefly describe what it means for **PepsiCo**. Assume **PepsiCo** had 1,581,000,000 shares outstanding at the end of 2010, and the market price per share was $63.68.
2. Calculate the price-earnings ratio, and briefly describe what it means for **PepsiCo**. (Hint: Earnings per share was calculated for **PepsiCo** in Note 13.29 "Review Problem 13.3".)

Solution to Review Problem 13.6

1.

$$\text{Market capitalization} = \text{Market price per share} \times \text{Number of share}$$
$$= \$63.68 \times 1,581,000,000$$
$$= \$100.7 \text{ billion (rounded)}$$

PepsiCo's shares outstanding had a market value of $100,700,000,000 at the end of 2010.

2.

$$\text{Price-earnings ratio} = \frac{\text{Market price per share}}{\text{Earnings per share}}$$
$$= \frac{\$63.68}{\$3.97}$$
$$= 16.04 \text{ times}$$

Investors were willing to pay 16.04 times earnings for **PepsiCo's** stock.

13.4 Wrap-Up of Chapter Example

Recall the dialogue at Chicken Deluxe between Sandy Masako, the CEO; Dave Roberts, the CFO; and Karen Kraft, the purchasing manager. Chicken Deluxe must choose between Deep Fizz Company and Extreme Fizz, Inc., as the supplier of the company's beverages. Dave was asked to evaluate the financial condition of each company and report back to the group. The group reconvenes the following month, where Dave presents the financial measures for each company. As you read the dialogue, refer to Table 13.3 "Summary of Financial Ratios for Deep Fizz Company; Extreme Fizz, Inc.; and the Industry Average"; it is the summary of financial measures that Dave provides to the group.

Table 13.3 Summary of Financial Ratios for Deep Fizz Company; Extreme Fizz, Inc.; and the Industry Average

		Deep Fizz	Extreme Fizz	Industry Average			
Profitability Measures							
1.	Gross margin ratio	63.1 percent	54.1 percent	53.1 percent			
2.	Profit margin ratio	22.1 percent	23.2 percent	19.2 percent			
3.	Return on assets	15.1 percent	17.3 percent	14.2 percent			
4.	Return on common shareholders' equity	36.5 percent	34.9 percent	34.7 percent			
5.	Earnings per share	$2.01	$3.76	Not applicable			
Short-Term Liquidity Measures							
6.	Current ratio	0.85 to 1	1.25 to 1	1.20 to 1			
7.	Quick ratio	0.62 to 1	0.87 to 1	1.10 to 1			
8.	Receivables turnover ratio	9.10 times	10.18 times	9.70 times			
9.	Average collection period	40.11 days	35.85 days	37.63 days			
10.	Inventory turnover ratio	5.12 times	7.86 times	7.50 times			
11.	Average sale period	72.29 days	46.44 days	48.67 days			
Long-Term Solvency Measures							
12.	Debt to assets	0.34 to 1	0.38 to 1	0.48 to 1			

		Deep Fizz	Extreme Fizz	Industry Average			
13.	Debt to equity	0.67 to 1	0.86 to 1	0.94 to 1			
14.	Times interest earned	31.60 times	38.93 times	10.70 times			
Market Valuation Measures							
15.	Market capitalization	$91,800,000,000	$86,500,000,000	$87,500,000,000			
16.	Price-earnings ratio	19.34 times	20.31 times	14.60 times			

Sandy:	*Let's get started! Dave, what do you have for us?*
Dave:	*I used several different financial ratios to evaluate profitability, short-term liquidity, long-term solvency, and market valuation for Deep Fizz Company and Extreme Fizz, Inc., Here is a summary of the results. Items 1 through 4 show that both companies are doing very well with regard to profitability, and exceed the industry average in all four categories. Earnings per share are not relevant for comparative purposes because different companies have different amounts of shares outstanding.*
Sandy:	*The profitability measures look good for both companies. What about the balance sheet?*
Dave:	*For the most part, Extreme Fizz has the edge on short-term liquidity, with top marks for all short-term liquidity measures. However, Deep Fizz is not far behind. Based on items 6 through 11, I consider both companies to have strong short-term liquidity. The only concern is with Deep Fizz's slow inventory turnover, which is well below Extreme Fizz and the industry average.*
Sandy:	*What about long-term solvency? Given both companies have strong profitability and excellent short-term liquidity, my biggest concern is whether these companies are able to meet long-term obligations.*
Dave:	*The short answer is both companies will be able to meet long-term obligations as indicated in the debt to assets, debt to equity, and times interest earned ratios. Also notice that both companies have large market capitalizations, and price-earnings ratios are strong across the board!*
Sandy:	*So what do we get from all this information?*
Dave:	*Both companies are solid. We shouldn't have to worry about either company having financial difficulties in the near future.*
Karen:	*Looks like we'll have to review other factors in deciding which company to use as our supplier.*
Sandy:	*I agree. Thanks, Dave, for your analysis. If nothing else, this puts my mind at ease about whichever company we ultimately select as our supplier.*

As you can see from the Chicken Deluxe example, analysts use many different financial measures to evaluate financial performance. In the case of Deep Fizz and Extreme Fizz, both companies appear to be strong performers. Armed with this information, management can confidently choose either company knowing the winner will be on solid financial ground for years to come.

13.5 Nonfinancial Performance Measures: The Balanced Scorecard

> ### LEARNING OBJECTIVE
>
> 1. Develop and analyze nonfinancial performance measures using a balanced scorecard.

Question: Although financial measures are important for evaluation purposes, many organizations use a mix of financial and nonfinancial measures to evaluate performance. For example, airlines track on-time arrival percentages carefully, and delivery companies like Federal Express (FedEx) and United Parcel Service (UPS) monitor percentages of on-time deliveries. The balanced scorecard uses several alternative measures to evaluate performance. What is a balanced scorecard and how does it help companies to evaluate performance?

Answer: The **balanced scorecard**[22] is a balanced set of measures that organizations use to motivate employees and evaluate performance. These measures are typically separated into four perspectives outlined in the following. (Dr. Robert S. Kaplan and Dr. David P. Norton created the balanced scorecard, and it is actively promoted through their company, Balanced Scorecard Collaborative. More information can be found at the company's Web site at http://www.bscol.com.)

1. **Financial.** Measures that shareholders, creditors, and other stakeholders use to evaluate financial performance.
2. **Internal business process.** Measures that management uses to evaluate efficiency of existing business processes.
3. **Learning and growth.** Measures that management uses to evaluate effectiveness of employee training.
4. **Customer.** Measures that management uses to evaluate whether the organization is meeting customer expectations.

The goal is to link these four perspectives to the company's strategies and goals. For example, a high percentage of on-time arrivals is likely an important goal from the perspective of the *customer* of an airline. A high percentage of defect-free computer chips is likely an important goal from the *internal business process* perspective of a computer chip maker. A high number of continuing education hours is likely an

22. A balanced set of financial and nonfinancial measures used by organizations to motivate employees and evaluate performance.

important goal from the *learning and growth* perspective for tax personnel at an accounting firm. Measures from a *financial* perspective were covered earlier in this chapter.

Companies that use the balanced scorecard typically establish several measures for each perspective. <u>Table 13.4 "Balanced Scorecard Measures"</u> lists several examples of these measures.

Table 13.4 Balanced Scorecard Measures

Financial	Internal Business Process	Learning and Growth	Customer
Gross margin ratio	Defect-free rate	Hours of employee training	Customer satisfaction (survey)
Return on assets	Customer response time	Employee satisfaction (survey)	Number of customer complaints
Receivables turnover	Capacity utilization	Employee turnover	Market share
Inventory turnover	New product development time	Number of employee accidents	Number of returned products

Measures established across the four perspectives of the balanced scorecard are linked in a way that motivates employees to achieve company goals. For example, if the company wants to increase the defect-free rate and reduce product returns, effective employee training and low employee turnover will help in achieving this goal. The idea is to establish company goals first, then create measures that motivate employees to reach company goals.

KEY TAKEAWAY

- Most organizations use a mix of financial and nonfinancial measures to evaluate performance. The balanced scorecard approach uses a balanced set of measures separated into four perspectives—financial, internal business process, learning and growth, and customer. The last three perspectives tend to include nonfinancial measures, such as hours of employee training or number of customer complaints, to evaluate performance. The goal is to link financial and nonfinancial measures to the company's strategies and goals.

REVIEW PROBLEM 13.7

Assume Chicken Deluxe, the fast-food restaurant franchise featured in this chapter, uses a balanced scorecard. Provide at least two examples of measures that Chicken Deluxe might use for each of the following perspectives of the balanced scorecard:

1. Financial
2. Internal business process
3. Learning and growth
4. Customer

Solution to Review Problem 13.7

1. Answers will vary. Several examples of financial measures are as follows:

   1. Gross margin ratio
   2. Profit margin ratio
   3. Return on assets
   4. Receivables turnover
   5. Inventory turnover

2. Answers will vary. Several examples of internal business process measures are as follows:

   1. Capacity utilization
   2. Amount of food spoilage
   3. Order response time

3. Answers will vary. Several examples of learning and growth measures are as follows:

   1. Hours of employee training
   2. Employee satisfaction
   3. Employee turnover
   4. Number of employee accidents

4. Answers will vary. Several examples of customer perspective measures are as follows:

1. Customer satisfaction
2. Number of customer complaints
3. Market share
4. Amount of food returned

END-OF-CHAPTER EXERCISES

Questions

1. What is trend analysis? Explain how the percent change from one period to the next is calculated.
2. What is common-size analysis? How is common-size analysis information used?
3. Explain the difference between trend analysis and common-size analysis.
4. Name the ratios used to evaluate profitability. Explain what the statement "evaluate profitability" means.
5. **Coca-Cola's** return on assets was 19.4 percent, and return on common shareholders' equity was 41.7 percent. Briefly explain why these two percentages are different.
6. **Coca-Cola** had earnings per share of $5.12, and **PepsiCo** had earnings per share of $3.97. Is it accurate to conclude **PepsiCo** was more profitable? Explain your reasoning.
7. Name the ratios used to evaluate short-term liquidity. Explain what the statement "evaluate short-term liquidity" means.
8. Explain the difference between the current ratio and the quick ratio.
9. **Coca-Cola** had an inventory turnover ratio of 5.07 times (every 71.99 days), and **PepsiCo** had an inventory turnover ratio of 8.87 times (every 41.15 days). Which company had the best inventory turnover? Explain your reasoning.
10. Name the ratios used to evaluate long-term solvency. Explain what the term "long-term solvency" means.
11. Name the measures used to determine and evaluate the market value of a company. Briefly describe the meaning of each measure.
12. What is the balanced scorecard? Briefly describe the four perspectives of the balanced scorecard.

Brief Exercises

13. **Evaluating Suppliers at Chicken Deluxe.** Refer to the dialogue at Chicken Deluxe presented at the beginning of the chapter and the follow-up dialogue immediately following Note 13.58 "Review Problem 13.6".

    Required:

    a. What is the big decision that Chicken Deluxe is facing?

    b. Briefly describe the results of Dave's analysis of the two suppliers.

14. **Trend Analysis.** The following condensed income statement is for **Apple, Inc.**

Apple, Inc. Income Statement Years Ended September 24, 2011 and September 25, 2010 (in millions)		
	2011	**2010**
Net sales	$108,249	$65,225
Cost of goods sold	64,431	39,541
Gross margin	$ 43,818	$25,684
Research and development	2,429	1,782
Selling and administrative expenses	7,599	5,517
Operating income	$ 33,790	$18,385
Other income (expenses; net)	415	155
Income before taxes	$ 34,205	$18,540
Income tax expense	8,283	4,527
Net income	$ 25,922	$14,013

Required:

Prepare a trend analysis of the income statements from 2010 to 2011. Use the format shown in <u>Figure 13.1 "Income Statement Trend Analysis for "</u> as a guide. (Round percent computations to one decimal place.)

15. **Common-Size Analysis.** Refer to the condensed income statement for **Apple, Inc.,** in Brief Exercise 14.

Required:

Prepare a common-size analysis of the income statements for 2010 and 2011. Use the format shown in <u>Figure 13.5 "Common-Size Income Statement Analysis for "</u> as a guide. (Round percent computations to one decimal place.)

16. **Gross Margin and Profit Margin Ratios.** Refer to the condensed income statement for **Apple, Inc.,** in Brief Exercise 14.

Required:

Compute the following profitability ratios for 2011, and provide a brief explanation after each ratio (round computations to one decimal place):

1. Gross margin ratio
2. Profit margin ratio

17. **Current and Quick Ratios.** A condensed balance sheet for **Apple, Inc.,** appears in the following.

Apple, Inc.
Balance Sheet
September 24, 2011
(in millions)

Assets	
Current assets	
Cash and cash equivalents	$ 9,815
Short-term marketable securities	16,137
Accounts receivable (net)	5,369
Merchandise inventory	776
Other current assets	12,891
Total current assets	$ 44,988
Noncurrent assets	
Property, plant and equipment (net)	7,777
Other assets	63,606
Total assets	$116,371
Liabilities and shareholders' equity	
Current liabilities	
Accounts payable and other liabilities	$ 14,632
Accrued expenses	13,338
Total current liabilities	$ 27,970
Noncurrent liabilities	
Long-term debt	11,786
Shareholders' equity	
Common stock	13,331
Retained earnings	63,284
Total liabilities and shareholders' equity	$116,371

Required:

Compute the following short-term liquidity ratios for 2011, and provide a brief explanation after each ratio (round computations to two decimal places):

1. Current ratio
2. Quick ratio

18. **Long-Term Solvency Ratios.** Refer to the condensed balance sheet for **Apple, Inc.,** in Brief Exercise 17.

Required:

Compute the following long-term solvency ratios for 2011, and provide a brief explanation after each ratio (round computations to two decimal places):

1. Debt to assets
2. Debt to equity

19. **Market Capitalization.** On September 24, 2011, **Apple, Inc.,** had 929,277,000 shares of common stock issued and outstanding, and the market price per share on that date was $403.33.

Required:

Compute Apple's market capitalization at September 24, 2011, and provide a brief explanation of what this measures represents (state the answer in billions).

20. **Balanced Scorecard.** Provide two nonfinancial measures likely used by delivery companies like **FedEx** and **UPS**.

Exercises: Set A

21. **Trend Analysis.** The following condensed income statement is for **CarMax, Inc.,** a large retailer of used vehicles.

Carmax, Inc. Income Statement Years Ended February 28, 2011 and February 28, 2010 (in millions)		
	2011	**2010**
Net sales	$8,976	$7,470
Cost of goods sold	7,674	6,371
Gross margin	$1,302	$1,099
Selling and administrative expenses	905	819
Operating income	$ 397	$ 280
Interest expense	3	3
Other income (expenses; net)	220	176
Income before taxes	$ 614	$ 453
Income tax expense	233	171
Net income	$ 381	$ 282

Required:

a. Prepare a trend analysis of the income statements from 2010 to 2011. Use the format shown in <u>Figure 13.1 "Income</u>

Statement Trend Analysis for " as a guide. (Round computations to one decimal place.)

b. What does the trend analysis prepared in requirement **a** tell you about the company?

22. **Common-Size Analysis.** Refer to the condensed income statement for **CarMax, Inc.,** in Exercise 21.

Required:

a. Prepare a common-size analysis of the income statements for 2011 and 2010. Use the format shown in Figure 13.5 "Common-Size Income Statement Analysis for " as a guide. (Round computations to one decimal place.)

b. What does the common-size analysis in requirement **a** tell you about the company?

23. **Profitability Ratios.** Refer to the condensed income statement for **CarMax, Inc.,** in Exercise 21 and to the company's balance sheet shown as follows.

Carmax, Inc.
Balance Sheet
February 28, 2011 and February 28, 2010
(in millions)

	2011	2010
Assets		
Current assets		
Cash and cash equivalents	$ 202	$ 18
Accounts receivable (net)	120	682
Merchandise inventory	1,049	843
Other current assets	39	13
Total current assets	$1,410	$1,556
Noncurrent assets		
Property, plant and equipment (net)	920	894
Other assets	4,510	106
Total assets	$6,840	$2,556
Liabilities and shareholders' equity		
Current liabilities		
Accounts payable and other liabilities	$ 373	$ 348
Short-term debt	134	123
Income taxes payable and deferred taxes	1	6
Total current liabilities	$ 508	$ 477
Noncurrent liabilities		
Long-term debt	3,909	27
Other liabilities	131	118
Shareholders' equity		
Common stock	934	858
Retained earnings	1,358	1,076
Total liabilities and shareholders' equity	$6,840	$2,556

Required:

Compute the following profitability ratios for 2011, and provide a brief explanation after each ratio (round percentage computations to one decimal place and earnings per share to two decimal places):

1. Gross margin ratio
2. Profit margin ratio
3. Return on assets
4. Return on common shareholders' equity
5. Earnings per share (assume weighted average shares outstanding totaled 223,449,000 shares)

24. **Short-Term Liquidity Ratios.** Refer to the condensed income statement for **CarMax, Inc.,** in Exercise 21 and to the company's balance sheet in Exercise 23.

Required:

Compute the following short-term liquidity ratios for 2011, and provide a brief explanation after each ratio (round computations to two decimal places):

1. Current ratio
2. Quick ratio
3. Receivables turnover ratio and average collection period (assume all sales are on account)
4. Inventory turnover ratio and average sale period

25. **Long-Term Solvency Ratios.** Refer to the condensed income statement for **CarMax, Inc.,** in Exercise 21 and to the company's balance sheet in Exercise 23.

Required:

Compute the following long-term solvency ratios for 2011, and provide a brief explanation after each ratio (round computations to two decimal places):

1. Debt to assets
2. Debt to equity
3. Times interest earned

26. **Market Valuation Measures.** The following requirements are for **CarMax, Inc.,** as of February 28, 2011.

    Required:

    a. Compute the following market valuation measures for 2011, and provide a brief explanation after each measure (state market capitalization in billions, and round price-earnings ratio to two decimal places):

        1. Market capitalization (assume 225,885,693 shares were issued and outstanding at February 28, 2011, and the market price was $35.37 per share)
        2. Price-earnings ratio (assume earnings per share was $1.71)

    b. Refer to <u>Note 13.54 "Business in Action 13.6"</u> In which category does **CarMax** belong? Explain.

27. **Balanced Scorecard Customer Measures.** Tech University has more than 10,000 students enrolling in courses each term. The management would like to develop a balanced scorecard to assess performance.

    Required:

    Provide at least three customer measures Tech University can use on its balanced scorecard. Assume students are the customers.

Exercises: Set B

28. **Trend Analysis.** The following condensed income statement is for **Colgate-Palmolive Company**, a large retailer of personal and home care products.

Colgate-Palmolive Company
Income Statement
Years Ended December 31, 2010 and December 31, 2009
(in millions)

	2010	2009
Net sales	$15,564	$15,327
Cost of goods sold	6,360	6,319
Gross margin	$ 9,204	$ 9,008
Selling and administrative expenses	5,414	5,282
Operating income	$ 3,790	$ 3,726
Interest expense	59	77
Other expenses	411	217
Income before taxes	$ 3,320	$ 3,432
Income tax expense	1,117	1,141
Net income	$ 2,203	$ 2,291

Required:

a. Prepare a trend analysis of the income statements from 2009 to 2010. Use the format shown in <u>Figure 13.1 "Income Statement Trend Analysis for "</u> as a guide. (Round computations to one decimal place.)
b. What does the trend analysis prepared in requirement **a** tell you about the company?

29. **Common-Size Analysis.** Refer to the condensed income statement for **Colgate-Palmolive Company** in Exercise 28.

Required:

a. Prepare a common-size analysis of the income statements for 2010 and 2009. Use the format shown in <u>Figure 13.5 "Common-Size Income Statement Analysis for "</u> as a guide. (Round computations to one decimal place.)
b. What does the common-size analysis in requirement **a** tell you about the company?

30. **Profitability Ratios.** Refer to the condensed income statement for **Colgate-Palmolive Company** in Exercise 28. Assume the company paid preferred dividends totaling $34,000,000 during 2010. (The company had preferred stock outstanding during 2010, but eliminated all preferred stock by the end of 2010. This is why preferred stock has a zero balance as of December 31, 2010.)

Colgate-Palmolive Company
Balance Sheet
December 31, 2010 and December 31, 2009
(in millions)

	2010	2009
Assets		
Current assets		
Cash and cash equivalents	$ 490	$ 600
Accounts receivable (net)	1,610	1,626
Merchandise inventory	1,222	1,209
Other current assets	408	375
Total current assets	$ 3,730	$ 3,810
Noncurrent assets		
Property, plant and equipment (net)	3,693	3,516
Other assets	3,749	3,808
Total assets	$11,172	$11,134
Liabilities and shareholders' equity		
Current liabilities		
Accounts payable and other liabilities	$ 2,847	$ 2,851
Short-term debt	609	361
Income taxes payable	272	387
Total current liabilities	$ 3,728	$ 3,599
Noncurrent liabilities		
Long-term debt and other liabilities	4,627	4,278
Shareholders' equity		
Preferred stock	0	169
Common stock	1,865	2,497
Retained earnings	14,329	13,157
Accumulated other income	(2,072)	(2,088)
Treasury stock	(11,305)	(10,478)
Total liabilities and shareholders' equity	$11,172	$11,134

Required:

Compute the following profitability ratios for 2010, and provide a brief explanation after each ratio (round percentage computations to one decimal place and earnings per share to two decimal places):

1. Gross margin ratio
2. Profit margin ratio
3. Return on assets
4. Return on common shareholders' equity
5. Earnings per share (assume weighted average shares outstanding totaled 487,800,000 shares)

31. **Short-Term Liquidity Ratios.** Refer to the condensed income statement for **Colgate-Palmolive Company** in Exercise 28 and to the company's balance sheet in Exercise 30.

Required:

Compute the following short-term liquidity ratios for 2010, and provide a brief explanation after each ratio (round computations to two decimal places):

1. Current ratio
2. Quick ratio
3. Receivables turnover ratio and average collection period (assume all sales are on account)
4. Inventory turnover ratio and average sale period

32. **Long-Term Solvency Ratios.** Refer to the condensed income statement for **Colgate-Palmolive Company** in Exercise 28 and to the company's balance sheet in Exercise 30.

Required:

Compute the following long-term solvency ratios for 2010, and provide a brief explanation after each ratio (round computations to two decimal places):

1. Debt to assets
2. Debt to equity
3. Times interest earned

33. **Market Valuation Measures.** The following requirements are for **Colgate-Palmolive Company** as of December 31, 2010.

Required:

a. Compute the following market valuation measures for 2010, and provide a brief explanation after each measure (state market capitalization in billions, and round price-earnings ratio to two decimal places):

1. Market capitalization (assume 494,850,467 shares were issued and outstanding at December 31, 2010, and the market price was $77.74 per share)
2. Price-earnings ratio (assume earnings per share was $4.45)

b. Refer to Note 13.54 "Business in Action 13.6" In which category does Colgate-Palmolive belong? Explain.

34. **Balanced Scorecard Internal Business Process Measures.** Tony's Pizzeria serves pizzas at its restaurants and provides delivery services to customers. The management would like to develop a balanced scorecard to assess performance.

Required:

Provide at least three internal business process measures Tony's Pizzeria can use on its balanced scorecard.

Problems

35. **Trend Analysis and Common-Size Analysis.** The following condensed income statement and balance sheet are for **Nordstrom, Inc.,** a large retailer of apparel. (Note that **Nordstrom's** 2010 fiscal year ends on January 29, 2011. This is called the 2010 fiscal year because only one month is in 2011, the other 11 months of the fiscal year are in 2010, and the company has chosen to refer to this as the 2010 fiscal year. This same concept applies to fiscal year 2009.)

Nordstrom, Inc.
Income Statement
Years Ended January 29, 2011 and January 30, 2010
(in millions)

	2010	2009
Net sales	$ 9,700	$8,627
Cost of goods sold	5,897	5,328
Gross margin	$ 3,803	$3,299
Selling and administrative expenses	2,685	2,465
Operating income	$ 1,118	$ 834
Interest expense	127	138
Income before taxes	$ 991	$ 696
Income tax expense	378	255
Net income	$ 613	$ 441

Nordstrom, Inc. Balance Sheet January 29, 2011 and January 30, 2010 (in millions)		
	2011	**2010**
Assets		
Current assets		
Cash and cash equivalents	$1,506	$ 795
Accounts receivable (net)	2,026	2,035
Merchandise inventory	977	898
Other current assets	315	326
Total current assets	$4,824	$4,054
Noncurrent assets		
Property, plant and equipment (net)	2,318	2,242
Other assets	320	283
Total assets	$7,462	$6,579
Liabilities and shareholders' equity		
Current liabilities		
Accounts payable and accrued liabilities	$1,221	$1,062
Other current liabilities	658	952
Total current liabilities	$1,879	$2,014
Noncurrent liabilities		
Long-term debt and other liabilities	3,562	2,993
Shareholders' equity		
Common stock	1,168	1,066
Retained earnings	882	525
Accumulated other income (loss)	(29)	(19)
Total liabilities and shareholders' equity	$7,462	$6,579

Required:

a. Prepare a trend analysis of the income statements from 2009 to 2010. Use the format shown in Figure 13.1 "Income Statement Trend Analysis for " as a guide. (Round computations to one decimal place.)
b. Prepare a trend analysis of the balance sheets from 2009 to 2010. Use the format shown in Figure 13.2 "Balance Sheet Trend Analysis for " as a guide. (Round computations to one decimal place.)
c. Identify all items that changed by more than 20 percent in the trend analyses prepared in requirements **a** and **b**, and briefly comment on the results.
d. Prepare a common-size analysis of the income statements for 2010 and 2009. Use the format shown in Figure 13.5 "Common-Size Income Statement Analysis for " as a guide. (Round computations to one decimal place.)
e. Prepare a common-size analysis of the balance sheets for 2010 and 2009. Use the format shown in Figure 13.6 "Common-Size Balance Sheet Analysis for " as a guide. (Round computations to one decimal place.)
f. What does the common-size analysis prepared in requirements **d** and **e** tell you about the company?

36. **Profitability and Short-Term Liquidity Ratios.** Refer to the information presented in Problem 35 for **Nordstrom**.

Required:

a. Compute the following profitability ratios for 2010, and provide a brief explanation after each ratio (round percentage computations to one decimal place and earnings per share to two decimal places):

1. Gross margin ratio
2. Profit margin ratio
3. Return on assets
4. Return on common shareholders' equity
5. Earnings per share (weighted average shares outstanding totaled 218,800,000 shares)

b. Compute the following short-term liquidity ratios for 2010, and provide a brief explanation after each ratio (round computations to two decimal places):

1. Current ratio
2. Quick ratio
3. Receivables turnover ratio and average collection period (assume all sales are on account)
4. Inventory turnover ratio and average sale period

37. **Long-Term Solvency Ratios and Market Valuation Measures.** Refer to the information presented in Problem 35 for **Nordstrom**.

Required:

a. Compute the following long-term solvency ratios for 2010, and provide a brief explanation after each ratio (round computations to two decimal places):

1. Debt to assets

2. Debt to equity
3. Times interest earned

b. Compute the following market valuation measures for 2010, and provide a brief explanation after each measure (state market capitalization in billions, and round price-earnings ratio to two decimal places):

1. Market capitalization (assume 218,000,000 shares were issued and outstanding at January 29, 2011, and the market price was $40.08 per share)
2. Price-earnings ratio (assume the earnings per share amount was $2.80)

38. **Income Statement Trend, Common-Size, and Profitability Analysis.** The following condensed income statement and balance sheet are for **Starbucks Corporation**, a large retailer of specialty coffee with stores throughout the world.

Starbucks Corporation Income Statement Years Ended October 2, 2011 and October 3, 2010 (in millions)		
	2011	**2010**
Net sales	$11,700	$10,707
Cost of goods sold	4,949	4,459
Gross margin	$ 6,751	$ 6,248
Operating expenses	5,227	4,977
Operating income	$ 1,524	$ 1,271
Interest expense	33	33
Other income	320	199
Income before taxes	$ 1,811	$ 1,437
Income tax expense	566	491
Net income	$ 1,245	$ 946

Starbucks Corporation
Balance Sheet
October 2, 2011 and October 3, 2010
(in millions)

	2011	2010
Assets		
Current assets		
Cash and cash equivalents	$1,148	$1,164
Short-term investments	903	286
Accounts receivable (net)	387	303
Merchandise inventory	966	543
Other current assets	391	460
Total current assets	$3,795	$2,756
Noncurrent assets		
Property, plant and equipment (net)	2,355	2,417
Other assets	1,210	1,213
Total assets	$7,360	$6,386
Liabilities and shareholders' equity		
Current liabilities		
Accounts payable and accrued liabilities	$1,480	$1,219
Other current liabilities	596	560
Total current liabilities	$2,076	$1,779
Noncurrent liabilities		
Long-term debt and other liabilities	898	924
Shareholders' equity		
Common stock	41	146
Retained earnings	4,297	3,471
Accumulated other income	48	66
Total liabilities and shareholders' equity	$7,360	$6,386

Required:

a. Prepare a trend analysis of the income statements from 2010 to 2011. Use the format shown in <u>Figure 13.1 "Income Statement Trend Analysis for "</u> as a guide. (Round computations to one decimal place.)

b. Identify all items that changed by more than 20 percent in the trend analysis prepared in requirement **a**, and briefly comment on the results.

c. Prepare a common-size analysis of the income statements for 2011 and 2010. Use the format shown in <u>Figure 13.5 "Common-Size Income Statement Analysis for "</u> as a guide. (Round computations to one decimal place.)

d. What does the common-size analysis prepared in requirement **c** tell you about the company?

e. Compute the following profitability ratios for 2011, and provide a brief explanation after each ratio (round percentage computations to one decimal place and earnings per share to two decimal places):

1. Gross margin ratio

2. Profit margin ratio
3. Return on assets
4. Return on common shareholders' equity
5. Earnings per share (assume weighted average shares outstanding totaled 748,300,000 shares)

39. **Short-Term Liquidity, Long-Term Solvency, and Market Valuation.** Refer to the information presented in Problem 38 for **Starbucks**.

   Required:

   a. Compute the following short-term liquidity ratios for 2011, and provide a brief explanation after each ratio (round computations to two decimal places):

      1. Current ratio
      2. Quick ratio
      3. Receivables turnover ratio and average collection period (assume all sales are on account)
      4. Inventory turnover ratio and average sale period

   b. Compute the following long-term solvency ratios for 2011, and provide a brief explanation after each ratio (round computations to two decimal places):

      1. Debt to assets
      2. Debt to equity
      3. Times interest earned

   c. Compute the following market valuation measures for 2011, and provide a brief explanation after each measure (state market capitalization in billions, and round price-earnings ratio to two decimal places):

      1. Market capitalization (assume 744,800,000 shares were issued and outstanding at October 2, 2011, and the market price was $37.14 per share)

2. Price-earnings ratio (assume the earnings per share amount was $1.66)

40. **Balance Sheet Trend and Common-Size Analysis.** The following condensed income statement and balance sheet are for **Wal-Mart Stores, Inc.** (note that **Wal-Mart's** 2010 fiscal year ends on January 31, 2011. This is called the 2010 fiscal year because only one month is in 2011, the other 11 months of the fiscal year are in 2010, and the company has chosen to refer to this as the 2010 fiscal year. This same concept applies to fiscal year 2009.)

Wal-Mart Stores, Inc.
Income Statement
Years ended January 31, 2011 and January 31, 2010
(in millions)

	2011	2010
Net sales	$421,849	$408,085
Cost of goods sold	315,287	304,444
Gross margin	$106,562	$103,641
Operating expenses	81,020	79,639
Operating income	$ 25,542	$ 24,002
Interest expense	2,205	2,065
Other income	201	181
Income before taxes	$ 23,538	$ 22,118
Income tax expense	7,579	7,156
Non-operating income (loss)	430	(592)
Net income	$ 16,389	$ 14,370

Wal-Mart Stores, Inc.
Balance Sheet
January 31, 2011 and January 31, 2010
(in millions)

	2011	2010
Assets		
Current assets		
Cash and cash equivalents	$ 7,395	$ 7,907
Accounts receivable (net)	5,089	4,144
Merchandise inventory	36,318	32,713
Other current assets	3,091	3,268
Total current assets	$ 51,893	$ 48,032
Noncurrent assets		
Property, plant and equipment (net)	107,878	102,307
Other assets	20,892	20,068
Total assets	$180,663	$170,407
Liabilities and shareholders' equity		
Current liabilities		
Accounts payable and accrued liabilities	$ 52,415	$ 50,532
Other current liabilities	6,069	5,011
Total current liabilities	$ 58,484	$ 55,543
Noncurrent liabilities		
Long-term debt and other liabilities	50,932	42,216
Shareholders' equity		
Common stock	3,929	4,181
Retained earnings	63,967	66,357
Accumulated other income and noncontrolling interest	3,351	2,110
Total liabilities and shareholders' equity	$180,663	$170,407

Required:

a. Prepare a trend analysis of the balance sheets from 2009 to 2010. Use the format shown in Figure 13.2 "Balance Sheet Trend Analysis for " as a guide. (Round computations to one decimal place.)

b. Prepare a common-size analysis of the balance sheets for 2010 and 2009. Use the format shown in Figure 13.6 "Common-Size Balance Sheet Analysis for " as a guide. (Round computations to one decimal place.)

c. What does the balance sheet common-size analysis prepared in requirement **b** tell you about the company?

41. **Income Statement Trend and Common-Size Analysis; Profitability Ratios.** Refer to the information presented in Problem 40 for **Wal-Mart**.

Required:

a. Prepare a trend analysis of the income statements from 2009 to 2010. Use the format shown in Figure 13.1 "Income Statement Trend Analysis for " as a guide. (Round computations to one decimal place.)

b. Based on the income statement trend analysis prepared in requirement **a**, describe what caused the increase in operating income from 2009 to 2010.

c. Prepare a common-size analysis of the income statements for 2010 and 2009. Use the format shown in <u>Figure 13.5 "Common-Size Income Statement Analysis for "</u> as a guide. (Round computations to one decimal place.)

d. What does the income statement common-size analysis prepared in requirement **c** tell you about the company?

e. Compute the following profitability ratios for 2010, and provide a brief explanation after each ratio (round percentage computations to one decimal place and earnings per share to two decimal places):

1. Gross margin ratio
2. Profit margin ratio
3. Return on assets
4. Return on common shareholders' equity
5. Earnings per share (assume weighted average shares outstanding totaled 3,656,000,000 shares)

42. **Short-Term Liquidity, Long-Term Solvency, Market Valuation, and Balanced Scorecard.** Refer to the information presented in Problem 40 for **Wal-Mart**.

Required:

a. Compute the following short-term liquidity ratios for 2010, and provide a brief explanation after each ratio (round computations to two decimal places):

1. Current ratio
2. Quick ratio
3. Receivables turnover ratio and average collection period (assume all sales are on account)
4. Inventory turnover ratio and average sale period

b. Compute the following long-term solvency ratios for 2010, and provide a brief explanation after each ratio (round computations to two decimal places):

1. Debt to assets
2. Debt to equity
3. Times interest earned

c. Compute the following market valuation measures for 2010, and provide a brief explanation after each measure (state market capitalization in billions, and round price-earnings ratio to two decimal places):

1. Market capitalization (assume 3,516,000,000 shares were issued and outstanding at January 31, 2011, and the market price was $54.58 per share)
2. Price-earnings ratio (assume the earnings per share amount was $4.48)

d. Assume **Wal-Mart** uses a balanced scorecard to assess performance. Provide at least two learning and growth measures the company can use on its balanced scorecard.

One Step Further: Skill-Building Cases

43. **Trend Information in Annual Reports.** Refer to <u>Note 13.9 "Business in Action 13.1"</u> Why is trend information important to shareholders?
44. **Earnings per Share.** Refer to <u>Note 13.28 "Business in Action 13.3"</u> Was **AnnTaylor Stores'** earnings per share higher or lower than analysts expected? Explain whether you would expect the company's stock price to increase or decrease as a result of the press release.
45. **Inventory Turnover in the Computer Industry.** Refer to <u>Note 13.42 "Business in Action 13.4"</u> Why do you think inventory turnover for the computer hardware industry is so quick?
46. **Financial Leverage in the Auto Industry.** Refer to <u>Note 13.48 "Business in Action 13.5"</u> Why do most investors consider **GM** to be highly leveraged?
47. **Market Capitalization Categories.** Refer to <u>Note 13.54 "Business in Action 13.6"</u> Define what is meant by small-cap, midcap, and large-cap. In which category does **Coca-Cola** belong? Explain.

48. **Internet Project: Financial Statement Analysis.** Using the Internet, find the most recent annual report (or form 10K) for a manufacturing or retail company of your choice. Most companies have links to the information at their Web sites under titles, such as *investor relations* or *financial reports*. Print the income statement and balance sheet for the company selected and include these documents with your response to the following requirements.

Required:

a. Compute the following profitability ratios for the most current year, and provide a brief explanation after each ratio (round percentage computations to one decimal place):

   1. Gross margin ratio
   2. Profit margin ratio
   3. Return on assets
   4. Return on common shareholders' equity

b. Compute the following short-term liquidity ratios for the most current year, and provide a brief explanation after each ratio (round computations to two decimal places):

   1. Current ratio
   2. Quick ratio
   3. Receivables turnover ratio and average collection period (assume all sales are on account)
   4. Inventory turnover ratio and average sale period

c. Compute the following long-term solvency ratios for the most current year, and provide a brief explanation after each ratio (round computations to two decimal places):

   1. Debt to assets
   2. Debt to equity

d. Provide a one-page written report summarizing your results in requirements **a**, **b**, and **c**. Identify any areas of concern as well as areas of strength for the company.

49. **Group Activity: Analyzing Lowe's Companies, Inc.** The condensed income statement and balance sheet information provided as follows is for **Lowe's Companies, Inc.**, a large retail company that sells building materials and supplies. **Lowe's** had 1,354,000,000 shares issued and outstanding at January 28, 2011, and the market price per share on that date was $24.83. (Note that **Lowe's** 2010 fiscal year ends on January 28, 2011. This is called the 2010 fiscal year because only one month is in 2011, the other 11 months of the fiscal year are in 2010, and the company has chosen to refer to this as the 2010 fiscal year. This same concept applies to fiscal year 2009.)

Lowe's Companies, Inc.
Income Statement
Years ended January 28, 2011 and January 29, 2010
(in millions)

	2010	2009
Net sales	$48,815	$47,220
Cost of goods sold	31,663	30,757
Gross margin	$17,152	$16,463
Operating expenses	13,592	13,351
Operating income	3,560	3,112
Other expenses (net)	332	287
Income before taxes	$ 3,228	$ 2,825
Income tax expense	1,218	1,042
Net income	$ 2,010	$ 1,783

Lowe's Companies, Inc.
Balance Sheet
January 28, 2011 and January 29, 2010
(in millions)

	2011	2010
Assets		
Current assets		
Cash and cash equivalents	$ 652	$ 632
Short-term investments	471	425
Merchandise inventory	8,321	8,249
Other current assets	523	426
Total current assets	$ 9,967	$ 9,732
Noncurrent assets		
Property, plant and equipment (net)	22,089	22,499
Other assets	1,643	774
Total assets	$33,699	$33,005
Liabilities and shareholders' equity		
Current liabilities		
Accounts payable and accrued liabilities	$ 5,018	$ 4,864
Other current liabilities	2,101	2,491
Total current liabilities	$ 7,119	$ 7,355
Noncurrent liabilities		
Long-term debt and other liabilities	8,468	6,581
Shareholders' equity		
Common stock	688	735
Retained earnings	17,424	18,334
Total liabilities and shareholders' equity	$33,699	$33,005

Form groups of two to four students. Each group is to be assigned one of the following three categories of financial measures:

1. Profitability measures

    1. Gross margin ratio
    2. Profit margin ratio
    3. Return on assets
    4. Return on common shareholders' equity

2. Short-term liquidity measures

    1. Current ratio
    2. Quick ratio
    3. Inventory turnover ratio and average sales period

3. Long-term solvency and market valuation measures

    1. Debt to assets
    2. Debt to equity
    3. Market capitalization

Required:

a. Calculate the financial measures assigned to your group. Round all computations to two decimal places, except the market capitalization measure, which can be rounded to the nearest billion dollars.
b. Provide a brief explanation of each measure your group calculated in requirement **a**.
c. Discuss the results of your group with the class.

50. **Performing Income Statement Trend Analysis Using Excel.** Review the information for **Apple, Inc.,** in Brief Exercise 14.

Required:

Perform income statement trend analysis for **Apple, Inc.,** using an Excel spreadsheet. The format should be similar to the one in Figure 13.1 "Income Statement Trend Analysis for ". Round percent computations to one decimal place.

Comprehensive Cases

51. **Financial Statement Analysis and Industry Standards; Manufacturing Company.** Susan Hartford is the president and CEO of Computer Makers, Inc. The company is in the process of looking for a supplier of computer chips, and Susan has asked her staff to review the financial stability of **Intel Corporation**, the world's largest maker of computer chips. Susan's staff began by collecting industry average information, which is shown as follows, and would like your help in calculating and evaluating these measures for **Intel**.

Measure	Industry Average	Intel
Gross margin	57.7 percent	?
Profit margin	21.9 percent	?
Return on assets	17.7 percent	?

Return on common shareholders' equity	21.5 percent	?
Current ratio	2.3 to 1	?
Quick ratio	1.9 to 1	?
Receivables turnover	12.8 times	?
Inventory turnover	4.8 times	?
Debt to assets	0.21 to 1	?
Debt to equity	0.26 to 1	?
Market capitalization	$80,000,000,000	?

Intel's income statement and balance sheet are provided as follows. The price for 1 share of common stock at December 25, 2010, the end of **Intel's** fiscal year, was $20.13. The number of shares issued and outstanding at December 25, 2010, totaled 5,581,000,000. Assume all sales were on account.

Intel Corporation
Income Statement
Years Ended December 25, 2010 and December 26, 2009
(in millions)

	2010	2009
Net sales	$43,623	$35,127
Cost of goods sold	15,132	15,566
Gross margin	$28,491	$19,561
Operating expenses	12,903	13,850
Operating income	$15,588	$ 5,711
Other income (expenses; net)	457	(7)
Income before taxes	$16,045	$ 5,704
Income tax expense	4,581	1,335
Net income	$11,464	$ 4,369

Intel Corporation
Balance Sheet
December 25, 2010 and December 26, 2009
(in millions)

	2010	2009
Assets		
Current assets		
Cash and cash equivalents	$ 5,498	$ 3,987
Short-term investments	16,387	9,933
Accounts receivable (net)	2,867	2,273
Merchandise inventory	3,757	2,935
Other current assets	3,102	2,029
Total current assets	$31,611	$21,157
Noncurrent assets		
Property, plant and equipment (net)	17,899	17,225
Other assets	13,676	14,713
Total assets	$63,186	$53,095
Liabilities and shareholders' equity		
Current liabilities		
Accounts payable and accrued liabilities	$ 8,667	$ 6,826
Other current liabilities	660	765
Total current liabilities	$ 9,327	$ 7,591
Noncurrent liabilities		
Long-term debt and other liabilities	4,429	3,800
Shareholders' equity		
Common stock	16,178	14,993
Retained earnings	32,919	26,318
Accumulated other income (loss)	333	393
Total liabilities and shareholders' equity	$63,186	$53,095

Required:

a. Using the industry average measures provided, compute the same measures for **Intel** for its fiscal year ended December 25, 2010. (State your results in the same format used for industry averages.)

b. Summarize your results in requirement **a** by completing a table using the following headings:

Measure	Industry Average	Intel Corporation

Immediately following each measure, indicate whether **Intel's** financial condition is better or worse than the industry average.

c. Using your answers to requirements **a** and **b** to support your position, determine whether **Intel** is financially stable.

52. **Ethics: Manipulating Data to Meet Loan Requirements.**
Custom Tech, Inc., designs and produces computers for a variety

of customers. The company has encountered a cash shortage resulting from collection problems with several customers. If Custom Tech is unable to collect a significant portion of its receivables relatively soon, the company will not be able to pay suppliers and employees next quarter. As a result, Custom Tech's president, Don Lardner, began discussions with a local bank about obtaining a short-term loan. Don did not mention the cause of the cash flow shortage other than to say, "This happens the same time every year due to the cyclical nature of our business."

In a meeting with the bank's loan officer, Jan Johnson, Don was told the loan should not be a problem as long as Custom Tech maintains a profit margin ratio above 10 percent, quick ratio above 1.0 to 1, and debt to equity ratio below 1.4 to 1. Don indicated this was in line with his company's performance and agreed to provide financial statements for the most recent year at their next meeting.

The financial statements shown as follows are for Custom Tech's most recent year ended December 31. This information has not yet been provided to the bank.

Custom Tech, Inc.
Income Statement
Most Recent Year Ended December 31
(in thousands)

Net sales	$300
Cost of goods sold	120
Gross margin	$180
Operating expenses	135
Income before taxes	$ 45
Tax expense	12
Net income	$ 33

Chapter 13 How Do Managers Use Financial and Nonfinancial Performance Measures?

Custom Tech, Inc.
Balance Sheet
December 31
(in thousands)

Assets	
Current assets	
Cash and cash equivalents	$ 15
Accounts receivable (net)	75
Merchandise inventory	40
Other current assets	35
Total current assets	$165
Noncurrent assets	
Property, plant and equipment (net)	85
Total assets	$250
Liabilities and shareholders' equity	
Current liabilities	
Accounts payable and accrued liabilities	$100
Total current liabilities	$100
Noncurrent liabilities	
Long-term debt	50
Shareholders' equity	
Common stock	60
Retained earnings	40
Total liabilities and shareholders' equity	$250

Required:

a. Calculate the ratios required by the bank and determine whether Custom Tech will qualify for the loan.

b. Assume you are the CFO for Custom Tech. Don Lardner asks you to reclassify $30,000 in current liabilities to common stock. Don states, "We owe it to our shareholders and employees to do whatever it takes to get this loan! Without it, we may have to file for bankruptcy and let our employees go. Once we get this loan and collect our outstanding receivables we'll be in good shape." Prepare a revised balance sheet after making the $30,000 reclassification, recalculate the ratios required by the bank, and determine whether Custom Tech will qualify for the loan with the revised numbers.

c. Are the president's actions ethical? If you were the CFO, how would you handle the president's request? (To answer these questions, you may want to review the presentation of ethics in Chapter 1 "What Is Managerial Accounting?".)