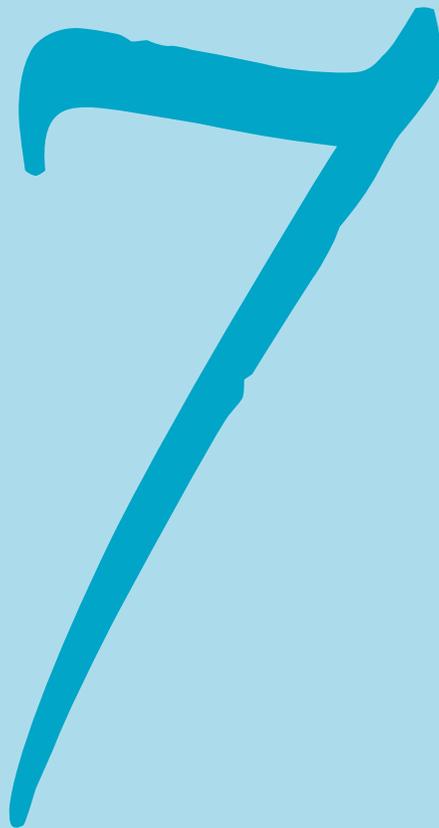


# FINANCIAL STATEMENT ANALYSIS



## THE NAVIGATOR ✓

- Understand *Concepts for Review*
- Read *Feature Story*
- Scan *Study Objectives*
- Read *Preview*
- Read text and answer *Before You Go On*  
p. 212  p. 222  p. 223
- Work *Demonstration Problem*
- Review *Summary of Study Objectives*
- Complete *Assignments*

## CONCEPTS FOR REVIEW

**Before studying this chapter, you should know or, if necessary, review:**

- a. The contents and classification of a balance sheet. (Ch. 5, pp. 154–159)
- b. The contents and classification of an income statement. (Ch. 6, pp. 170–177)
- c. The various users of financial statement information. (Ch. 1, pp. 33–35)



## F E A T U R E S T O R Y

### “Follow That Stock!”

If you thought cab drivers with cell phones were scary, how about a cab driver with a trading desk in the front seat?

When a stoplight turns red or traffic backs up, New York City cabbie Carlos Rubino morphs into a day trader, scanning real-time quotes of his favorite stocks as they spew across a PalmPilot mounted next to the steering wheel. “It’s kind of stressful,” he says. “But I like it.”

Itching to know how a particular stock is doing? Mr. Rubino is happy to look up quotes for passengers.

**Yahoo!**, **Amazon.com**, and **America Online** are the most requested ones. He even lets customers use his **Hitachi** Traveler laptop to send urgent e-mails from the back seat. Aware of a new local law prohibiting cabbies from using cell phones while they’re driving, Mr. Rubino extends that rule to his trading. “I stop the cab at the side of the road if I have to make a trade,” he says. “Safety first.”

Originally from São Paulo, Brazil, Mr. Rubino has been driving

his cab since 1987 and started trading stocks a few years ago. His curiosity grew as he began to educate himself by reading business publications. The Wall Street brokers he picks up are usually impressed with his knowledge, he says. But the feeling generally isn’t mutual. Some of them “don’t know much,” he says. “They buy what people tell them to buy—they’re like a toll collector.”

Mr. Rubino is an enigma to his fellow cab drivers. A lot of his colleagues say they want to trade, too. “But cab drivers are a little cheap,” he says. “The [real-time] quotes cost \$100 a month. The wireless Internet access is \$54 a month.”

Will he give up his brokerage firm on wheels for a stationary job? Not likely. Though he claims a 70 percent return on his investments in some months, he says he makes



\$1,300 and up a week driving his cab—more than he does trading. Besides, he adds, “Why go somewhere and have a boss?”

*SOURCE:* Excerpted from Barbara Boydston, “With this Cab, People Jump in and Shout, ‘Follow that Stock!’,” *Wall Street Journal*, August 18, 1999, p. C1. Reprinted by permission of the *Wall Street Journal* © 1999 Dow Jones & Company, Inc. All Rights Reserved Worldwide.



## S T U D Y O B J E C T I V E S

After studying this chapter, you should be able to:

1. Discuss the need for comparative analysis.
2. Identify the tools of financial statement analysis.
3. Explain and apply horizontal analysis.
4. Describe and apply vertical analysis.
5. Identify and compute ratios; and describe their purpose and use in analyzing a firm’s liquidity, profitability, and solvency.
6. Recognize the limitations of financial statement analysis.

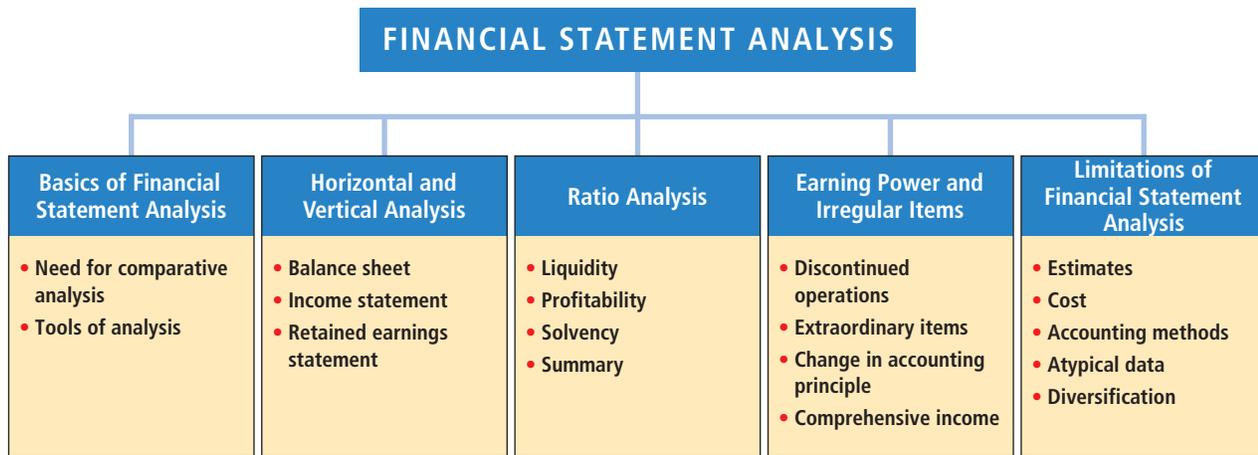


## PREVIEW OF CHAPTER 7

An important lesson can be learned from the Feature Story: Follow That Stock!. By now you have learned a significant amount about financial reporting by U.S. corporations. Using some of the basic decision tools presented in this book, you can perform a rudimentary analysis on any U.S. company and draw basic conclusions about its financial health. Although it would not be wise for you to bet your life savings on a company's stock relying solely on your current level of knowledge, we strongly encourage you to practice your new skills wherever possible. Only with practice will you improve your ability to interpret financial numbers.

Before unleashing you on the world of high finance, we will present a few more important concepts and techniques, as well as provide you with one more comprehensive review of corporate financial statements. We use all the decision tools presented in this text to analyze a single company—**Brinker International**, one of the country's more successful international restaurant chains.

The content and organization of Chapter 7 are as follows:



## BASICS OF FINANCIAL STATEMENT ANALYSIS

Analyzing financial statements involves evaluating three characteristics of a company: its liquidity, its profitability, and its solvency. A **short-term creditor**, such as a bank, is primarily interested in the ability of the borrower to pay obligations when they come due. The liquidity of the borrower is extremely important in evaluating the safety of a loan. A **long-term creditor**, such as a bondholder, however, looks to profitability and solvency measures that indicate the company's ability to survive over a long period of time. Long-term creditors consider such measures as the amount of debt in the company's capital structure and its ability to meet interest payments. Similarly, **stockholders** are interested in the profitability and the solvency of the company. They want to assess the likelihood of dividends and the growth potential of the stock.

### NEED FOR COMPARATIVE ANALYSIS

Every item reported in a financial statement has significance. When **Brinker International** reports cash \$55.6 million on its balance sheet, we know the company had that amount of cash on the balance sheet date. But we do not know whether the amount represents an increase over prior years or whether it is

### STUDY OBJECTIVE 1

Discuss the need for comparative analysis.

adequate in relation to the company's need for cash. To obtain such information, it is necessary to compare the amount of cash with other financial statement data.

Comparisons can be made on a number of different bases. Three are illustrated in this chapter.

1. **Intracompany basis.** This basis compares an item or a financial relationship **within a company** in the current year with the same item or relationship in one or more prior years. For example, Brinker can compare its cash balance at the end of the current year with last year's balance to find the amount of the increase or decrease. Likewise, Brinker can compare the percentage of cash to current assets at the end of the current year with the percentage in one or more prior years. Intracompany comparisons are useful in detecting changes in financial relationships and significant trends.
2. **Industry averages.** This basis compares an item or a financial relationship of a company with **industry averages** (or **norms**) published by financial ratings organizations such as **Dun & Bradstreet**, **Robert and Morris Associates**, **Moody's**, and **Standard & Poor's**. For example, Brinker's net income can be compared with the average net income of all companies in the restaurant industry. Comparisons with industry averages provide information as to a company's relative performance within the industry.
3. **Intercompany basis.** This basis compares an item or a financial relationship of one company with the same item or relationship in **one or more competing companies**. The comparisons are made on the basis of the published financial statements of the individual companies. For example, Brinker's total sales for the year can be compared with the total sales of a major competitor, such as **Landry's**. Intercompany comparisons are useful in determining a company's competitive position.

## TOOLS OF FINANCIAL STATEMENT ANALYSIS

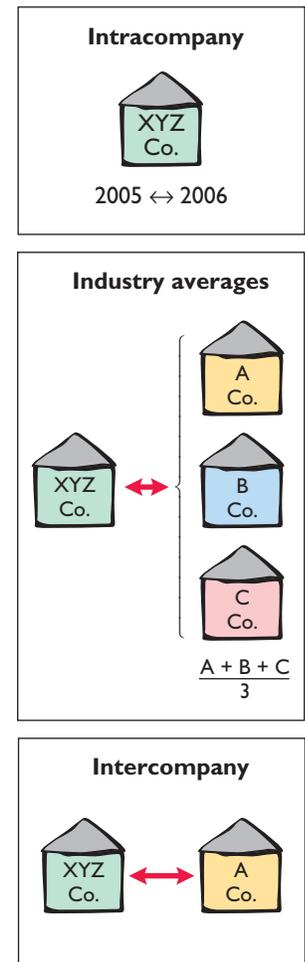
Various tools are used to evaluate the significance of financial statement data. Three commonly used tools are these:

1. **Horizontal analysis** evaluates a series of financial statement data over a period of time.
2. **Vertical analysis** evaluates financial statement data by expressing each item in a financial statement as a percent of a base amount.
3. **Ratio analysis** expresses the relationship among selected items of financial statement data.

Horizontal analysis is used primarily in intracompany comparisons. Two features in published financial statements facilitate this type of comparison. First, each of the basic financial statements is presented on a comparative basis for a minimum of two years. Second, a summary of selected financial data is presented for a series of five to ten years or more. Vertical analysis is used in both intra- and intercompany comparisons. Ratio analysis is used in all three types of comparisons. In the following sections we will explain and illustrate each of the three types of analysis.

## HORIZONTAL ANALYSIS

**Horizontal analysis**, also called trend analysis, is a technique for evaluating a series of financial statement data over a period of time. Its purpose is to determine the increase or decrease that has taken place. This change may be expressed as either an amount or a percentage. For example, the recent net sales figures of **Brinker International** are as shown in Illustration 7-1.



### STUDY OBJECTIVE 2

Identify the tools of financial statement analysis.

### STUDY OBJECTIVE 3

Explain and apply horizontal analysis.

**Illustration 7-1**

**Brinker International's** net sales

<b>BRINKER INTERNATIONAL Revenues (in thousands)</b>		
<u>2006</u>	<u>2005</u>	<u>2004</u>
\$4,151,291	\$3,749,539	\$3,541,005

If we assume that 2004 is the base year, we can measure all percentage increases or decreases from this base period amount as shown in Illustration 7-2.

**Illustration 7-2**

Formula for horizontal analysis of changes since base period

$$\text{Change Since Base Period} = \frac{\text{Current Year Amount} - \text{Base Year Amount}}{\text{Base Year Amount}}$$

For example, we can determine that net sales for Brinker increased from 2004 to 2005 approximately 5.89 percent  $[(\$3,749,539 - \$3,541,005) \div \$3,541,005]$ . Similarly, we can determine that net sales increased from 2004 to 2006 approximately 17.23 percent  $[(\$4,151,291 - \$3,541,005) \div \$3,541,005]$ .

Alternatively, we can express current year sales as a percentage of the base period. This is done by dividing the current year amount by the base year amount, as shown in Illustration 7-3.

**Illustration 7-3**

Formula for horizontal analysis of current year in relation to base year

$$\text{Current Results in Relation to Base Period} = \frac{\text{Current Year Amount}}{\text{Base Year Amount}}$$

Illustration 7-4 presents this analysis for Brinker for a three-year period using 2004 as the base period.

**Illustration 7-4**

Horizontal analysis of net sales of **Brinker International** in relation to base period

<b>BRINKER INTERNATIONAL Revenues (in thousands) In relation to base period 2004</b>		
<u>2006</u>	<u>2005</u>	<u>2004</u>
\$4,151,291	\$3,749,539	\$3,541,005
117.23%	105.89%	100%

## BALANCE SHEET

To further illustrate horizontal analysis, we will use the financial statements of Sofia's Place, a family-style independent restaurant in a southwestern city. A horizontal analysis of its two-year condensed balance sheets, showing dollar and percentage changes, is presented in Illustration 7-5.

The comparative balance sheets in Illustration 7-5 show that a number of significant changes have occurred in Sofia's financial structure from 2005 to 2006. In the assets section, plant assets (net) increased \$2,019, or 0.31 percent. In the liabilities section, current liabilities increased \$2,213, or 0.72 percent. In the stockholders' equity section, retained earnings increased \$7931, or 2.26 percent. This suggests that the company did not see much growth from 2005 to 2006.

## INCOME STATEMENT

Illustration 7-6 presents a horizontal analysis of the two-year condensed income statements of Sofia's for the years 2004 and 2005.

**Illustration 7-5**

Horizontal analysis of balance sheets

<b>SOFIA'S PLACE</b>				
<b>Balance Sheet December 31</b>				
	<b>2006</b>	<b>2005</b>	<b>Increase (or Decrease)</b>	
			<b>during 2006</b>	
			<b>Amount</b>	<b>Percent</b>
<b>Assets</b>				
Current assets	\$ 26,062	\$ 26,001	\$ 61	0.24%
Accounts receivables	39,093	37,916	1,177	3.11%
Inventories	28,638	28,021	617	2.20%
Prepaid expenses	45,188	27,938	17,250	61.74%
Total current assets	138,982	119,876	19,106	15.94%
Plant assets (net)	651,891	649,872	2,019	0.31%
Intangible assets	77,870	87,580	(9,710)	-11.09%
Total assets	<u>\$868,743</u>	<u>\$857,328</u>	<u>\$11,415</u>	1.33%
<b>Liabilities</b>				
Current liabilities	\$311,325	\$309,112	\$ 2,213	0.72%
Long-term liabilities	192,546	191,280	1,266	0.66%
Total liabilities	\$503,871	\$500,392	\$ 3,479	0.70%
<b>Stockholders' Equity</b>				
Common stock, \$1 par	6,000	6,000	-0-	0.00%
Retained earnings	358,872	350,936	7,936	2.26%
Total stockholders' equity	364,872	356,936	7,936	2.22%
Total liabilities and stockholders' equity	<u>\$868,743</u>	<u>\$857,328</u>	<u>\$11,415</u>	1.33%

Horizontal analysis of the income statements shows the following changes:

1. Revenues increased \$161,112, or 13.32 percent ( $\$161,112 \div \$1,209,876$ ).
2. Cost of sales increased \$60,426, or 15.41 percent ( $\$60,426 \div \$392,000$ ).
3. Total other expenses also increased \$101,803, or 13.29 percent ( $\$101,803 \div \$765,743$ ).

**Illustration 7-6**

Horizontal analysis of income statement

<b>SOFIA'S PLACE</b>				
<b>Income Statement</b>				
<b>For the Years Ended December 31</b>				
	<b>2006</b>	<b>2005</b>	<b>Increase (or Decrease)</b>	
			<b>during 2006</b>	
			<b>Amount</b>	<b>Percent</b>
Revenues	\$1,370,988	\$1,209,876	\$161,112	13.32%
Cost of sales	452,426	392,000	60,426	15.41%
Gross profit	918,562	817,876	100,686	12.31%
Other expenses	867,546	765,743	101,803	13.29%
Operating income	51,016	52,133	(1,117)	-2.14%
Interest expense	3,600	4,000	(400)	-10.00%
Other, net	1,254	544	710	130.51%
Income before income tax	46,162	47,589	(1,427)	-3.00%
Income tax	11,540	12,373	(833)	-6.73%
Net income	<u>\$ 34,621</u>	<u>\$ 35,216</u>	<u>\$ (595)</u>	-1.69%

**HELPFUL HINT**

Note that though the amount column is additive (the total is -\$595), the percentage column is not additive (-1.69% is not the total). A separate percentage has been calculated for each item.

Overall, gross profit was up, while net income was down slightly. Gross profit increased 12.31 percent, but net income decreased 1.69 percent.

### RETAINED EARNINGS STATEMENT

A horizontal analysis of Sofia's comparative retained earnings statements is presented in Illustration 7-7. Analyzed horizontally, net income decreased \$595, or 1.69 percent, whereas dividends on the common stock increased \$6,135, or 29.86 percent.

#### Illustration 7-7

Horizontal analysis of retained earnings statements

SOFIA'S PLACE Retained Earnings Statements For the Years Ended December 31				
	<u>2006</u>	<u>2005</u>	Increase (or Decrease) during 2006	
			<u>Amount</u>	<u>Percent</u>
Retained earnings, Jan. 1	\$350,936	\$406,702	\$(55,766)	-13.71%
Add: Net income	34,621	35,216	(595)	-1.69%
	385,557	371,486	14,071	3.79%
Less: Dividends	26,685	20,550	6,135	29.86%
Retained earnings, Dec. 31	<u>\$358,872</u>	<u>\$350,936</u>	<u>\$ 7,936</u>	2.26%

Horizontal analysis of changes from period to period is relatively straightforward and is quite useful. But complications can occur in making the computations. If an item has no value in a base year or a preceding year and a value in the next year, no percentage change can be computed. Similarly, if a negative amount appears in the base or the preceding period and a positive amount exists the following year (or vice versa), no percentage change can be computed.

## VERTICAL ANALYSIS

### STUDY OBJECTIVE 4

Describe and apply vertical analysis.

**Vertical analysis**, also called common size analysis, is a technique for evaluating financial statement data that express each item within a financial statement as a percent of a base amount. On a balance sheet, we might say that current assets are 22 percent of total assets (total assets being the base amount). Or on an income statement, we might say that selling expenses are 16 percent of net sales (net sales being the base amount).

### BALANCE SHEET

Presented in Illustration 7-8 is the vertical analysis of Sofia's Place comparative balance sheets. The base for the asset items is **total assets**. The base for the liability and stockholders' equity items is **total liabilities and stockholders' equity**.

Vertical analysis shows the relative size of each category in the balance sheet. It also can show the **percentage change** in the individual asset, liability, and stockholders' equity items. For example, we can see that current assets increased from 13.98 percent of total assets in 2005 to 16.00 percent in 2006 (with the absolute dollar amount increased \$19,106 in that time). Plant assets (net) have decreased slightly from 75.80 to 75.04 percent of total assets. Retained earnings have increased from 40.93 to 41.31 percent of total liabilities and stockholders' equity. These results reinforce the earlier observations that **Sofia's is choosing to finance its growth through retention of earnings rather than through issuing additional debt**.

<b>SOFIA'S PLACE</b>				
<b>Balance Sheet December 31</b>				
	<b>2006</b>		<b>2005</b>	
	<b>Amount</b>	<b>Percent</b>	<b>Amount</b>	<b>Percent</b>
<b>Assets</b>				
Current assets	\$ 26,062	3.00%	\$ 26,001	3.03%
Accounts receivables	39,094	4.50%	37,916	4.42%
Inventories	28,638	3.30%	28,021	3.27%
Prepaid expenses	45,188	5.20%	27,938	3.26%
Total current assets	138,982	16.00%	119,876	13.98%
Plant assets (net)	651,891	75.04%	649,872	75.80%
Intangible assets	77,870	8.96%	87,580	10.22%
Total assets	<u>\$868,743</u>	<u>100.00%</u>	<u>\$857,328</u>	<u>100.00%</u>
<b>Liabilities</b>				
Current liabilities	\$311,325	35.84%	\$309,112	36.06%
Long-term liabilities	192,546	22.16%	191,280	22.31%
Total liabilities	\$503,871	58.00%	\$500,392	58.37%
<b>Stockholders' Equity</b>				
Common stock, \$1 par	6,000	0.69%	6,000	0.70%
Retained earnings	358,872	41.31%	350,936	40.93%
Total stockholders' equity	364,872	42.00%	356,936	41.63%
Total liabilities and stockholders' equity	<u>\$868,743</u>	<u>100.00%</u>	<u>\$857,328</u>	<u>100.00%</u>

**Illustration 7-8**

Vertical analysis of balance sheets

**HELPFUL HINT**

The formula for calculating these balance sheet (B/S) percentages is

$$\frac{\text{Each item on B/S}}{\text{Total assets}} = \%$$

**INCOME STATEMENT**

Vertical analysis of Sofia's income statements is shown in Illustration 7-9. We see that cost of goods sold as a percentage of net sales increased 0.6 percent (33 versus 32.4 percent) and total other expenses stayed stable. As a result, it is not surprising not to see a big change in net income as a percent of net sales increase. Sofia's appears to be keeping pace but not at a growth mode that is becoming even more successful.

<b>SOFIA'S PLACE</b>				
<b>Balance Sheet For the Years Ended December 31</b>				
	<b>2006</b>		<b>2005</b>	
	<b>Amount</b>	<b>Percent</b>	<b>Amount</b>	<b>Percent</b>
Revenues	\$1,370,988	100.00%	\$1,209,876	100.00%
Cost of sales	452,426	33.00%	392,000	32.40%
Gross profit	918,562	67.00%	817,876	67.60%
Other expenses	867,546	63.28%	765,743	63.29%
Operating income	51,016	3.72%	52,133	4.31%
Interest expense	3,600	0.26%	4,000	0.33%
Other, net	1,254	0.09%	544	0.04%
Income before income tax	46,162	3.37%	47,589	3.93%
Income tax	11,570	0.84%	12,373	1.02%
Net income	<u>\$ 34,621</u>	<u>2.53%</u>	<u>\$ 35,216</u>	<u>2.91%</u>

**Illustration 7-9**

Vertical analysis of income statements

**HELPFUL HINT**

The formula for calculating these income statement percentages is

$$\frac{\text{Each item on I/S}}{\text{Net sales}} = \%$$

An associated benefit of vertical analysis is that it enables you to compare companies of different sizes. For example, Sofia's main competitor is a Brinker International in a nearby town. Using vertical analysis, the condensed income statements of the small local food enterprise, Sofia's Place, can be more meaningfully compared with the 2006 income statement of the giant restaurateur, Brinker International, as shown in Illustration 7-10.

**Illustration 7-10**

Intercompany income statement comparison

	<b>Sofia's Place</b>		<b>Brinker International (in thousands)</b>	
	<b>2006</b>		<b>2006</b>	
	<b>Amount</b>	<b>Percent</b>	<b>Amount</b>	<b>Percent</b>
Revenues	\$1,370,988	100.00%	\$4,151,291	100.00%
Cost of sales	452,426	33.00%	1,160,931	27.97%
Gross profit	918,562	67.00%	\$2,990,360	72.03%
Other expenses	867,546	63.28%	2,663,761	64.17%
Operating income	51,016	3.72%	326,599	7.87%
Interest expense	3,600	0.26%	22,857	0.55%
Other, net	1,254	0.09%	(1,656)	-0.04%
Income before income tax	46,162	3.37%	305,398	7.36%
Income tax	11,540	0.84%	91,448	2.20%
Income from continuing operations			213,950	5.15%
(Loss) Income from discontinued operations, net of taxes			(1,555)	-0.04%
Net income	\$ 34,621	2.53%	\$ 212,395	5.12%

Brinker's net sales are over 3,000 times as great as the net sales of relatively tiny Sofia's Place. But vertical analysis eliminates this difference in size. The percentages show that Sofia's and Brinker's gross profit rates were comparable at 67 and 72 percent. However, Brinker has income from discontinuing operations while it closed 12 operations in 2006. In the same period, Brinker also opened 159 units, and Sofia's is still one independent restaurant.

### BEFORE YOU GO ON...

► **REVIEW IT**

1. What are the different tools that might be used to compare financial information?
2. What is horizontal analysis?
3. What is vertical analysis?
4. Identify the specific sections in **PepsiCo's** 2006 Annual Report where horizontal and vertical analyses of financial data are presented.

► **DO IT**

Summary financial information for Rosepatch Company is as follows:

	<b>December 31, 2008</b>	<b>December 31, 2007</b>
Current assets	\$234,000	\$180,000
Plant assets (net)	756,000	420,000
Total assets	\$990,000	\$600,000



Compute the amount and the percentage changes in 2008 using horizontal analysis, assuming 2007 is the base year.

**ACTION PLAN**

- Find the percentage change by dividing the amount of the increase by the 2007 amount (base year).

**SOLUTION**

	Increase in 2006	
	Amount	Percent
Current assets	\$ 54,000	30% $[(\$234,000 - \$180,000) \div \$180,000]$
Plant assets (net)	336,000	80% $[(\$756,000 - \$420,000) \div \$420,000]$
Total assets	<u>\$390,000</u>	65% $[(\$990,000 - \$600,000) \div \$600,000]$



# RATIO ANALYSIS

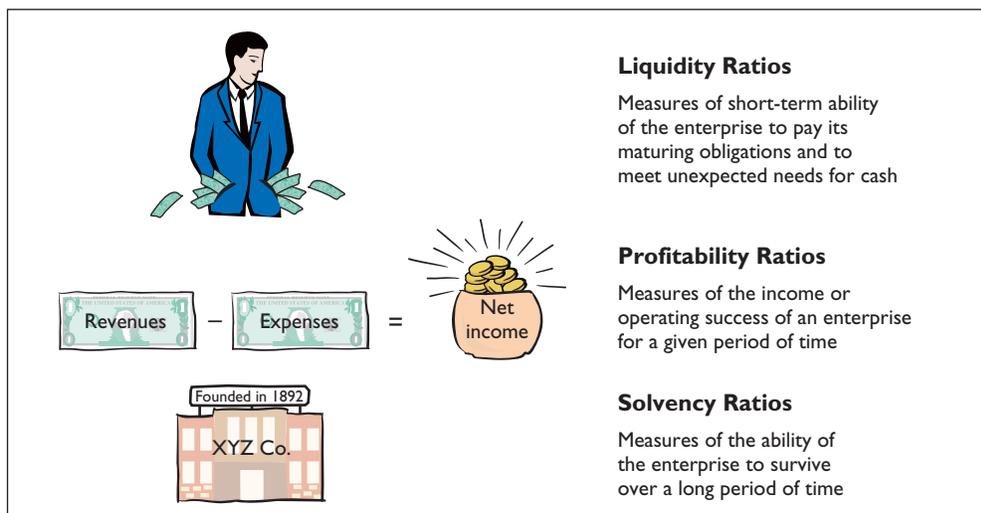
**Ratio analysis** expresses the relationship among selected items of financial statement data. A **ratio** expresses the mathematical relationship between one quantity and another. The relationship is expressed in terms of either a percentage, a rate, or a simple proportion. To illustrate, in 2003, **Motorola, Inc.**, had current assets of \$17,907 million and current liabilities of \$9,433 million. The relationship is determined by dividing current assets by current liabilities. The alternative means of expression are

- Percentage:** Current assets are 190 percent of current liabilities.
- Rate:** Current assets are 1.9 times current liabilities.
- Proportion:** The relationship of current assets to liabilities is 1.9:1.

For analysis of the primary financial statements, ratios can be used to evaluate liquidity, profitability, and solvency. These classifications are described and pictured in Illustration 7-11.

## STUDY OBJECTIVE 5

Identify and compute ratios, and describe their purpose and use in analyzing a firm's liquidity, profitability, and solvency.



**Illustration 7-11**

Financial ratio classifications

Ratios can provide clues to underlying conditions that may not be apparent from individual financial statement components. However, a single ratio by itself is not very meaningful. Accordingly, in the discussion of ratios we will use the following types of comparisons:

1. **Intracompany comparisons** for two years for Sofia's Place
2. **Industry average comparisons** based on median ratios for restaurants
3. **Intercompany comparisons** based on Brinker International as Sofia's Place's principal competitor

## LIQUIDITY RATIOS

**Liquidity ratios** measure the short-term ability of the enterprise to pay its maturing obligations and to meet unexpected needs for cash. Short-term creditors such as bankers and suppliers are particularly interested in assessing liquidity. The ratios that can be used to determine the enterprise's short-term debt-paying ability are the current ratio, the acid-test ratio, receivables turnover, and inventory turnover.

### HELPFUL HINT

Can any company operate successfully without working capital? Yes, if it has very predictable cash flows and solid earnings. A number of companies (e.g., **Whirlpool**, **American Standard**, and **Campbell's Soup**) are pursuing this goal. The rationale: Less money tied up in working capital means more money to invest in the business.

### 1. Current Ratio

The **current ratio** is a widely used measure for evaluating a company's liquidity and short-term debt-paying ability. The ratio is computed by dividing current assets by current liabilities.

The 2006 and 2005 current ratios for Sofia's Place and comparative data are shown in Illustration 7-12.

#### Illustration 7-12

Current ratio

<b>Current Ratio</b> = $\frac{\text{Current Assets}}{\text{Current Liabilities}}$									
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center; border-bottom: 1px solid black;">Sofia's Place</th> </tr> <tr> <th style="text-align: center; border-bottom: 1px solid black;">2006</th> <th style="text-align: center; border-bottom: 1px solid black;">2005</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; border-bottom: 1px solid black;"><math>\frac{\\$138,982}{\\$311,325} = 0.45:1</math></td> <td style="text-align: center; border-bottom: 1px solid black;"><math>\frac{\\$119,876}{\\$309,112} = 0.39:1</math></td> </tr> <tr> <td style="text-align: center; border-bottom: 1px solid black;"><u>Industry average</u> 0.50:1</td> <td style="text-align: center; border-bottom: 1px solid black;"><u>Brinker</u> 0.49:1</td> </tr> </tbody> </table>		Sofia's Place		2006	2005	$\frac{\$138,982}{\$311,325} = 0.45:1$	$\frac{\$119,876}{\$309,112} = 0.39:1$	<u>Industry average</u> 0.50:1	<u>Brinker</u> 0.49:1
Sofia's Place									
2006	2005								
$\frac{\$138,982}{\$311,325} = 0.45:1$	$\frac{\$119,876}{\$309,112} = 0.39:1$								
<u>Industry average</u> 0.50:1	<u>Brinker</u> 0.49:1								

What does the ratio actually mean? The 2006 ratio of 0.45:1 means that for every dollar of current liabilities, Sofia's has \$0.45 of current assets. Sofia's current ratio has increased in the current year. But compared with the industry average of 0.50:1 and Brinker's 0.49:1 current ratio, Sofia's appears to be slightly behind.

The current ratio is sometimes referred to as the **working capital ratio** because **working capital** is the excess of current assets over current liabilities. The current ratio is a more dependable indicator of liquidity than working capital. Two companies with the same amount of working capital may have significantly different current ratios.

The current ratio is only one measure of liquidity. It does not take into account the composition of the current assets. For example, a satisfactory current ratio does not disclose the fact that a portion of the current assets may be tied up in slow-moving inventory. A dollar of cash would be more readily available to pay the bills than a dollar of slow-moving inventory.

## ACCOUNTING MATTERS! *Business Insight*



The apparent simplicity of the current ratio can have real-world limitations. An addition of equal amounts to both the numerator and the denominator causes the ratio to decrease. Assume, for example, that a company has \$2 million of current assets and \$1 million of current liabilities. Its current ratio is 2:1. If it purchases \$1 million of inventory on account, it will have \$3 million of current assets and \$2 million of current liabilities. Its current ratio will decrease to 1.5:1. If, instead, the company pays off \$500,000 of its current liabilities, it will have \$1.5 million of current assets and \$500,000 of current liabilities, and its current ratio will increase to 3:1. Any trend analysis should be done with care because the ratio is susceptible to quick changes and is easily influenced by management.

How might management influence the company's current ratio?

### 2. Acid-Test Ratio

The **acid-test (quick) ratio** is a measure of a company's immediate short-term liquidity. It is computed by dividing the sum of cash, short-term investments, and net receivables by current liabilities. Thus it is an important complement to the current ratio. For example, assume that the current assets of Sofia's Place for 2006 and 2005 consist of the items listed in Illustration 7-13.

#### ALTERNATIVE TERMINOLOGY

The acid-test ratio is also called the *quick ratio*.

<b>SOFIA'S PLACE</b>		
<b>Balance Sheet December 31</b>		
	<u>2006</u>	<u>2005</u>
<b>Assets</b>		
Current assets	\$ 26,062	\$ 26,001
Accounts receivables	39,093	37,916
Inventories	28,638	28,021
Prepaid expenses	45,188	27,938
Total current assets	<u>\$138,981</u>	<u>\$119,876</u>

#### Illustration 7-13

Current assets of Sofia's Place

Cash, short-term investments, and receivables (net) are highly liquid compared with inventory and prepaid expenses. The inventory may not be readily saleable, and the prepaid expenses may not be transferable to others. Thus the acid-test ratio measures **immediate** liquidity. In Sofia's case, since there are no short-term investments, the 2006 and 2005 acid-test ratios for Sofia's Place and comparative data are as shown in Illustration 7-14.

<b>Acid-Test Ratio = <math>\frac{\text{Cash} + \text{Receivables}}{\text{Current Liabilities}}</math></b>		
Sofia's Place		
<u>2006</u>		<u>2005</u>
$\frac{\$26,062 + \$39,094}{\$311,325}$	=	$\frac{\$26,001 + \$37,916}{\$309,112}$
0.21:1		0.21:1
<u>Industry average</u>		<u>Brinker</u>
0.20:1		0.22:1

#### Illustration 7-14

Acid-test ratio

The ratio has remained constant in the two years. Is an acid-test ratio of 0.20:1 adequate? When compared with the industry average of 0.20:1 and Brinker's of 0.22:1, Sofia's acid-test ratio seems adequate.

### 3. Receivables Turnover

Liquidity may be measured by how quickly certain assets can be converted to cash. How liquid, for example, are the receivables? The ratio used to assess the liquidity of the receivables is **receivables turnover**. It measures the number of times, on average, receivables are collected during the period. Receivables turnover is computed by dividing net credit sales (net sales less cash sales) by the average net receivables. Unless seasonal factors are significant, average net receivables can be computed from the beginning and ending balances of the net receivables.<sup>1</sup> In the restaurant industry, most payments are made in cash or by credit card, so direct billing or accounts receivable is normally quite low compared with manufacturing industries. Therefore, we are able to collect our receivables in a more timely manner.

Since credit sales are not separated here, we will use the revenue amount as the numerator. The data are shown in Illustration 7-15. Sofia's receivables for 2004 were \$28,640, and its receivables turnover did not improve in 2006. The turnover of 35.6 times compares unfavorably with Brinker's 86.37 times and with the industry's average of 80.0 times.

#### Illustration 7-15

Receivables turnover

Receivables Turnover = $\frac{\text{Net Credit Sales}}{\text{Average Net Receivables}}$	
Sofia's Place	
<u>2006</u>	<u>2005</u>
$\frac{\$1,370,988}{\left(\frac{\$39,094 + \$37,916}{2}\right)} = 35.61 \text{ times}$	$\frac{\$1,209,876}{\left(\frac{\$37,916 + \$28,640}{2}\right)} = 36.36 \text{ times}$
<u>Industry average</u>	<u>Brinker</u>
80 times	86.37 times

**AVERAGE COLLECTION PERIOD.** A popular variant of the receivables turnover ratio is to convert it to an **average collection period** in terms of days. This is done by dividing the receivables turnover ratio into 365 days. For example, the receivables turnover of 35.61 times is divided into 365 days to obtain approximately 10.25 days. This means that receivables are collected on average every 10 days. The average collection period is frequently used to assess the effectiveness of a company's credit and collection policies. The general rule is that the collection period should not greatly exceed the credit term period (the time allowed for payment).

### 4. Inventory Turnover

**Inventory turnover** measures the number of times, on average, the inventory is sold during the period. Its purpose is to measure the liquidity of the inventory. The inventory turnover is computed by dividing cost of goods sold by the average inventory. Unless seasonal factors are significant, average inventory can be computed from the beginning and ending inventory balances.

<sup>1</sup>If seasonal factors are significant, the average receivables balance might be determined by using monthly amounts.

Assuming that the inventory balance for Sofia's Place at the beginning of 2005 was \$78,750, its inventory turnover and comparative data are as shown in Illustration 7-16. Sofia's inventory turnover declined slightly in 2006. The turnover of 15.97 times is relatively low compared with the industry average of 34.8 and Brinker's 26.10. Generally, the faster the inventory turnover, the less cash that is tied up in inventory and the less the chance of inventory obsolescence. Inventory turnover ratios vary considerably among industries. For example, grocery store chains have a turnover of 10 times and an average selling period of 37 days. In contrast, jewelry stores have an average turnover of 1.3 times and an average selling period of 281 days.

<b>Inventory Turnover</b> = $\frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$			
Sofia's Place			
<u>2006</u>		<u>2005</u>	
$\frac{\$452,426}{\left(\frac{\$28,638 + \$28,021}{2}\right)} = 15.97 \text{ times}$		$\frac{\$392,000}{\left(\frac{\$28,021 + \$18,750}{2}\right)} = 16.76 \text{ times}$	
<u>Industry average</u>		<u>Brinker</u>	
34.8 times		26.10 times	

**Illustration 7-16**

Inventory turnover

**AVERAGE DAYS TO SELL INVENTORY.** A variant of inventory turnover is the **average days to sell the inventory**. It is calculated by dividing the inventory turnover into 365. For example, Sofia's 2006 inventory turnover of 15.97 times divided into 365 is approximately 23 days. An average selling time of 23 days is also relatively high compared with the industry average of 10.5 days ( $365 \div 34.8$ ) and Brinker's 14 days ( $365 \div 26.10$ ).

## PROFITABILITY RATIOS

**Profitability ratios** measure the income or operating success of an enterprise for a given period of time. Income, or the lack of it, affects the company's ability to obtain debt and equity financing. It also affects the company's liquidity position and the company's ability to grow. As a consequence, both creditors and investors are interested in evaluating earning power—profitability. Profitability is frequently used as the ultimate test of management's operating effectiveness.

### 5. Profit Margin

**Profit margin** is a measure of the percentage of each dollar of sales that results in net income. It is computed by dividing net income by net sales. Sofia's profit margin and comparative data are shown in Illustration 7-17.

#### ALTERNATIVE TERMINOLOGY

Profit margin is also called the *rate of return on sales*.

<b>Profit Margin on Sales</b> = $\frac{\text{Net Income}}{\text{Net Sales}}$			
Sofia's Place			
<u>2006</u>		<u>2005</u>	
$\frac{\$34,621}{\$1,370,988} = 2.53\%$		$\frac{\$35,216}{\$1,209,876} = 2.91\%$	
<u>Industry average</u>		<u>Brinker</u>	
2.9%		5.12%	

**Illustration 7-17**

Profit margin

Sofia's experienced a slight decline in its profit margin from 2005 to 2006. Its profit margin is slightly low in comparison with the industry average of 2.90 percent and Brinker's of 5.12 percent.

High-volume (high inventory turnover) enterprises such as grocery stores (**Safeway** or **Kroger**) and discount stores (**Kmart** or **Wal-Mart**) generally experience low profit margins. In contrast, low-volume enterprises such as jewelry stores (**Tiffany & Co.**) or airplane manufacturers (**Boeing Co.**) have high profit margins.

## 6. Asset Turnover

**Asset turnover** measures how efficiently a company uses its assets to generate sales. It is determined by dividing net sales by average assets. The resulting number shows the dollars of sales produced by each dollar invested in assets. Unless seasonal factors are significant, average total assets can be computed from the beginning and ending balances of total assets. Assuming that total assets at the beginning of 2005 were \$795,640, the 2006 and 2005 asset turnover for Sofia's Place and comparative data are as shown in Illustration 7-18.

### Illustration 7-18

Asset turnover

Sofia's Place	
<p style="text-align: center;"><b>2006</b></p> $\frac{\$1,370,988}{\left(\frac{\$868,743 + \$857,328}{2}\right)} = 1.59 \text{ times}$ <p style="text-align: center;"><u>Industry average</u> 1.60 times</p>	<p style="text-align: center;"><b>2005</b></p> $\frac{\$1,209,876}{\left(\frac{\$857,328 + \$795,640}{2}\right)} = 1.46 \text{ times}$ <p style="text-align: center;"><u>Brinker</u> 1.90 times</p>

Asset turnover shows that in 2006 Sofia's generated sales of \$1.59 for each dollar it had invested in assets. The ratio changed little from 2005 to 2006. Sofia's asset turnover is at par with the industry average of 1.60 times but below Brinker's ratio of 1.90 times.

Asset turnover ratios vary considerably among industries. For example, a large utility company such as **Consolidated Edison** (New York) has a ratio of 0.49 times, and a large grocery chain such as **Kroger Stores** has a ratio of 4.34 times.

## 7. Return on Assets

An overall measure of profitability is **return on assets**. This ratio is computed by dividing net income by average assets. The 2006 and 2005 return on assets for Sofia's and comparative data are shown in Illustration 7-19.

### Illustration 7-19

Return on assets

Sofia's Place	
<p style="text-align: center;"><b>2006</b></p> $\frac{\$34,621}{\left(\frac{\$868,743 + \$857,328}{2}\right)} = 4.01\%$ <p style="text-align: center;"><u>Industry average</u> 6.40%</p>	<p style="text-align: center;"><b>2005</b></p> $\frac{\$35,216}{\left(\frac{\$857,328 + \$795,640}{2}\right)} = 4.26\%$ <p style="text-align: center;"><u>Brinker</u> 9.70%</p>

Sofia's return on assets decreased from 2005 to 2006. Its return of 4.01 percent is low compared with the industry average of 6.40 percent and Brinker's of 9.70 percent.

### 8. Return on Common Stockholders' Equity

Another widely used profitability ratio is **return on common stockholders' equity**. It measures profitability from the common stockholders' viewpoint. This ratio shows how many dollars of net income were earned for each dollar invested by the owners. It is computed by dividing net income by average common stockholders' equity. Assuming that common stockholders' equity at the beginning of 2005 was \$322,080, the 2006 and 2005 ratios for Sofia's Place and comparative data are shown in Illustration 7.20.

<b>Return on Common Stockholders' Equity</b>	=	$\frac{\text{Net Income}}{\text{Average Common Stockholders' Equity}}$
Sofia's Place		
<b>2006</b> $\frac{\$34,621}{\left(\frac{\$364,872 + \$356,936}{2}\right)} = 9.59\%$		<b>2005</b> $\frac{\$35,216}{\left(\frac{\$356,936 + \$322,080}{2}\right)} = 10.37\%$
<u>Industry average</u> 14.00%		<u>Brinker</u> 19.52%

**Illustration 7-20**

Return on common stockholders' equity

Sofia's rate of return on common stockholders' equity is good at 9.59 percent. However, compared with the industry average of 14.00 percent and the 19.52 percent for Brinker, it is not doing as well.

## ACCOUNTING IN ACTION *Business Insight*



Many companies with stable earnings have high payout ratios. Some may pay out extraordinarily high ratios to reward their shareholders, whereas others deliberately do not pay out any dividends so as to reinvest in the company for future growth. The payout ratio is computed by dividing cash dividends by net income. Each company has its own dividend payout policy, but one can find most companies paying out in the 10-to-20 percent range. Recall the ten companies in Chapter 6 (p.181), where we compared their net income and their net cash from operations. The following is an extension of the same ten companies with their dividends and dividend payout ratio for their 2005–2006 fiscal year.

#### RESTAURANTS

Company	Date	Dividends	Dividend Payout Ratio
Brinker	6/28/2006	\$25,417,000	12.0%
Darden	5/28/2006	59,206,000	17.5%
Landry's	12/31/2005	4,611,364	10.3%
Morton's	1/1/2006	1,456,000	209.5%
OSI Restaurant Partners	12/31/2005	38,753,000	25.9%

#### HOTELS

Company	Date	Dividends	Dividend Payout Ratio
Choice	12/31/2005	30,241,000	34.5%
Hilton	12/31/2005	46,000,000	10.0%
Intercontinental	12/31/2005	£81,000,000	15.7%
Marriott	12/30/2005	84,000,000	12.6%
Starwood	12/31/2005	–0–	0.0%

SOURCE: Securities and Exchange Commission, www.sec.gov.

## SOLVENCY RATIOS

**Solvency ratios** measure the ability of a company to survive over a long period of time. Long-term creditors and stockholders are particularly interested in a company's ability to pay interest as it comes due and to repay the face value of debt at maturity. Debt to total assets and times interest earned are two ratios that provide information about debt-paying ability.

### 9. Debt to Total Assets Ratio

The **debt to total assets ratio** measures the percentage of the total assets provided by creditors. It is computed by dividing total debt (both current and long-term liabilities) by total assets. This ratio indicates the company's degree of leverage. It also can indicate the company's ability to withstand losses without impairing creditors' interests. The higher the percentage of debt to total assets, the greater is the risk that the company may be unable to meet its maturing obligations. The 2006 and 2005 ratios for Sofia's Place and comparative data are as shown in Illustration 7-21.

#### Illustration 7-21

Debt to total assets ratio

<b>Debt to Total Assets</b>		=	<b><math>\frac{\text{Total Debt}}{\text{Total Assets}}</math></b>																										
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center; padding: 5px;">Sofia's Place</th> <th style="width: 20px;"></th> <th colspan="2" style="text-align: center; padding: 5px;"></th> </tr> <tr> <th style="text-align: center; padding: 5px;"><u>2006</u></th> <th style="width: 20px;"></th> <th style="text-align: center; padding: 5px;">=</th> <th style="width: 20px;"></th> <th style="text-align: center; padding: 5px;"><u>2005</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center; padding: 5px;"><math>\frac{\\$503,871}{\\$868,743}</math></td> <td style="text-align: center; padding: 5px;">=</td> <td style="text-align: center; padding: 5px;">58.0%</td> <td style="width: 20px;"></td> <td style="text-align: center; padding: 5px;"><math>\frac{\\$500,392}{\\$857,328}</math></td> </tr> <tr> <td style="text-align: center; padding: 5px;"><u>Industry average</u></td> <td></td> <td style="text-align: center; padding: 5px;">45.8%</td> <td></td> <td style="text-align: center; padding: 5px;"><u>Brinker</u></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center; padding: 5px;">51.58%</td> </tr> </tbody> </table>					Sofia's Place					<u>2006</u>		=		<u>2005</u>	$\frac{\$503,871}{\$868,743}$	=	58.0%		$\frac{\$500,392}{\$857,328}$	<u>Industry average</u>		45.8%		<u>Brinker</u>					51.58%
Sofia's Place																													
<u>2006</u>		=		<u>2005</u>																									
$\frac{\$503,871}{\$868,743}$	=	58.0%		$\frac{\$500,392}{\$857,328}$																									
<u>Industry average</u>		45.8%		<u>Brinker</u>																									
				51.58%																									

A ratio of 58.0 percent means that creditors have provided 58.0 percent of Sofia's total assets. Sofia's 58.0 percent is above the industry average of 45.8 percent, and it is also higher than Brinker's 51.58 percent. The lower the ratio, the more equity "buffer" there is available to the creditors. Thus, from the creditors' point of view, a low ratio of debt to total assets is usually desirable.

The adequacy of this ratio is often judged in light of the company's earnings. Generally, companies with relatively stable earnings (such as public utilities) have higher debt to total assets ratios than cyclic companies with widely fluctuating earnings (such as many high-tech companies).

### 10. Times Interest Earned

#### ALTERNATIVE TERMINOLOGY

Times interest earned is also called *interest coverage*.

**Times interest earned** provides an indication of the company's ability to meet interest payments as they come due. It is computed by dividing income before interest expense and income taxes by interest expense. The 2006 and 2005 ratios for Sofia's and comparative data are shown in Illustration 7-22. Note that times interest earned uses income before income taxes and interest expense. This represents the amount available to cover interest. For Sofia's the 2006 amount of \$49,762 is computed by taking the income before income taxes of \$46,162 and adding back the \$3,600 of interest expense.

Both Sofia's and Brinker's interest expenses are well covered at 13.82 times and 14.29 times, respectively, compared with the industry average of 1.5 times.

$$\text{Times Interest Earned} = \frac{\text{Income before Income Taxes and Interest Expense}}{\text{Interest Expense}}$$

Sofia's Place	
2006	2005
$\frac{\$49,762}{\$3,600} = 13.82 \text{ times}$	$\frac{\$51,589}{\$4,000} = 12.90 \text{ times}$
Industry average 1.5 times	Brinker 14.29 times

**Illustration 7-22**

Times interest earned

## ACCOUNTING IN ACTION *Business Insight*



Savvy investors today use many forms of technology to obtain the latest updated financial information on their chosen companies. Hospitality companies are also at the cutting edge of providing the desired product. **Darden Restaurants** offers conference call and other events for their investors. **Landry's Restaurants** has several archived Webcasts listed on its Web site. **Choice Hotels** has presentations and conference calls also linked to its Web site. The same can be found at **Hilton** and **Marriott**. Many companies also offer e-mail updates. Any interested individuals simply can register with such companies to receive the latest press releases. Now, who can say that we are not living in a technology world?



## SUMMARY OF RATIOS

A summary of the ratios discussed in the chapter is presented in Illustration 7-23. The summary includes the formula and the purpose or use of each ratio.

**Illustration 7-23**

Summary of liquidity, profitability, and solvency ratios

Ratio	Formula	Purpose or Use
<b>Liquidity Ratios</b>		
1. Current ratio	$\frac{\text{Current assets}}{\text{Current liabilities}}$	Measures short-term debt-paying ability.
2. Acid-test (quick) ratio	$\frac{\text{Cash} + \text{Short-term investments} + \text{Receivables (net)}}{\text{Current liabilities}}$	Measures immediate short-term liquidity.
3. Receivables turnover	$\frac{\text{Net credit sales}}{\text{Average net receivables}}$	Measures liquidity of receivables.
4. Inventory turnover	$\frac{\text{Cost of goods sold}}{\text{Average inventory}}$	Measures liquidity of inventory.
<b>Profitability Ratios</b>		
5. Profit margin	$\frac{\text{Net income}}{\text{Net sales}}$	Measures net income generated by each dollar of sales.
6. Asset turnover	$\frac{\text{Net sales}}{\text{Average assets}}$	Measures how efficiently assets are used to generate sales.
7. Return on assets	$\frac{\text{Net income}}{\text{Average assets}}$	Measures overall profitability of assets.
8. Return on common stockholders' equity	$\frac{\text{Net income}}{\text{Average common stockholders' equity}}$	Measures profitability of owners' investment.

**Solvency Ratios**

9. Debt to total assets	$\frac{\text{Total debt}}{\text{Total assets}}$	Measures the percentage of total assets provided by creditors.
10. Times interest earned	$\frac{\text{Income before income taxes and interest expense}}{\text{Interest expense}}$	Measures ability to meet interest payments as they come due.

**BEFORE YOU GO ON...****REVIEW IT**

1. What are liquidity ratios? Explain the current, acid-test, receivables turnover, and inventory turnover ratios.
2. What are profitability ratios? Explain the profit margin, asset turnover, return on assets, and return on common stockholders' equity ratios.
3. What are solvency ratios? Explain the debt to total assets and times interest earned ratios.

**DO IT**

Selected financial data for Drummond Company on December 31, 2006, are as follows: cash \$60,000; receivables (net) \$80,000; inventory \$70,000; and current liabilities \$140,000. Compute the current and acid-test ratios.

**ACTION PLAN**

- Use the formula for the current ratio: Current assets ÷ Current liabilities.
- Use the formula for the acid-test ratio: [Cash + Short-term investments + Receivables (net)] ÷ Current liabilities.

**SOLUTION**

The current ratio is 1.5:1 (\$210,000 ÷ \$140,000). The acid-test ratio is 1:1 (\$140,000 ÷ \$140,000).



## LIMITATIONS OF FINANCIAL STATEMENT ANALYSIS

### STUDY OBJECTIVE 6

Recognize the limitations of financial statement analysis.

Significant business decisions are frequently made using one or more of the analytical tools illustrated in this chapter. But you should be aware of the limitations of these tools and of the financial statements on which they are based.

### ESTIMATES

Financial statements contain numerous estimates. Estimates are used in determining the allowance for uncollectible receivables, periodic depreciation, and contingent losses. To the extent that these estimates are inaccurate, the financial ratios and percentages are inaccurate.

### COST

Traditional financial statements are based on cost. They are not adjusted for price-level changes. Comparisons of unadjusted financial data from different periods may be rendered invalid by significant inflation or deflation. For example, a five-year comparison of Brinker's revenues might show a growth of 36 percent. But this growth trend would be misleading if the general price level had increased significantly during the same period.

## ALTERNATIVE ACCOUNTING METHODS

Companies vary in the generally accepted accounting principles they use. Such variations may hamper comparability. For example, one company may use the first-in, first-out (FIFO) method of inventory costing; another company in the same industry may use last-in, first-out (LIFO). If inventory is a significant asset to both companies, it is unlikely that their current ratios are comparable. For example, if **General Motors Corporation** had used FIFO instead of LIFO in valuing its inventories, its inventories would have been 26 percent higher. This difference would significantly affect the current ratio (and other ratios as well). In addition to differences in inventory costing methods, differences also exist in reporting such items as depreciation, depletion, and amortization. These differences in accounting methods might be detectable from reading the notes to the financial statements. But adjusting the financial data to compensate for the different methods is difficult, if not impossible, in some cases.

## ATYPICAL DATA

Fiscal year-end data may not be typical of the financial condition during the year. Firms frequently establish a fiscal year-end that coincides with the low point in operating activity or in inventory levels. Therefore, certain account balances (cash, receivables, payables, and inventories) may not be representative of the balances in the accounts during the year.

## DIVERSIFICATION OF FIRMS

Diversification within a global environment also limits the usefulness of financial analysis. Many firms today are so diversified that they cannot be classified by a single industry—they are true conglomerates. Others appear to be comparable but are not.

### BEFORE YOU GO ON...

#### ▶ REVIEW IT

1. What are some limitations of financial statement analysis?
2. Give examples of alternative accounting methods that hamper comparability.
3. In what way does diversification limit the usefulness of financial statement analysis?



## DEMONSTRATION PROBLEM

The condensed financial statements of Landry's Restaurant, Inc., for the years ended December 31, 2004 and 2005, are presented below.

### LANDRY'S RESTAURANTS, INC. Consolidated Balance Sheets

	December 31	
	2005	2004
<b>Assets</b>		
Current assets:		
Cash and cash equivalents	\$ 39,215,562	\$ 201,394,032
Accounts receivable—trade and other, net	21,973,228	18,595,531
Inventories	59,716,920	55,004,153
Deferred taxes	12,763,948	10,859,160
Other current assets	12,768,611	11,630,527
Total current assets	146,438,269	297,483,403

### ETHICS NOTE

When investigating diversified firms, investors are often most interested to learn about the results of particular divisions. Firms are required to disclose the results of distinct lines of business separately if they are a material part of operations. Unfortunately, shifting revenues and expenses across divisions to achieve desired results reduces the usefulness of this information for financial statement analysis.

Property and equipment, net	1,380,258,684	1,007,296,936
Goodwill and trademarks	46,716,151	20,225,297
Other intangible assets, net	3,459,417	216,806
Other assets, net	35,706,292	19,729,829
Total assets	<u>\$1,612,578,813</u>	<u>\$1,344,952,271</u>
<b>Liabilities and Stockholders' Equity</b>		
Current liabilities:		
Accounts payable	\$ 90,489,190	\$ 48,341,318
Accrued liabilities	123,098,491	84,955,488
Income taxes payable	5,060,885	971,175
Current portion of long-term notes and other obligations	1,851,741	1,700,496
Total current liabilities	<u>220,500,307</u>	<u>135,968,477</u>
Long-term notes, net of current portion	816,043,799	559,545,092
Deferred taxes	21,635,903	13,343,631
Other liabilities	37,628,343	35,198,105
Total liabilities	<u>1,095,808,352</u>	<u>744,055,305</u>
<b>Commitments and contingencies</b>		
<b>Stockholders' equity</b>		
Common stock, \$0.01 par value, 60,000,000 shares authorized, 21,593,823 and 25,607,573 issued and outstanding, respectively	215,938	256,076
Additional paid-in capital	324,570,406	401,228,736
Deferred stock compensation	(6,392,177)	(4,281,670)
Retained earnings	198,376,294	203,693,824
Total stockholders' equity	<u>516,770,461</u>	<u>600,896,966</u>
Total liabilities and stockholders' equity	<u>\$1,612,578,813</u>	<u>\$1,344,952,271</u>

**LANDRY'S RESTAURANTS, INC.**  
**Consolidated Statements of Income**

	<b>Year Ended December 31</b>	
	<b>2005</b>	<b>2004</b>
Revenues	\$1,254,805,671	\$1,167,475,165
Operating costs and expenses:		
Cost of revenues	333,027,693	326,108,007
Labor	377,215,289	337,633,530
Other operating expenses	311,647,878	282,411,954
General and administrative expenses	57,693,473	58,319,642
Depreciation and amortization	63,492,747	57,294,123
Asset impairment expense	–0–	1,708,654
Preopening expenses	4,772,425	5,203,518
Total operating costs and expenses	<u>1,147,849,505</u>	<u>1,068,679,428</u>
Operating income	106,956,166	98,795,737
Other expense (income):		
Interest expense, net	41,437,790	15,185,605
Other, net	95,196	13,543,626
	<u>41,532,986</u>	<u>28,729,231</u>
Income before income tax	65,423,180	70,066,506
Income tax	20,608,144	3,544,778
Net income	<u>\$ 44,815,036</u>	<u>\$ 66,521,728</u>

SOURCE: <http://www.landrysrestaurants.com/pdf/financial/2005AnnualReport.pdf>.

**Instructions**

Compute the following ratios for 2005.

- (a) Current ratio
- (b) Inventory turnover
- (c) Profit margin
- (d) Return on assets
- (e) Return on common stockholders' equity
- (f) Debt to total assets ratio
- (g) Times interest earned

**SOLUTION TO DEMONSTRATION PROBLEM**

- (a) Current ratio

$$\$146,438,269 / \$220,550,307 = 0.66$$

- (b) Inventory turnover

Average inventory

$$\frac{\$59,716,920 + \$55,004,153}{2} = \$57,360,537$$

$$\$333,027,693 / \$57,360,537 = 5.81 \text{ times}$$

- (c) Profit margin

$$\$44,815,036 / \$1,254,805,671 = 3.57\%$$

- (d) Return on assets

Average assets

$$\frac{\$1,612,578,813 + \$1,344,952,271}{2} = \$1,478,765,542$$

$$\$44,815,036 / \$1,478,765,542 = 3.03\%$$

- (e) Return on common stockholders' equity

Average stockholders' equity

$$\frac{\$516,770,461 + \$600,896,966}{2} = \$558,833,714$$

$$\$44,815,036 / \$558,833,714 = 8.02\%$$

- (f) Debt to total asset ratio

$$\$1,095,808,352 / \$1,612,578,813 = 67.95\%$$

- (g) Times interest earned

$$(\$65,423,180 + \$41,437,790) / \$41,437,790 = 2.58 \text{ times}$$

**ACTION PLAN**

- Remember that the current ratio includes all current assets. The acid-test ratio uses only cash, short-term investments, and net receivables.
- Use average balances for turnover ratios like inventory, receivables, and assets.
- Remember that return on assets is less than or equal to return on common stockholders' equity, depending on cost of debt.



## SUMMARY OF STUDY OBJECTIVES

**1. Discuss the need for comparative analysis.** There are three bases of comparison: (1) Intracompany, which compares an item or financial relationship with other data within a company. (2) Industry, which compares company data with industry averages. (3) Intercompany, which compares an item or a financial relationship of a company with data of one or more competing companies.

**2. Identify the tools of financial statement analysis.** Financial statements can be analyzed horizontally, vertically, and with ratios.

**3. Explain and apply horizontal (trend) analysis.** Horizontal analysis is a technique for evaluating a series of data over a period of time to determine the increase or decrease that has taken place, expressed as either an amount or a percentage.

**4. Describe and apply vertical analysis.** Vertical analysis is a technique that expresses each item within a financial statement in terms of a percentage of a relevant total or a base amount.

**5. Identify and compute ratios; and describe their purpose and use in analyzing a firm's liquidity, profitability, and solvency.** The formula and purpose of each ratio was presented in Illustration 7-23.

**6. Recognize the limitations of financial statement analysis.**

The usefulness of analytical tools is limited by the use of estimates, the cost basis, the application of alternative accounting methods, atypical data at year-end, and the diversification of firms.



## GLOSSARY

**Acid-test (quick) ratio** A measure of a company's immediate short-term liquidity; computed by dividing the sum of cash, short-term investments, and net receivables by current liabilities. (p. 215).

**Asset turnover** A measure of how efficiently a company uses its assets to generate sales; computed by dividing net sales by average assets. (p. 218).

**Current ratio** A measure used to evaluate a company's liquidity and short-term debt-paying ability; computed by dividing current assets by current liabilities. (p. 214).

**Debt to total assets ratio** Measures the percentage of total assets provided by creditors; computed by dividing total debt by total assets. (p. 220).

**Horizontal analysis** A technique for evaluating a series of financial statement data over a period of time to determine the increase (decrease) that has taken place; expressed as either an amount or a percentage. (p. 207)

**Inventory turnover** A measure of the liquidity of inventory; computed by dividing cost of goods sold by average inventory. (p. 216).

**Liquidity ratios** Measures of the short-term ability of the enterprise to pay its maturing obligations and to meet unexpected needs for cash. (p. 214).

**Profit margin** Measures the percentage of each dollar of sales that results in net income; computed by dividing net income by net sales. (p. 217).

**Profitability ratios** Measures of the income or operating success of an enterprise for a given period of time. (p. 217).

**Ratio** An expression of the mathematical relationship between one quantity and another; the relationship may be expressed either as a percentage, a rate, or a simple proportion. (p. 213).

**Ratio analysis** A technique for evaluating financial statements that expresses the relationship between selected financial statement data. (p. 213).

**Receivables turnover** A measure of the liquidity of receivables; computed by dividing net credit sales by average net receivables. (p. 216).

**Return on assets** An overall measure of profitability; computed by dividing net income by average assets. (p. 218).

**Return on common stockholders' equity** Measures the dollars of net income earned for each dollar invested by the owners; computed by dividing net income by average common stockholders' equity. (p. 219).

**Solvency ratios** Measures of the ability of the enterprise to survive over a long period of time. (p. 220).

**Times interest earned** Measures a company's ability to meet interest payments as they come due; computed by dividing income before interest expense and income taxes by interest expense. (p. 220).

**Vertical analysis** A technique for evaluating financial statement data that expresses each item within a financial statement as a percent of a base amount. (p. 210).

## EXERCISES

**7-1** Using the following data from the comparative balance sheet of Solais Bed & Breakfast, illustrate horizontal analysis.

	<u>December 31, 2008</u>	<u>December 31, 2007</u>
Accounts receivable	\$ 540,000	\$ 400,000
Inventory	\$ 840,000	\$ 600,000
Total assets	\$ 3,640,000	\$2,800,000

*Prepare horizontal analysis.*  
(SO 3)

**7-2** Using the same data presented above in 7-1 for Solais, illustrate vertical analysis.

*Prepare vertical analysis.*  
(SO 4)

**7-3** Net income was \$500,000 in 2006; \$400,000 in 2007; and \$508,000 in 2008. What is the percentage of change from (a) 2006 to 2007 and (b) 2007 to 2008? Is the change an increase or a decrease?

*Calculate percentage of change.*  
(SO 3)

**7-4** If Helene Cruises had net income of \$650,000 in 2008 and it experienced a 30 percent increase in net income over 2007, what was its 2007 net income?

*Calculate net income.*  
(SO 3)

**7-5** Vertical analysis (common size) percentages for Osborne Hot Dogs' sales, cost of goods sold, and expenses are as follows:

<u>Vertical Analysis</u>	<u>2007</u>	<u>2006</u>	<u>2005</u>
Sales	100.0	100.0	100.0
Cost of goods sold	59.2	62.4	64.5
Expenses	25.0	26.6	27.5

Calculate change in net income.  
(SO 4)

Did Osborne's net income as a percent of sales increase, decrease, or remain unchanged over the three-year period? Provide numerical support for your answer.

**7-6** Selected condensed data taken from a recent balance sheet of **Kutenai Luau, Inc.**, are as follows:

Calculate liquidity ratios.  
(SO 5)

### KUTENAI LUAU, INC.

#### Balance Sheet (partial)

Cash	\$ 8,041,000
Short-term investments	1,947,000
Accounts receivable	12,545,000
Inventories	14,814,000
Other current assets	5,571,000
Total current assets	<u>\$42,918,000</u>
Total current liabilities	<u>\$40,644,000</u>

What are the (a) working capital, (b) current ratio, and (c) acid-test ratio?

**7-7** Augusta Catering had net income of \$11.44 million and net revenue of \$88 million in 2008. Its assets were \$14 million at the beginning of the year and \$18 million at the end of the year. What were (a) Augusta's asset turnover and (b) profit margin for 2006?

Calculate profitability ratios.  
(SO 5)

**7-8** The following data are taken from the financial statements of Mercado Decorations:

Evaluate collection of accounts receivable.  
(SO 5)

	<u>2009</u>	<u>2008</u>
Accounts receivable (net), end of year	\$ 550,000	\$ 520,000
Net sales on account	3,850,000	3,100,000

- (a) Compute for each year (1) the receivables turnover and (2) the average collection period. At the end of 2007, accounts receivable (net) was \$490,000.  
(b) What conclusions about the management of accounts receivable can be drawn from these data?

**7-9** The following data are from the income statements of Ellen Noodles Company:

Evaluate management of inventory.  
(SO 5)

	<u>2009</u>	<u>2008</u>
Sales	\$6,420,000	\$6,240,000
Beginning inventory	960,000	860,000
Purchases	4,540,000	4,661,000
Ending inventory	1,020,000	960,000

(a) Compute for each year (1) the inventory turnover and (2) the average days to sell the inventory.

(b) What conclusions concerning the management of the inventory can be drawn from these data?

**7-10** The comparative balance sheets of Ramsey Egyptian Buffet are presented below.

Prepare horizontal and vertical analyses.  
(SO 3, 4)

### RAMSEY EGYPTIAN BUFFET

#### Comparative Balance Sheets

December 31

	<u>2009</u>	<u>2008</u>
Assets		
Current assets	\$ 76,000	\$ 80,000
Property, plant, and equipment (net)	99,000	90,000
Intangibles	25,000	40,000
Total assets	<u>\$200,000</u>	<u>\$210,000</u>

(continues)

Liabilities and stockholders' equity		
Current liabilities	\$ 40,800	\$ 48,000
Long-term liabilities	143,000	150,000
Stockholders' equity	16,200	12,000
Total liabilities and stockholders' equity	<u>\$200,000</u>	<u>\$210,000</u>

**Instructions**

- (a) Prepare a horizontal analysis of the balance sheet data for Ramsey using 2008 as a base.
- (b) Prepare a vertical analysis of the balance sheet data for Ramsey in columnar form for 2009.

Prepare horizontal and vertical analyses.  
(SO 3, 4)

**7-11** The comparative income statements of Accra Pies are shown below.

**ACCRA PIES**  
Comparative Income Statements  
For the Years Ended December 31

	<u>2009</u>	<u>2008</u>
Net sales	\$600,000	\$500,000
Cost of goods sold	<u>480,000</u>	<u>420,000</u>
Gross profit	120,000	80,000
Operating expenses	<u>57,200</u>	<u>44,000</u>
Net income	<u>\$ 62,800</u>	<u>\$ 36,000</u>

**Instructions**

- (a) Prepare a horizontal analysis of the income statement data for Accra using 2008 as a base. (Show the amounts of increase or decrease.)
- (b) Prepare a vertical analysis of the income statement data for Accra in columnar form for both years.

Compute liquidity ratios.  
(SO 5)

**7-12** Selected financial statement data for Jamestown Resorts for the year ending January 31, 2008, are as follows:

**JAMESTOWN RESORTS, INC.**  
Balance Sheet (partial)  
(in millions)

	<u>End of Year</u>	<u>Beginning of Year</u>
Cash and cash equivalents	\$ 331	\$ 25
Receivables (less allowance of \$23 and \$17)	699	722
Merchandise inventory	888	946
Prepaid expenses	37	29
Other current assets	<u>102</u>	<u>91</u>
Total current assets	<u>\$2,057</u>	<u>\$1,813</u>
Total current liabilities	<u>\$ 950</u>	<u>\$ 951</u>

For the year, net sales were \$5,634 million, and cost of goods sold was \$3,766 million.

**Instructions**

Compute the four liquidity ratios at the end of the current year.

Perform current and acid-test ratio analysis.  
(SO 5)

**7-13** Wolfe Hospitality Consulting had the following transactions occur involving current assets and current liabilities during February 2008:

- Feb. 3 Accounts receivable of \$15,000 are collected.
- 7 Equipment is purchased for \$28,000 cash.
- 11 Paid \$3,000 for a three-year insurance policy.
- 14 Accounts payable of \$12,000 are paid.
- 18 Cash dividends of \$5,000 are declared.

**Additional information:**

- As of February 1, 2008, current assets were \$140,000, and current liabilities were \$50,000.
- As of February 1, 2008, current assets included \$15,000 of inventory and \$2,000 of prepaid expenses.

**Instructions**

- Compute the current ratio as of the beginning of the month and after each transaction.
- Compute the acid-test ratio as of the beginning of the month and after each transaction.

**7-14** Sophia Gourmet has the following comparative balance sheet data.

Compute selected ratios.  
(SO 5)

**SOPHIA GOURMET**

Balance Sheets  
December 31

	<u>2008</u>	<u>2007</u>
Cash	\$ 15,000	\$ 30,000
Receivables (net)	70,000	60,000
Inventories	60,000	50,000
Plant assets (net)	200,000	180,000
	<u>\$345,000</u>	<u>\$320,000</u>
Accounts payable	\$ 40,000	\$ 60,000
Mortgage payable (15%)	100,000	100,000
Common stock, \$10 par	140,000	120,000
Retained earnings	65,000	40,000
	<u>\$345,000</u>	<u>\$320,000</u>

**Additional information for 2008:**

- Net income was \$25,000.
- Sales on account were \$420,000. Sales returns and allowances were \$20,000.
- Cost of goods sold was \$198,000.
- The allowance for doubtful accounts was \$2,500 on December 31, 2008, and \$2,000 on December 31, 2007.

**Instructions**

Compute the following ratios on December 31, 2008:

- Current
- Acid-test
- Receivables turnover
- Inventory turnover

**7-15** Selected comparative statement data for Isabel Wedding Consultant are presented below. All balance sheet data are as of December 31.

Compute selected ratios.  
(SO 5)

	<u>2008</u>	<u>2007</u>
Net sales	\$800,000	\$720,000
Cost of goods sold	480,000	440,000
Interest expense	7,000	5,000
Net income	60,000	42,000
Accounts receivable	120,000	100,000
Inventory	85,000	75,000
Total assets	580,000	500,000
Total common stockholders' equity	430,000	325,000

**Instructions**

Compute the following ratios for 2008:

- Profit margin
- Asset turnover
- Return on assets
- Return on common stockholders' equity

Compute selected ratio.  
(SO 5)

**7-16** The income statement for J and T Seafood appears below.

<b>J AND T SEAFOOD</b>	
Income Statement	
For the Year Ended December 31, 2008	
Sales	\$400,000
Cost of goods sold	<u>230,000</u>
Gross profit	170,000
Expenses (including \$16,000 interest and \$24,000 income taxes)	<u>100,000</u>
Net income	<u>\$ 70,000</u>

**Additional information:**

1. The weighted average common shares outstanding in 2008 were 30,000 shares.
2. The market price of J and T Seafood stock was \$13 in 2008.
3. Cash dividends of \$23,000 were paid, \$5,000 of which were to preferred stockholders.

**Instructions**

Compute the times interest earned ratio for 2008.

**FINANCIAL REPORTING PROBLEM: PepsiCo, Inc.**



**7-17** Your parents are considering investing in **PepsiCo, Inc.**, common stock. They ask you, as an accounting expert, to make an analysis of the company for them. Fortunately, excerpts from a current annual report of PepsiCo are presented in Appendix A of this textbook. Note that all dollar amounts are in millions.

**Instructions**

(Follow the approach in the chapter for rounding numbers.)

- (a) Make a three-year trend analysis, using 2004 as the base year, of (1) net sales and (2) net income. Comment on the significance of the trend results.
- (b) Compute for 2006 and 2005 the (1) profit margin, (2) asset turnover, (3) return on assets, and (4) return on common stockholders' equity. How would you evaluate PepsiCo's profitability? Total assets on December 31, 2004, were \$27,987,000,000; and total stockholders' equity on December 31, 2005, was \$13,572,000,000.
- (c) Compute for 2006 and 2005 the (1) debt to total assets ratio and (2) times interest earned ratio. How would you evaluate PepsiCo's long-term solvency?
- (d) What information outside the annual report may also be useful to your parents in making a decision about PepsiCo, Inc.?

**ETHICS CASE**

**7-18** Ross Clark, president of Clark Hotels, wishes to issue a press release to bolster his company's image and maybe even its stock price, which has been gradually falling. As controller, you have been asked to provide a list of twenty financial ratios along with some other operating statistics relative to Clark's first-quarter financials and operations.

Two days after you provide the ratios and data requested, Alys Jones, the public relations director of Clark, asks you to prove the accuracy of the financial and operating data contained in the press release written by the president and edited by Jones. In the news release, the president highlights the sales increase of 25 percent over last year's first quarter and the positive change in the current ratio from 1.5:1 last year to 3:1 this year. He also emphasizes that production was up 50 percent over the prior year's first quarter.

You note that the press release contains only positive or improved ratios and none of the negative or deteriorated ratios. For instance, no mention is made that the debt to total assets ratio has increased from 35 to 55 percent; that inventories are up 89 percent; and that while the current ratio improved, the acid-test ratio fell from 1:1 to 0.5:1. Nor is there any mention that the reported profit for the quarter would have been a loss had not the estimated lives of Clark's building and land been increased by 30 percent. Jones emphasized, "The prez wants this release by early this afternoon."

***Instructions***

- (a) Who are the stakeholders in this situation?
- (b) Is there anything unethical in President Clark's actions?
- (c) Should you as controller remain silent? Does Jones have any responsibility?



*Remember to go back to the Navigator box on the chapter-opening page and check off your completed work.*