

# Chapter Twenty-One

## Analyzing Financial Statements

*After completing this chapter, you should be able to:*

- 1** Explain the objectives of financial statement analysis.
- 2** Describe and use the following four analytical techniques: horizontal analysis, trend analysis, vertical analysis, and ratio analysis.
- 3** Explain the importance of comparisons and trends in financial statement analysis.
- 4** Prepare and interpret common-size financial statements.
- 5** Define and compute the various financial ratios discussed in the chapter.

## CONTEMPORARY INTERIORS TO GO NATIONAL

*Chicago, IL*—Contemporary Interiors, a Chicago tradition in Scandinavian furniture and contemporary design, has announced a decision to go national. Although Contemporary Interiors has opened stores throughout the Midwest in recent years, the company has remained a regional business with the bulk of its sales in the greater Chicago area. Yesterday, however, a company spokesman announced that Contemporary Interiors' Board of Directors had decided the time was right to make the

next move. Marc Janson, spokesman for the firm's president and CEO, pointed to the strong economy and consumer confidence as being key to the decision. "Disposable income is up, and we're seeing that in our business," said Janson. "Even more important, though, is our company's strong financial position. The analysts tell us that our financial statements look good. Our working capital, inventory turnover, return on assets, and so forth are all strong. This will be important, because in order to

expand, the company's going to have to raise capital. And the bankers and potential investors are going to need to see those strong financial indicators. The board hasn't decided yet how much of our new capital needs should be debt and how much should be in stock. I'm sure they'll keep a close eye on the debt-equity ratio." When asked where Contemporary Interiors' next store would appear, Janson replied that New York, Atlanta, and San Francisco were all under consideration.

Financial statements provide the primary means for managers to communicate about the financial condition of their organization to outside parties. Managers, investors, lenders, financial analysts, and government agencies are among the users of financial statements. Substantial information is conveyed by financial statements about the financial strength and current performance of an enterprise. Although financial statements are prepared primarily for users outside an organization, managers also find their organization's financial statements useful in making decisions. As managers develop operating plans, they think about how those plans will affect the performance of the organization, as conveyed by the financial statements. In this chapter, we explore how to analyze financial statements to glean the most information about an organization.

## Overview of Financial Statements

There are four primary financial statements:

1. Balance sheet
2. Income statement
3. Retained earnings statement
4. Statement of cash flows

Exhibit 21–1 presents the basic structure of each of these statements and the relationships between them. The *balance sheet* presents an organization's financial position at a *point in time*. It shows the balances in the organization's assets, liabilities, and owners' equity, as of the balance sheet date.

The other three financial statements depicted in Exhibit 21–1 relate to a *period of time*. The *income statement* reports the income for the period between two balance sheet dates. The *retained earnings statement* shows how income and dividends for the period have changed the organization's retained earnings. The *statement of cash flows* shows how cash was obtained during the period and how it was used.

In this chapter, we will concentrate on analyzing the data conveyed by the balance sheet, the income statement, and the retained earnings statement. In the preceding chapter, we explored how the statement of cash flows is prepared and used.

## Objectives of Financial Statement Analysis

**LO 1** Explain the objectives of financial statement analysis.

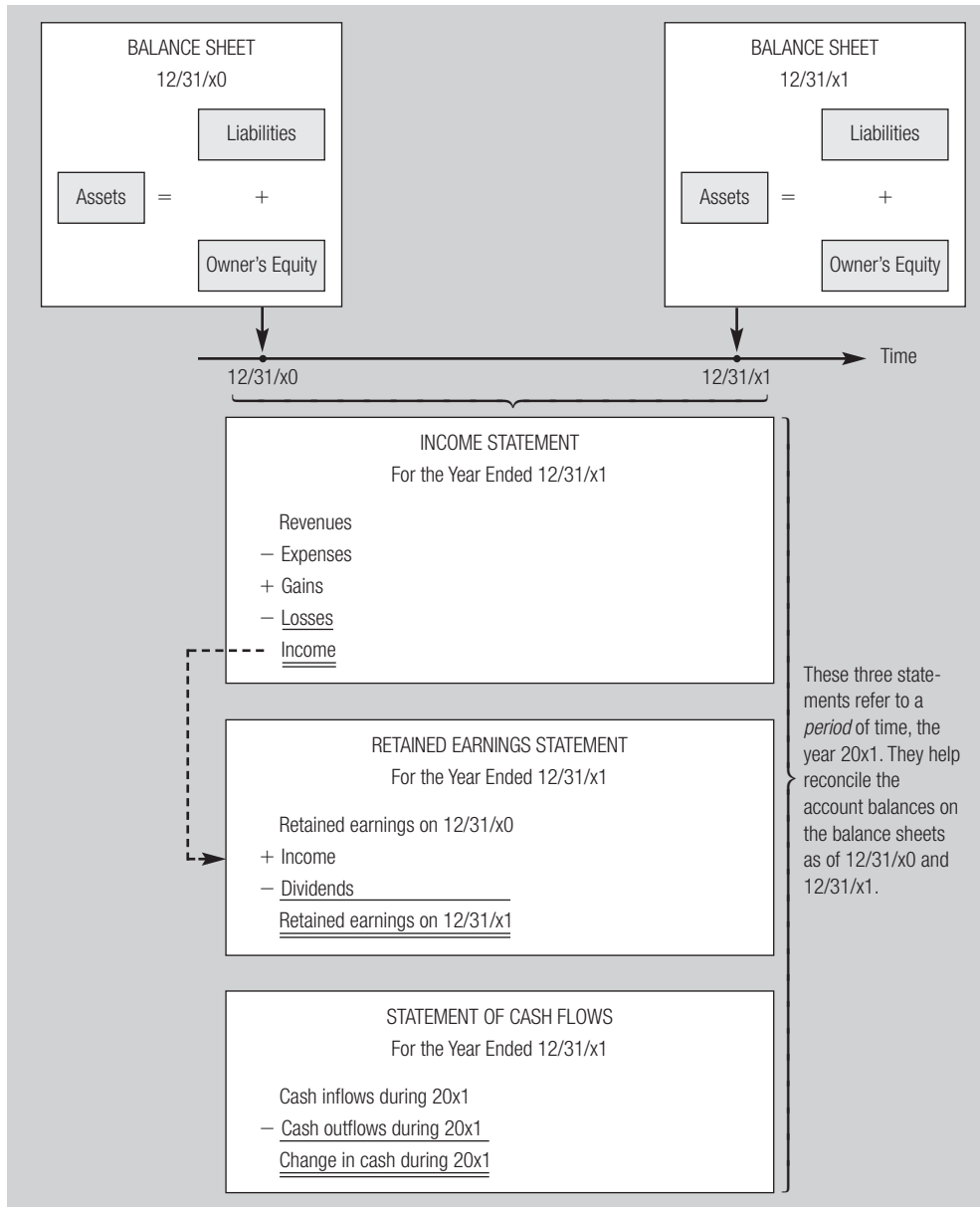
Financial statements are based on historical accounting information, which reflects the transactions and other events that have affected the firm. Managers and other users of the firm's financial statements are interested in the future. The objective of financial statement analysis is to use historical accounting data to help in predicting how the firm will fare in the future. The aspects of an organization's future performance that are of most interest depend on the needs of the user. A manager in the firm would be interested in the company's overall financial strength, its income and growth potential, and the financial effects of pending decisions. A potential lender, such as a bank loan officer, would be concerned primarily about the firm's ability to pay back the loan. Potential investors would be interested not only in the company's ability to repay its loan obligations, but also its future profit potential. Potential customers would want to assess the firm's ability to carry out its operations effectively and meet delivery schedules. Thus, the needs of the analyst dictate the sort of financial statement analysis that is most appropriate.

**LO 2** Describe and use the following four analytical techniques: horizontal analysis, trend analysis, vertical analysis, and ratio analysis.

### **Analytical Techniques Used**

Four analytical tools are in widespread use in analyzing financial statements:

1. Horizontal analysis
2. Trend analysis



3. Vertical analysis
4. Ratio analysis

Each of these techniques is defined, discussed, and illustrated in the following sections of the chapter.

### **Importance of Comparisons and Trends**

No single measure of a company's financial condition or performance can tell us much. The single most important point to remember about financial statement analysis is that every financial measure should be *compared* across time and across other companies to be meaningful. For example, an airline's profit for the current year should be compared with the same company's profit for several previous years. Moreover, the company's profit should be compared with the profit reported by other airlines of similar size and operational

**L03** Explain the importance of comparisons and trends in financial statement analysis.

characteristics. Comparing key financial data with industry norms also adds meaning to the reported profit for the company being analyzed.

To reemphasize the point, every financial measure discussed in this chapter should be compared with other analogous measures to be meaningful.

### Sources of Data

Published financial statements provide the primary source of data about any organization's financial condition and performance. A company's annual report, quarterly reports, and financial news releases provide a wealth of information about the firm.

Other sources of financial information also are available, both for individual companies and for entire industries. The Securities and Exchange Commission requires that every publicly held company file a detailed financial report with the commission annually. These reports are available to the public. The financial press, such as *The Wall Street Journal*, *Barron's*, *Business Week*, *Fortune*, *Forbes*, and various industry trade publications, provides in-depth coverage of specific companies and industries. Other important sources of financial data include financial advisory services, such as Dun & Bradstreet, Moody's Investors Service, Dow Jones, Standard & Poor's, and Robert Morris Associates. A wealth of financial information is also available on the Internet.

Doing a good job of financial statement analysis is not a trivial task. It requires a solid knowledge of accounting, familiarity with the analytical techniques to be discussed in this chapter, and substantial research using data from a variety of sources.

## Comparative Financial Statements



To illustrate each of the techniques used in analyzing financial statements, we will focus on a retail business. Contemporary Interiors, Inc., headquartered in Chicago, operates a chain of furniture stores in the Midwest. The company specializes in contemporary furniture, much of it imported from the Scandinavian countries. The firm also sells handcrafted furnishings, such as ceramic lamps and handwoven wall hangings.

Contemporary Interiors' balance sheets for December 31, 20x0 and 20x1, are displayed in Exhibit 21–2. The company's income statements and retained earnings statements for 20x0 and 20x1 are presented in Exhibit 21–3.

### Horizontal Analysis

**LO 2** Describe and use the following four analytical techniques: horizontal analysis, trend analysis, vertical analysis, and ratio analysis.

**Comparative financial statements** show the company's financial results for two successive years and highlight changes.

**Horizontal analysis** is an analysis of the year-to-year change in each financial statement item.

Exhibits 21–2 and 21–3 display **comparative financial statements**, which show the company's financial results for two successive years. These statements highlight the change in each financial item between 20x0 and 20x1. For example, Exhibit 21–2 shows that Contemporary Interiors' cash balance increased by \$100,000 between December 31, 20x0, and December 31, 20x1. Notice that the changes highlighted in Exhibits 21–2 and 21–3 are shown in both dollar and percentage form. Thus, Contemporary Interiors' \$100,000 increase in cash represents an increase of 14.3 percent of the December 31, 20x0, amount ( $14.3\% = \$100,000 \div \$700,000$ ).

Comparative financial statements and change data enable managers and financial analysts to do **horizontal analysis**, which is an analysis of the year-to-year change in each financial statement item. The purpose of horizontal analysis is to determine how each item changed, why it changed, and whether the change is favorable or unfavorable. This is a tall order, and it requires substantial additional information. Suppose, for example, that a business periodical recently published a story about a growing demand for Danish furniture. A glance at Contemporary Interiors' comparative balance

**Contemporary Interiors, Inc.**  
**Comparative Balance Sheets**  
**December 31, 20x1 and 20x0**  
**(in thousands)**

**Exhibit 21-2**

Comparative Balance Sheets



| Assets                                       | Year             |                  | Increase or (Decrease) |            |
|--|------------------|------------------|------------------------|------------|
|  | 20x1             | 20x0             | Amount                 | Percentage |
| <b>Current assets:</b>                       |                  |                  |                        |            |
| Cash   | \$ 800           | \$ 700           | \$ 100                 | 14.3       |
| Marketable securities                        | 450              | 300              | 150                    | 50.0       |
| Accounts receivable, net                     | 12,000           | 11,000           | 1,000                  | 9.1        |
| Inventory                                    | 20,000           | 17,000           | 3,000                  | 17.6       |
| Prepaid expenses                             | 250              | 300              | (50)                   | (16.7)     |
| Total current assets                         | <u>\$ 33,500</u> | <u>\$ 29,300</u> | <u>\$4,200</u>         | 14.3       |
| Long-term investments                        | \$ 500           | \$ 550           | \$ (50)                | (9.1)      |
| <b>Property, furnishings, and equipment:</b> |                  |                  |                        |            |
| Land   | \$ 6,000         | \$ 6,000         | \$ —                   | —          |
| Buildings, net                               | 55,000           | 52,000           | 3,000                  | 5.8        |
| Equipment and furnishings, net               | 25,000           | 23,000           | 2,000                  | 8.7        |
| Total property, furnishings, and equipment   | <u>\$ 86,000</u> | <u>\$ 81,000</u> | <u>\$5,000</u>         | 6.2        |
| Total assets                                 | <u>\$120,000</u> | <u>\$110,850</u> | <u>\$9,150</u>         | 8.3        |
| <b>Liabilities and Stockholders' Equity</b>  |                  |                  |                        |            |
| <b>Current liabilities:</b>                  |                  |                  |                        |            |
| Accounts payable                             | \$ 7,500         | \$ 7,050         | \$ 450                 | 6.4        |
| Accrued expenses                             | 2,200            | 2,100            | 100                    | 4.8        |
| Notes payable                                | 3,000            | 3,200            | (200)                  | (6.3)      |
| Total current liabilities                    | <u>\$ 12,700</u> | <u>\$ 12,350</u> | <u>\$ 350</u>          | 2.8        |
| <b>Long-term liabilities:</b>                |                  |                  |                        |            |
| Bonds payable (\$1,000 face value; 10%)      | 37,300           | 35,700           | 1,600                  | 4.5        |
| Total liabilities                            | <u>\$ 50,000</u> | <u>\$ 48,050</u> | <u>\$1,950</u>         | 4.1        |
| <b>Stockholders' equity:</b>                 |                  |                  |                        |            |
| Preferred stock (\$100 par value; 8%)        | \$ 6,000         | \$ 6,000         | \$ —                   | —          |
| Common stock (\$10 par value)*               | 25,000           | 24,000           | 1,000                  | 4.2        |
| Additional paid-in capital                   | 4,000            | 3,800            | 200                    | 5.3        |
| Retained earnings                            | 35,000           | 29,000           | 6,000                  | 20.7       |
| Total stockholders' equity                   | <u>\$ 70,000</u> | <u>\$ 62,800</u> | <u>\$7,200</u>         | 11.5       |
| Total liabilities and stockholders' equity   | <u>\$120,000</u> | <u>\$110,850</u> | <u>\$9,150</u>         | 8.3        |

\*100,000 shares of common stock were issued on January 1, 20x1. Since these shares were outstanding during the entire year, the weighted-average number of shares outstanding in 20x1 was 2,500,000 shares.

sheet reveals that its cash, accounts receivable, and inventory have all increased during 20x1. These changes are consistent with expanded operations in response to increased demand for the company's goods. The comparative income statement helps to confirm this supposition, since sales and cost of goods sold increased from 20x0 to 20x1.

Thus the analyst's job is like putting together a jigsaw puzzle. The analyst first gathers all the puzzle pieces (financial data) and then tries to fit them together to create a meaningful picture (the firm's financial condition and performance).

**Exhibit 21-3**

Comparative Income and Retained Earnings Statements



**Contemporary Interiors, Inc.**  
**Comparative Income and Retained Earnings Statements**  
**For the Years Ended December 31, 20x1 and 20x0**  
**(in thousands)**

|   | Year     |          | Increase or<br>(Decrease) |            |
|---|----------|----------|---------------------------|------------|
|   | 20x1     | 20x0     | Amount                    | Percentage |
| Sales .....                                       | \$87,000 | \$82,000 | \$5,000                   | 6.1        |
| Cost of goods sold .....                          | 60,930   | 56,350   | 4,580                     | 8.1        |
| Gross margin .....                                | \$26,070 | \$25,650 | \$ 420                    | 1.6        |
| Operating expenses:                               |          |          |                           |            |
| Selling expenses .....                            | \$ 5,000 | \$ 4,600 | \$ 400                    | 8.7        |
| Administrative expenses .....                     | 2,000    | 2,100    | (100)                     | (4.8)      |
| Total operating expenses .....                    | \$ 7,000 | \$ 6,700 | \$ 300                    | 4.5        |
| Operating income .....                            | \$19,070 | \$18,950 | \$ 120                    | .6         |
| Interest expense .....                            | 4,030    | 3,890    | 140                       | 3.6        |
| Income before taxes .....                         | \$15,040 | \$15,060 | \$ (20)                   | (.1)       |
| Income-tax expense .....                          | 3,760    | 3,800    | (40)                      | (1.1)      |
| Net income .....                                  | \$11,280 | \$11,260 | \$ 20                     | .2         |
| Dividends on preferred stock .....                | 480      | 480      | —0—                       | —0—        |
| Net income available to common stockholders ..... | \$10,800 | \$10,780 | \$ 20                     | .2         |
| Dividends on common stock .....                   | 4,800    | 4,600    | 200                       | 4.3        |
| Net income added to retained earnings .....       | \$ 6,000 | \$ 6,180 | \$ (180)                  | (2.9)      |
| Retained earnings, January 1 .....                | 29,000   | 22,820   | 6,180                     | 27.1       |
| Retained earnings, December 31 .....              | \$35,000 | \$29,000 | \$6,000                   | 20.7       |

**Trend Analysis**

**LO 2** Describe and use the following four analytical techniques: horizontal analysis, trend analysis, vertical analysis, and ratio analysis.

**Trend analysis** is a comparison of three or more years' data.

**Vertical analysis** concentrates on the relationships between various financial items on a financial statement.

The comparative financial statements in Exhibits 21-2 and 21-3 allow a comparison of only two years' data. When the comparison is extended to three or more years, the technique is called **trend analysis**. Trends can be shown in both dollar and percentage form by designating the first year in the sequence as the base year. Then the amounts in subsequent years are shown as a percentage of the base-year amount. Exhibit 21-4 displays a trend analysis of Contemporary Interiors' sales and net income data over a six-year period.

Contemporary Interiors' sales and net income both have risen steadily over the six-year period. However, the growth in sales has been greater than the growth in net income. The increase in income between year 5 and year 6 is quite small, despite a large increase in sales. The relationship between the trend in sales and the trend in net income could be cause for concern. Why has Contemporary Interiors' management been unable to convert a relatively larger growth in sales into an equally large growth in net income? While the trend analysis does not answer this question, it does serve an *attention-directing* role for the analyst. An alert financial analyst will delve more deeply into this issue and try to come up with an explanation.

**Vertical Analysis**

**LO 2** Describe and use the following four analytical techniques: horizontal analysis, trend analysis, vertical analysis, and ratio analysis.

Horizontal and trend analyses focus on the relationships between the amounts of each financial item across time. In contrast, **vertical analysis** concentrates on the relationships between various financial items on a particular financial statement. To show these relationships, each item on the

**Exhibit 21-4**

Trend Analysis: Contemporary Interiors, Inc.



|   | Year 6           | Year 5           | Year 4   | Year 3   | Year 2   | Year 1   |
|---|------------------|------------------|----------|----------|----------|----------|
| <b>A. Trend Analysis in Dollars</b>     |                  |                  |          |          |          |          |
| <b>(Measured in Thousands)</b>          |                  |                  |          |          |          |          |
| Sales .....                             | \$87,000         | \$82,000         | \$78,000 | \$74,800 | \$73,000 | \$72,000 |
| Net income .....                        | 11,280           | 11,260           | 11,000   | 10,500   | 10,200   | 9,900    |
| <b>B. Trend Analysis in Percentages</b> |                  |                  |          |          |          |          |
| Sales .....                             | 121 <sup>*</sup> | 114 <sup>†</sup> | 108      | 104      | 101      | 100      |
| Net income .....                        | 114              | 114              | 111      | 106      | 103      | 100      |
| *121% = \$87,000 ÷ \$72,000             |                  |                  |          |          |          |          |
| †114% = \$82,000 ÷ \$72,000             |                  |                  |          |          |          |          |

statement is expressed as a percentage of a base item that also appears on the statement. On the balance sheet, each item is expressed as a percentage of total assets. On the income statement, each item is stated as a percentage of sales. Financial statements prepared in terms of percentages of a base amount are called **common-size financial statements**. Contemporary Interiors' common-size balance sheets and income statements for 20x0 and 20x1 are displayed in Exhibits 21-5 and 21-6.

Financial analysts use vertical analysis to gain insight into the relative importance or magnitude of various items on the financial statements. Using common-size statements, prepared in a comparative format, analysts can discern changes in a firm's financial condition and performance from year to year.

To illustrate, notice that Contemporary Interiors' composition of current assets remained quite stable from 20x0 to 20x1. Although the various asset amounts changed, each asset represents roughly the same proportion of total assets on December 31, 20x1, as on December 31, 20x0. The largest change is in inventory, which increased from 15.3 percent to 16.7 percent of total assets. This could be merely a reflection of increased sales, and the required working capital. Alternatively, it could indicate overstocking.

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**Common-size financial statements** are prepared in percentages of a base amount.

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**LO 4** Prepare and interpret common-size financial statements.

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## Ratio Analysis: The Balance Sheet

The balance sheet is like a snapshot. It records the company's financial position at an instant in time. Several key relationships between the balance sheet items can help an analyst gain insight into the strength of a business.

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**LO 5** Define and compute the various financial ratios discussed in the chapter.

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### Working Capital

*Current assets* are assets that, under normal business operations, will be converted into cash within a reasonably short time period, usually a year. Contemporary Interiors' current assets include cash, marketable securities, accounts receivable, inventory, and prepaid expenses. The expectation is that the inventory will be sold within a year, the accounts receivable will be collected within a year, and so forth. *Current liabilities* are obligations due within a year.

A key financial measure is a company's **working capital**, which is defined as follows:

$$\text{Working capital} = \text{Current assets} - \text{Current liabilities}$$

Contemporary Interiors' working capital as of December 31, 20x1, amounts to \$20,800,000 (\$33,500,000 - \$12,700,000). Working capital is a key concept in operating a business. It is important to keep a reasonable amount of working capital to

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**Working capital** is current assets minus current liabilities.

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**Exhibit 21-5**

Common-Size Balance Sheets



| <b>Contemporary Interiors, Inc.</b>              |                               |              |
|--|-------------------------------|--------------|
| <b>Common-Size Balance Sheets</b>                |                               |              |
| <b>December 31, 20x1 and 20x0</b>                |                               |              |
|  | <b>Common-Size Statements</b> |              |
|  | <b>20x1</b>                   | <b>20x0</b>  |
| <b>Assets</b>                                    |                               |              |
| Current assets:                                  |                               |              |
| Cash .....                                       | .7                            | .6           |
| Marketable securities .....                      | .4                            | .3           |
| Accounts receivable, net .....                   | 10.0                          | 9.9          |
| Inventory .....                                  | 16.7                          | 15.3         |
| Prepaid expenses .....                           | .2                            | .3           |
| Total current assets .....                       | <u>28.0</u>                   | <u>26.4</u>  |
| Long-term investments .....                      | <u>.4</u>                     | <u>.5</u>    |
| Property, furnishings, and equipment:            |                               |              |
| Land .....                                       | 5.0                           | 5.4          |
| Buildings, net .....                             | 45.8                          | 47.0         |
| Equipment and furnishings, net .....             | <u>20.8</u>                   | <u>20.7</u>  |
| Total property, furnishings, and equipment ..... | <u>71.6</u>                   | <u>73.1</u>  |
| Total assets .....                               | <u>100.0</u>                  | <u>100.0</u> |
| <b>Liabilities and Stockholders' Equity</b>      |                               |              |
| Current liabilities:                             |                               |              |
| Accounts payable .....                           | 6.3                           | 6.3          |
| Accrued expenses .....                           | 1.8                           | 1.9          |
| Notes payable .....                              | <u>2.5</u>                    | <u>2.9</u>   |
| Total current liabilities .....                  | 10.6                          | 11.1         |
| Long-term liabilities:                           |                               |              |
| Bonds payable (\$1,000 face value; 10%) .....    | <u>31.1</u>                   | <u>32.2</u>  |
| Total liabilities .....                          | <u>41.7</u>                   | <u>43.3</u>  |
| Stockholders' equity:                            |                               |              |
| Preferred stock (\$100 par value; 8%) .....      | 5.0                           | 5.4          |
| Common stock (\$10 par value) .....              | 20.8                          | 21.7         |
| Additional paid-in capital .....                 | 3.3                           | 3.4          |
| Retained earnings .....                          | <u>29.2</u>                   | <u>26.2</u>  |
| Total stockholders' equity .....                 | <u>58.3</u>                   | <u>56.7</u>  |
| Total liabilities and stockholders' equity ..... | <u>100.0</u>                  | <u>100.0</u> |

ensure that short-term obligations can be paid on time, opportunities for volume expansion can be seized, and unforeseen circumstances can be handled easily. Contemporary Interiors has a comfortable balance of working capital.

**Current Ratio**

Another way of viewing a company's working capital position is in terms of the *current ratio*, defined as follows:

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

| <b>Contemporary Interiors, Inc.</b><br><b>Common-Size Income Statements</b><br><b>For the Years Ended December 31, 20x1 and 20x0</b> |                               |             |
|--|-------------------------------|-------------|
|  | <b>Common-size Statements</b> |             |
|  | <b>20x1</b>                   | <b>20x0</b> |
| Sales .....  | 100.0                         | 100.0       |
| Cost of goods sold .....   | 70.0                          | 68.7        |
| Gross margin .....   | 30.0                          | 31.3        |
| Operating expenses:  |                               |             |
| Selling expenses .....   | 5.8                           | 5.6         |
| Administrative expenses .....  | 2.3                           | 2.6         |
| Total operating expenses .....   | 8.1                           | 8.2         |
| Operating income .....   | 21.9                          | 23.1        |
| Interest expense .....   | 4.6                           | 4.7         |
| Income before taxes .....  | 17.3                          | 18.4        |
| Income-tax expense .....   | 4.3                           | 4.6         |
| Net income .....   | <u>13.0</u>                   | <u>13.8</u> |

**Exhibit 21-6**

Common-Size Income Statements



Contemporary Interiors' current ratio as of December 31, 20x1, is computed below:

$$\text{Current ratio (12/31/x1)} = \frac{\$33,500,000}{\$12,700,000} = 2.64, \text{ or } 2.64 \text{ to } 1$$

A popular rule of thumb is that a company's current ratio should be at least 2 to 1. Thus, Contemporary Interiors' current ratio is quite healthy. Indeed, it may be too large, once again indicating a possible excess of inventory. It is naïve and somewhat dangerous to place too much faith in a rule of thumb such as "Keep a current ratio of 2 to 1." The appropriate magnitude for this ratio (and all financial ratios) varies widely among industries, companies, and the specific circumstances of individual firms.

**Limitation of the Current Ratio** The current ratio does not tell the whole story of a company's ability to meet its short-term obligations. Consider the following balance sheet data for Contemporary Interiors and its chief competitor, Trends in Teak.

|                                 | <b>Contemporary<br/>Interiors</b> | <b>Trends<br/>in Teak</b> |
|---------------------------------|-----------------------------------|---------------------------|
| Cash .....                      | \$ 800                            | \$ 100                    |
| Marketable securities .....     | 450                               | 150                       |
| Accounts receivable .....       | 12,000                            | 2,950                     |
| Inventory .....                 | 20,000                            | 30,000                    |
| Prepaid expenses .....          | 250                               | 300                       |
| Total current assets .....      | <u>\$33,500</u>                   | <u>\$33,500</u>           |
| Total current liabilities ..... | \$12,700                          | \$12,700                  |
| Current ratio .....             | 2.64 to 1                         | 2.64 to 1                 |

Each of these companies exhibits a current ratio of 2.64 to 1. However, are the two firms in equally strong positions regarding payment of their current obligations? The answer is no. Trends in Teak has most of its current assets tied up in inventory, which may take close to a year to convert into cash through normal business operations. In contrast, Contemporary Interiors can cover all of its current debts with cash, marketable securities, and accounts receivable, which typically will be converted to cash more quickly than inventory.

### Acid-Test Ratio

To get a better picture of a company's ability to meet its short-term obligations, many analysts prefer the *acid-test ratio* (or *quick ratio*), defined as follows:

$$\text{Acid-test ratio} = \frac{\text{Quick assets}}{\text{Current liabilities}}$$

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**Quick assets** are cash, marketable securities, accounts receivable, and current notes receivable.

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**Quick assets** are defined as cash, marketable securities, accounts receivable, and current notes receivable. These assets typically can be converted into cash much more quickly than inventory or prepaid expenses can. Therefore, inventory and prepaid expenses are excluded from quick assets. The acid-test ratios for Contemporary Interiors and Trends in Teak are computed as follows:

| <b>Contemporary Interiors</b>   | <b>Trends in Teak</b>                                  |
|---|--|
| $\text{Acid-test ratio} = \frac{\$13,250,000}{\$12,700,000} = 1.04 \text{ to } 1$ | $\frac{\$3,200,000}{\$12,700,000} = .25 \text{ to } 1$ |

For every dollar of current liabilities, Contemporary Interiors has \$1.04 available in quick assets. In contrast, Trends in Teak has only \$.25 in quick assets available to pay every dollar of its current liabilities.

### Accounts Receivable Turnover

This ratio measures the number of times the average balance in accounts receivable has been converted into cash during the year. The *accounts receivable turnover* ratio is defined as follows:

$$\text{Accounts receivable turnover} = \frac{\text{Sales on account}}{\text{Average balance in accounts receivable}}$$

For Contemporary Interiors, the ratio is computed as follows:

$$\text{Accounts receivable turnover} = \frac{\$87,000,000^*}{\$11,500,000^\dagger} = 7.6$$

\*All of Contemporary Interiors' sales were on account.

†Average balance in accounts receivable =  $(\$11,000,000 + \$12,000,000)/2$ .

The accounts receivable turnover often is used to assess the effectiveness of a company's credit terms and collection policies. The higher the ratio, the more effective the company is in collecting its receivables. Of course, a firm can establish too stringent a credit policy, resulting in lost sales.

**Average Collection Period** Another ratio, which is derived from the accounts receivable turnover, is the *average collection period*, defined as follows:

$$\text{Average collection period} = \frac{365 \text{ days}}{\text{Accounts receivable turnover}}$$

For Contemporary Interiors, this ratio is computed as follows:

$$\text{Average collection period} = \frac{365 \text{ days}}{7.6} = 48 \text{ days}$$

The average collection period measures the average number of days required to collect accounts receivable. Contemporary Interiors' collection period of 48 days is quite long, particularly if the company's credit payment terms are the usual 30 days. This relatively long collection period may reflect lax credit terms, ineffective collection policies, or some accounts receivable of doubtful collectibility.

### **Inventory Turnover**

How much inventory should a company keep? The answer, which requires a delicate trade-off of ordering, holding, and shortage costs, varies widely among industries. One measure of the appropriateness of a company's inventory level is its *inventory turnover*, which is defined as follows:

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

For Contemporary Interiors, this ratio is computed as follows:

$$\text{Inventory turnover} = \frac{\$60,930,000}{\$18,500,000^*} = 3.3$$

$$^*\text{Average balance in inventory} = \frac{\$17,000,000 + \$20,000,000}{2} = \$18,500,000$$

Contemporary Interiors sold its average inventory 3.3 times during 20x1.

**Average Number of Days per Inventory Turnover** To determine how many days, on average, are required to sell a piece of furniture, the analyst computes the following measure.

$$\text{Average number of days per inventory turnover} = \frac{365 \text{ days}}{\text{Inventory turnover}}$$

For Contemporary Interiors, we have the following computation.

$$\text{Average number of days per inventory turnover} = \frac{365 \text{ days}}{3.3} = 111 \text{ days}$$

It takes 111 days, on average, for Contemporary Interiors to sell a piece of furniture. This is fairly typical for the quality furniture retail business. What would you expect this ratio to be in a grocery store? How about an art gallery?<sup>1</sup>

The sum of the average collection period and the average number of days per inventory turnover measures how long it takes a dollar invested in inventory to come back into the cash account. This cash cycle provides management with a gauge of the company's effectiveness in carrying its operations through from inventory purchase to collection of cash. Contemporary Interiors' cycle is 159 days (48 + 111).

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<sup>1</sup> Grocery stores have short periods for the average number of days per inventory turnover. None of us would want a loaf of bread that has been in the store for 111 days. An art gallery, on the other hand, would require a rather long period to sell a typical piece of fine art.

### Book Value of Securities

Contemporary Interiors has three types of securities outstanding: bonds, preferred stock, and common stock. The number of shares outstanding is calculated as follows for each type of security.

| (a)<br>Type of<br>Security | (b)<br>Value on<br>Balance Sheet | (c)<br>Face Value per<br>Bond or<br>Par Value per<br>Share of Stock | (d) = (b) ÷ (c)<br>Number<br>of Shares<br>Outstanding |
|----------------------------|----------------------------------|---|---|
| Bonds .....                | \$37,300,000                     | \$1,000   | 37,300  |
| Preferred stock .....      | 6,000,000                        | 100   | 60,000  |
| Common stock .....         | 25,000,000                       | 10  | 2,500,000   |

Some analysts compute the book value of each of a company's securities, as a measure of the assets available to back up the firm's debt and ownership obligations. In the event that a company is liquidated, the short-term creditors and bondholders typically have legal precedence over the stockholders in the settlement of claims. The preferred stockholders are next, and the common stockholders come last. Thus, calculation of the book value of securities must be done in steps, as shown in Exhibit 21-7. First, assume that the short-term debt of \$12,700,000 would be paid off. This leaves \$107,300,000 in assets to meet the bondholders' claims, or \$2,877 per \$1,000 bond. Second, after the short-term and long-term debt is repaid, there would be \$70,000,000 in assets available to back the preferred stock, or \$1,167 for each share of \$100 par value preferred stock. Finally, Contemporary Interiors would have \$25.60 remaining to back each share of \$10 par value common stock.

Contemporary Interiors has more than sufficient assets to back its securities.

### Capitalization Ratios

A *capitalization ratio* is the proportion of the face value of a particular type of security to the company's total equity. Contemporary Interiors' capitalization ratios are computed as follows:

|                                  |              |                      |             |
|----------------------------------|--------------|----------------------|-------------|
| Bonds .....                      |              | \$ 37,300,000        | 35%*        |
| Preferred stock .....            |              | 6,000,000            | 5%          |
| Common stock .....               | \$25,000,000 | } 64,000,000         | 60%         |
| Additional paid-in capital ..... | 4,000,000    |                      |             |
| Retained earnings .....          | 35,000,000   |                      |             |
| Total capitalization .....       |              | <u>\$107,300,000</u> | <u>100%</u> |

\*35% = \$37,300,000/\$107,300,000

5% = \$6,000,000/\$107,300,000

60% = \$64,000,000/\$107,300,000

Contemporary Interiors' capitalization consists of 35 percent debt, 5 percent preferred stock, and 60 percent common stock. Notice that the additional paid-in capital and retained earnings are combined with the common stock in a single category. In the event of liquidation, these amounts would be available to back the common stock, after the claims of bondholders and preferred stockholders were met.

**Debt-Equity Ratio** This is another measure of a firm's capitalization.

$$\text{Debt-equity ratio} = \frac{\text{Total liabilities}}{\text{Total stockholders' equity}}$$

Contemporary Interiors' debt-equity ratio for 20x1 is computed as follows:

**Exhibit 21-7**Book Value of Securities:  
Contemporary Interiors, Inc.

|  |                      |
|--|----------------------|
| Total assets .....                                 | \$120,000,000        |
| Less: Current liabilities .....                    | <u>12,700,000</u>    |
| Net assets backing the claims of bondholders ..... | <u>\$107,300,000</u> |

$$\begin{aligned} \text{Book value per bond} &= \frac{\text{Net assets available}}{\text{Number of bonds outstanding}} \\ &= \frac{\$107,300,000}{37,300} = \$2,877 \text{ per } \$1,000 \text{ bond} \end{aligned}$$

|  |                      |
|--|----------------------|
| Net assets backing bonds .....           | \$107,300,000        |
| Less: Bonds payable .....                | <u>37,300,000</u>    |
| Net assets backing preferred stock ..... | <u>\$ 70,000,000</u> |

$$\begin{aligned} \text{Book value per share} &= \frac{\text{Net assets available}}{\text{Number of shares of}} \\ \text{of preferred stock} & \quad \text{preferred stock outstanding} \\ &= \frac{\$70,000,000}{60,000} = \$1,167 \text{ per share of } \$100 \\ & \quad \text{par value preferred stock} \end{aligned}$$

|  |                      |
|--|----------------------|
| Net assets backing preferred stock ..... | \$ 70,000,000        |
| Less: Preferred stock .....              | <u>6,000,000</u>     |
| Net assets backing common stock .....    | <u>\$ 64,000,000</u> |

$$\begin{aligned} \text{Book value per share} &= \frac{\text{Net assets available}}{\text{Number of shares of}} \\ \text{of common stock} & \quad \text{common stock outstanding} \\ &= \frac{\$64,000,000}{2,500,000} = \$25.60 \text{ per share of } \$10 \\ & \quad \text{par value common stock} \end{aligned}$$

$$\text{Debt-equity ratio} = \frac{\$50,000,000}{\$70,000,000} = .71 \text{ to } 1$$

The debt-equity ratio measures the relationship between the firm's resources provided through debt and those provided through ownership. In general, the greater the debt-equity ratio is, the riskier the company is as an investment. Greater debt means larger obligations to be satisfied before the claims of the company's owners can be met.

## Ratio Analysis: The Income Statement

The income statement also provides valuable information that can provide insight into the financial condition and performance of an enterprise. Some key income-statement relationships are discussed next.

**LO 5** Define and compute the various financial ratios discussed in the chapter.

### Operating Income

Operating income is a key number on the income statement because it represents the net result of the company's operations for the period. Financing decisions, which result in interest expense and income-tax issues, are largely separate from operating decisions. Thus, operating income focuses on the operations of the business, exclusive of financing and tax considerations. Contemporary Interiors' operating income for 20x1 was \$19,070,000.

### **Coverage of Interest and Preferred Stock Dividends**

Before investing in a company's bonds, a long-term creditor will want to be assured that the firm can pay the interest on the debt. *Interest coverage* provides a measure of the company's ability to meet its contractual obligation to pay bond interest.

$$\text{Interest coverage} = \frac{\text{Operating income}}{\text{Interest expense}}$$

Contemporary Interiors' 20x1 interest coverage is computed as follows:

$$\text{Interest coverage} = \frac{\$19,070,000}{\$4,030,000} = 4.7 \text{ times}$$

Contemporary Interiors' interest coverage is healthy, and long-term creditors should be reassured as to the firm's ability to pay bond interest.

**Coverage of Dividends on Preferred Stock** Preferred stock dividends must be paid before any dividends can be paid on common stock. Thus, potential investors are interested in whether a company's net income is sufficient to pay the stated dividend rate on its preferred stock. The following ratio provides a pertinent measure.

$$\text{Coverage of dividends on preferred stock} = \frac{\text{Net income}}{\text{Stated dividends on preferred stock}}$$

Notice that *net income* is used in this measure, because interest on bonds and income taxes must be paid before any dividends can be declared. Contemporary Interiors' coverage of preferred stock dividends is computed as follows:

$$\text{Coverage of dividends on preferred stock} = \frac{\$11,280,000}{\$480,000} = 23.5 \text{ times}$$

### **Earnings per Share**

Investors in common stock hope to earn a return on their investment through dividends or increases in the stock price. Both payment of dividends and stock price appreciation are related to a firm's ability to earn income. A key measure that relates a company's earnings to its common stock is the firm's *earnings per share*.

$$\text{Earnings per share} = \frac{\text{Net income available to common stockholders}}{\text{Weighted-average number of shares of common stock outstanding}}$$

Contemporary Interiors' earnings per share for 20x1 is computed as follows:<sup>2</sup>

<sup>2</sup> The weighted-average number of shares for the year is computed by weighting the number of shares outstanding during each portion of the year by the fraction of the year during which the shares were outstanding. To illustrate, if Example Company had 100 shares outstanding for the first three months and 200 shares outstanding for the last nine months, the company's weighted-average number of shares would be  $(100)(\frac{1}{4}) + (200)(\frac{3}{4})$ , or 175 shares.

Since Contemporary Interiors had 2,500,000 shares outstanding during the *entire year* 20x1, its weighted-average number of shares is 2,500,000 shares. (See Exhibit 21-2.)

$$\text{Earnings per share} = \frac{\$11,280,000 - \$480,000}{2,500,000} = \frac{\$10,800,000}{2,500,000} = \$4.32 \text{ per share}$$

Notice that the dividends on the preferred stock (\$480,000) are subtracted from net income to compute net income available to common stockholders.

**Extraordinary Items** Suppose a company had an extraordinary gain or loss on its income statement. These gains or losses result from events outside the normal realm of the firm's business operations. Examples include losses due to natural disasters, fires, or the expropriation of assets by a foreign government. Accepted practice requires that earnings per share be computed exclusive of the effect of any extraordinary gains or losses *and* their related tax effect. To illustrate, assume the following set of facts for Trends in Teak, Inc.

|                    |  |                     |
|--------------------|--|---------------------|
|                    | Sales  | \$70,000,000        |
|                    | Cost of goods sold                           | <u>49,000,000</u>   |
|                    | Gross margin                                 | \$21,000,000        |
|                    | Operating expenses                           | <u>5,000,000</u>    |
|                    | Operating income                             | \$16,000,000        |
|                    | Interest expense                             | <u>3,000,000</u>    |
|                    | Income before taxes and extraordinary item   | \$13,000,000        |
|                    | Income tax (30%)                             | <u>3,900,000</u>    |
|                    | Income before extraordinary item             | \$ 9,100,000        |
| Extraordinary item | → Extraordinary item: loss due to flood      | \$1,000,000         |
|                    | Less applicable income tax reduction (30%)   | <u>300,000</u>      |
|                    | Net impact on income from extraordinary loss | <u>700,000</u>      |
|                    | Net income                                   | \$ 8,400,000        |
|                    | Dividends on preferred stock                 | <u>400,000</u>      |
|                    | Net income available to common stockholders  | <u>\$ 8,000,000</u> |
|                    | Common stock outstanding                     | 2,900,000 shares    |

It would *not* be correct to compute the earnings per share for Trends in Teak as \$2.76 (\$8,000,000 ÷ 2,900,000). The \$8,000,000 of available income used in this erroneous calculation includes the extraordinary loss due to the flood. This would be misleading to investors, because the flood loss is a rare event that will not likely be repeated. The correct approach to computing the company's earnings per share is shown below.

|  |                    |
|--|--------------------|
| Net income   | \$8,400,000        |
| Add: Extraordinary loss, net of its tax effect:  |                    |
| Extraordinary loss   | \$1,000,000        |
| Tax effect (30%)   | <u>300,000</u>     |
| Net impact on income from extraordinary loss   | <u>700,000</u>     |
| Net income, excluding extraordinary loss and related tax effect                                  | \$9,100,000        |
| Dividends on preferred stock   | <u>400,000</u>     |
| Net income available to common stockholders, excluding extraordinary loss and related tax effect | <u>\$8,700,000</u> |

$$\text{Earnings per share} = \frac{\$8,700,000}{2,900,000} = \$3.00 \text{ per share}$$

The correct statement of earnings per share for Trends in Teak is \$3.00 per share.



**Diluted Earnings per Share** One other complication often arises in computing earnings per share. Some securities are *convertible*, which means that they can be converted into a specified number of shares of common stock. Suppose, for example, that each share of Contemporary Interiors' preferred stock can be converted into 10 shares of common stock. If all 60,000 of the preferred shares were converted, there would be an additional 600,000 shares of common stock outstanding. To reflect this possibility, *diluted earnings per share* is computed under the assumption that all convertible securities are converted into common shares. This measure is defined as follows:

$$\text{Diluted earnings per share} = \frac{\text{Net income}}{\text{Weighted-average number of shares of common stock outstanding, assuming full conversion of all convertible securities}}$$

For Contemporary Interiors we have the following calculation.

$$\text{Diluted earnings per share} = \frac{\$11,280,000}{2,500,000 + 600,000} = \$3.64 \text{ per share}$$

Notice that the dividends on the preferred stock were not subtracted from net income in the numerator. This reflects the assumption that the preferred stock has been converted to common stock. Contemporary Interiors' diluted earnings per share, \$3.64, is lower than its \$4.32 basic earnings per share computed earlier. The \$4.32 amount does not reflect the potential conversion of preferred stock.

**Price-Earnings Ratio** Of particular interest to investors is the relationship between a company's stock price and its income. Income, after all, is the key to both dividends and stock price appreciation. A common measure of the relationship between stock price and income is the price-earnings ratio, defined as follows:

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

To illustrate, suppose Contemporary Interiors' common stock price is \$65 per share:

$$\text{Price-earnings ratio} = \frac{\$65.00 \text{ per share}}{\$4.32 \text{ per share}^*} = 15$$

\*Notice that the basic earnings per share is used rather than the diluted earnings per share.

Thus, Contemporary Interiors' common stock is currently selling for 15 times the firm's earnings per share. Some investors use the price-earnings ratio to help determine the appropriate price for a company's stock. Of course, the most critical issues in determining a fair stock price are the investor's estimates of the company's future earnings potential and the riskiness of the stock.

### **Return on Assets**

The management of a company has a responsibility to use the firm's assets as effectively as possible in generating income for the owners. The rate of *return on assets* is a measure of how effectively management has fulfilled this responsibility.

$$\text{Return on assets} = \frac{\text{Net income} + \text{Interest expense, net of its tax impact}}{\text{Average total assets}}$$

Notice that the interest expense, net of its tax effect, has been added back to net income. The reason for this is to make a distinction between operating management and financial management. The operating managers of a business should use total assets, irrespective of how they have been financed, to generate income. Moreover, operating managers typically do not make financing decisions that would affect interest expense. Thus, interest expense is added back to net income to obtain a measure of the income resulting from the operating management of the business. The required calculations for Contemporary Interiors are as follows:

|   |                    |
|---|--------------------|
| Interest expense .....                    | \$4,030,000        |
| Income-tax effect (30%) .....             | 1,209,000          |
| Interest expense, net of tax effect ..... | <u>\$2,821,000</u> |

$$\text{Return on assets} = \frac{\$11,280,000 + \$2,821,000}{\$115,425,000^*} = 12.2\%$$

\*\$115,425,000 = (\$120,000,000 + \$110,850,000)/2

Focusing on only the operating part of the business, Contemporary Interiors' management generated a 12.2 percent return on assets in 20x1.

### Return on Equity

A different rate-of-return measure which is commonly used by analysts is the *return on equity* (or *return on common stockholders' equity*). This measure is defined as follows:

$$\text{Return on equity} = \frac{\text{Net income available to common stockholders}}{\text{Average common stockholders' equity}}$$

Notice that the denominator is average *common* stockholders' equity, which is found by subtracting preferred stock from total stockholders' equity. Contemporary Interiors' return on equity for 20x1 is computed as follows:

|                                     | 20x0                | 20x1                |
|-------------------------------------|---------------------|---------------------|
| Total stockholders' equity .....    | \$62,800,000        | \$70,000,000        |
| Less: Preferred stock .....         | <u>6,000,000</u>    | <u>6,000,000</u>    |
| Common stockholders' equity .....   | <u>\$56,800,000</u> | <u>\$64,000,000</u> |
| Average common stockholders' equity | <u>\$60,400,000</u> |                     |

$$\text{Return on equity} = \frac{\$10,800,000}{\$60,400,000} = 17.9\%$$

The income available to Contemporary Interiors' common stockholders provided a 17.9 percent return on their investment in 20x1.

### Return on Sales

The proportion of each sales dollar that results in net income is one measure of the efficiency of a business. *Return on sales* provides such a measure.

$$\text{Return on sales} = \frac{\text{Net income}}{\text{Sales}}$$

Contemporary Interiors' return on sales is computed as follows for 20x1.

$$\text{Return on sales} = \frac{\$11,280,000}{\$87,000,000} = 13\%$$

Return on sales, along with all financial ratios, must be compared with the ratios for other companies in the industry to be meaningful.

### Financial Leverage

**Financial leverage** means that a relatively small increase in income provides a proportionately much larger increase in return to common stockholders.

In physics, *leverage* means the ability of a relatively small force to move a heavy object. Likewise, the concept of **financial leverage** refers to the situation where a relatively small increase in income can provide a proportionately much larger increase in return to the common stockholders. How is this financial magic worked? It hinges on having a relatively large proportion of financing through debt or preferred stock, which pays interest or dividends at a fixed rate. When income increases, the bond interest and preferred stock dividends remain constant, leaving most of the increase in income available to the common stockholders.

An illustration will help to clarify the concept of financial leverage. Suppose a company has \$10,000,000 in outstanding bonds payable which bear interest at 5 percent. The company's operating income is \$550,000, and its tax rate is 30 percent. The calculations for case A in Exhibit 21-8 show that there will be \$35,000 of after-tax income available to the common stockholders.

Now consider what will happen if operating income increases by a modest 10 percent. As case B in Exhibit 21-8 shows, the income available to common stockholders increases to \$73,500, a 110 percent increase. By financing a large portion of the firm with bonds, the company is able to direct the increase in income to the common stockholders.

Now consider the risky side of financial leverage. What will happen if operating income declines by 10 percent? As case C demonstrates, the firm cannot even cover its bond interest, let alone direct any profit to the common stockholders.

In summary, high financial leverage carries with it the possibility of great return, but it also entails high risk. A glance at Contemporary Interiors' balance sheet reveals that the company is not highly leveraged. This fact also is indicated by the company's low debt-equity ratio, which was calculated to be .71 to 1.

## Ratio Analysis: The Statement of Retained Earnings

**LO 5** Define and compute the various financial ratios discussed in the chapter.

The retained earnings statement reconciles the year's beginning and ending balances in retained earnings. Net income increases retained earnings, while dividends decrease retained earnings. Two ratios often are computed using data on this statement.

### Exhibit 21-8

Financial Leverage

|   | Case A<br>Status Quo                              | Case B<br>10% Increase | Case C<br>10% Decrease |
|---|---|------------------------|------------------------|
| Bonds payable (5%) . . . . .                      | \$10,000,000 × 5% = \$500,000 in interest expense |                        |                        |
| Operating income . . . . .                        | \$550,000   | \$605,000              | \$495,000              |
| Less: Bond interest . . . . .                     | 500,000   | 500,000                | 500,000                |
| Income before taxes . . . . .                     | \$ 50,000   | \$105,000              | \$ (5,000)             |
| Income-tax expense (30%) . . . . .                | 15,000  | 31,500                 |                        |
| Income available to common stockholders . . . . . | <u>\$ 35,000</u>                                  | <u>\$ 73,500</u>       |                        |
|   | } 110% increase                                   |                        |                        |

### **Dividend Payout Ratio**

The *dividend payout ratio* shows the proportion of earnings per share that is paid to the common stockholders in the form of dividends.

$$\text{Dividend payout ratio} = \frac{\text{Dividends per share of common stock}}{\text{Earnings per share}}$$

Contemporary Interiors paid dividends of \$1.92 per share of common stock in 20x1 (\$4,800,000 ÷ 2,500,000.) The company's dividend payout ratio is computed as follows:

$$\text{Dividend payout ratio} = \frac{\$1.92 \text{ per share}}{\$4.32 \text{ per share}^*} = 44.4\%$$

\*Notice that the regular earnings per share is used rather than the diluted earnings per share.

Contemporary Interiors paid out to its common stockholders almost half of the income available for that purpose. The remainder was reinvested in the business. The dividend payout ratio that is best for a company depends on its opportunities for growth, the needs of the company for reinvestment funds, and the ease with which the firm can attract capital.

### **Dividend Yield Ratio**

One of the factors affecting a company's stock price is the amount of dividends paid on the stock. The *dividend yield ratio* focuses on the relationship between dividends and stock price:

$$\text{Dividend yield ratio} = \frac{\text{Dividends per share of common stock}}{\text{Market price per share}}$$

Contemporary Interiors' common stock sells for \$65.00 per share, so the following calculation is made.

$$\text{Dividend yield ratio} = \frac{\$1.92 \text{ per share}}{\$65.00 \text{ per share}} = 3.0\%$$

By comparing dividend payout ratios and dividend yield ratios across companies, investors can judge whether a firm's stock is fairly priced, given the dividends paid.

## **Notes to Financial Statements**

Published financial statements almost always are accompanied by notes. These narratives provide greater detail about much of the information that is included very concisely in the financial statements. Many people find the notes to be dull and complicated. Nevertheless, they can be extremely important and should be viewed as an integral part of the financial statements. Information typically disclosed in the notes includes:

- Details of the inventory and depreciation methods used.
- Contingent liabilities and pending lawsuits.
- Long-term leases.
- Terms of executive employment contracts, profit-sharing programs, pension plans, and stock options granted to employees.

Remember, if you want to analyze a set of financial statements thoroughly, don't pass over the notes.

## Summary of Financial Statement Analysis

Exhibit 21–9 summarizes the key financial ratios discussed in the chapter.



### Corning Glass

Concepts from financial statement analysis often are used by management in setting goals for an enterprise. The following example of financial goals comes from a Corning Glass annual report.

- *Performance:* We will be consistently in the top 25 percent of the *Fortune 500* in financial performance as measured by return on equity.
- *Growth:* We will grow at an annual rate in excess of 5 percent in real terms.

We will maintain a debt-to-capital ratio of approximately 25 percent and a long-term dividend payout of 33 percent.

We will issue new shares of stock on a limited basis in connection with employee ownership programs and acquisitions with a clear strategic fit.

### Exhibit 21–9

Summary of Key Financial Ratios

| Ratio   | Definition   |
|---|--|
| <b>Analyzing the Balance Sheet</b>                        |  |
| Acid-test ratio (or quick ratio)                          | Quick assets ÷ current liabilities   |
| Accounts receivable turnover                              | Sales on account ÷ average balance in accounts receivable  |
| Average collection period                                 | 365 days ÷ accounts receivable turnover  |
| Average number of days per inventory turnover             | 365 days ÷ inventory turnover  |
| Capitalization ratio                                      | Proportion of the face value of a particular type of security to the company's total equity (e.g., bonds payable ÷ total liabilities and stockholders' equity) |
| Current ratio   | Current assets ÷ current liabilities   |
| Debt-equity ratio   | Total liabilities ÷ total stockholders' equity   |
| Inventory turnover  | Cost of goods sold ÷ average balance in inventory  |
| <b>Analyzing the Income Statement</b>                     |  |
| Coverage of dividends on preferred stock                  | Net income ÷ stated dividends on preferred stock   |
| Earnings per share (also called basic earnings per share) | Net income available to common stockholders ÷ weighted-average number of shares of common stock outstanding  |
| Diluted earnings per share                                | Net income ÷ weighted-average number of shares of common stock outstanding, assuming full conversion of all convertible securities                             |
| Interest coverage   | Operating income ÷ interest expense  |
| Price-earnings ratio                                      | Market price per share ÷ earnings per share  |
| Return on assets  | (Net income + interest expense net of income-tax effect) ÷ average total assets  |
| Return on equity  | Net income available to common stockholders ÷ average common stockholders' equity  |
| Return on sales   | Net income ÷ sales   |
| <b>Analyzing the Retained Earnings Statement</b>          |  |
| Dividend payout ratio                                     | Dividends per share of common stock ÷ earnings per share   |
| Dividend yield ratio                                      | Dividends per share of common stock ÷ market price per share   |

## Limitations of Financial Statement Analysis

Financial statements and the financial ratios derived from them are but a single source of information about a company. As is true of any managerial-accounting information, financial ratios serve only as an attention-directing device. The ratios raise questions more often than they answer them. An analyst must follow up the financial statement analysis with in-depth research on a company's management, its history and trends, the industry, and the national and international economies in which the firm operates.

Financial statement analysis is subject to the limitations inherent in financial statements. First, financial statements are based on historical accounting data, which may not be indicative of the future. Second, historical cost values provide the basis for accounting valuation, even though price levels are constantly changing. Third, although comparisons across companies are critical to meaningful financial statement analysis, such comparisons are not always easy. Generally accepted accounting principles allow considerable flexibility in accounting for many financial events. When companies use different accounting methods, their accounting numbers may not be comparable.

## Chapter Summary

Financial statements provide the primary means for communicating financial information about a company to interested parties outside the organization. The purpose of financial statement analysis is to highlight key relationships between various accounting numbers in the financial statements to provide insight into the financial condition and performance of the firm. The objective is to assist analysts in predicting the future performance of the company. A company's managers also use tools from financial statement analysis to help them understand the implications of their decisions for the company's financial condition and performance.

Horizontal analysis and trend analysis are two of the analytical techniques used in financial statement analysis. Both of these tools involve comparisons of accounting data across time. Another widely used analytical tool is vertical analysis, in which component percentages are computed for the numbers on the balance sheet and income statement. Financial statements prepared in terms of these percentages are called common-size statements. Ratio analysis involves the calculation of numerous ratios between the numbers on the financial statements to indicate the relationships between those numbers. For ratio analysis to be meaningful, the analyst should draw comparisons across time and across other companies in the industry.

## Key Terms

*For each term's definition refer to the indicated page, or turn to the glossary at the end of the text. Note: The various ratios defined in the chapter are summarized in Exhibit 21–9.*

**common-size financial statements, pg. 49**

**financial leverage, pg. 60**

**quick assets, pg. 52**

**vertical analysis, pg. 48**

**comparative financial statements, pg. 46**

**horizontal analysis, pg. 46**

**trend analysis, pg. 48**

**working capital, pg. 49**

## Review Questions

- 21–1. Why would a company's management be interested in the information conveyed in the firm's financial statements published for outside parties? How could management use the tools of financial statement analysis?
- 21–2. List the four major financial statements, and briefly describe the relationships between them.
- 21–3. What is wrong with these statements? "The company's cash for 20x0 was \$50,000. Its income on December 31, 20x0, was \$150,000."

- 21-4. Explain why comparisons and trends are important in financial statement analysis.
- 21-5. What other sources of financial data are available in addition to published financial statements?
- 21-6. How are comparative financial statements used in financial statement analysis? What is meant by *horizontal analysis*?
- 21-7. What is meant by *vertical analysis*? How are common-size financial statements used by analysts?
- 21-8. What is the significance of a company's current ratio?
- 21-9. What is the main limitation of the current ratio?
- 21-10. What is the significance of the acid-test ratio?
- 21-11. Alpha Company has an accounts receivable turnover ratio of 5.1. Beta Company, in the same industry, has a ratio of 2.2. What can you conclude about these two firms?
- 21-12. What does it imply for a company to have a low inventory turnover? Would you expect this ratio to differ much across industries? Why?
- 21-13. What is the significance of a high debt-equity ratio?
- 21-14. Jeffries Corporation covered its bond interest 1.2 times. What does this mean, and what conclusion can you draw?
- 21-15. Briefly explain the treatment of extraordinary items in the calculation of earnings per share. Do you agree with this treatment? Why?
- 21-16. What is meant by diluted earnings per share?
- 21-17. Contrast the following two ratios and their interpretations: return on assets versus return on equity.
- 21-18. What kinds of information are conveyed in the notes to financial statements?
- 21-19. Briefly describe three limitations of financial statements which are reflected in financial statement analysis.
- 21-20. Assume you are deciding whether your bank should make a short-term loan to a company. List the financial ratios in which you would be most interested. Then assume instead that you are a potential investor in the company's stock.

## Exercises

### ■ Exercise 21-21 Trend Analysis (LO 2, LO 3)

The following data are available for Slattery Corporation, a manufacturer of scientific equipment. The amounts refer to December 31 of each year.

|                           | Year 5      | Year 4      | Year 3      | Year 2      | Year 1      |
|---------------------------|-------------|-------------|-------------|-------------|-------------|
| Current assets . . . .    | \$2,842,000 | \$2,200,000 | \$1,900,000 | \$1,600,000 | \$1,400,000 |
| Inventory . . . . .       | 2,042,000   | 1,300,000   | 1,150,000   | 820,000     | 700,000     |
| Current liabilities . . . | 1,100,000   | 1,000,000   | 900,000     | 790,000     | 700,000     |

#### Required:

1. Restate the trend data in terms of percentages, using Year 1 as the base year.
2. Prepare a table showing the trend in the company's current ratio and acid-test ratio from Year 1 through Year 5. The firm has no prepaid expenses.
3. What conclusions can you draw from the trend data? Explain your answer.

### ■ Exercise 21-22 Trend Analysis (LO 2, LO 3)

The following data are available for The Gridiron, a small sandwich shop located near the Los Angeles Coliseum.

|                      | Year 5   | Year 4   | Year 3   | Year 2   | Year 1   |
|----------------------|----------|----------|----------|----------|----------|
| Sales . . . . .      | \$52,000 | \$47,200 | \$44,520 | \$42,000 | \$40,000 |
| Net income . . . . . | 15,100   | 12,600   | 11,450   | 10,600   | 10,000   |

#### Required:

1. Restate the trend data in terms of percentages using Year 1 as the base year.
2. Comment on the trends in the company's sales and net income.

### ■ Exercise 21-23 Ratio Analysis (LO 2, LO 5)

Party Animal Company produces frozen pizzas, which are sold primarily on college campuses. The firm's financial statements provide the following information.

|                                     | Balance Sheet              |           |
|-------------------------------------|----------------------------|-----------|
|                                     | December 31, 20x1 and 20x0 |           |
|                                     | 20x1                       | 20x0      |
| Cash . . . . .                      | \$ 60,000                  | \$ 50,000 |
| Accounts receivable (net) . . . . . | 220,000                    | 200,000   |
| Inventories . . . . .               | 260,000                    | 230,000   |

|  | 20x1              | 20x0              |
|--|-------------------|-------------------|
| Property, plant, and equipment .....             | \$ 730,000        | \$ 650,000        |
| Accumulated depreciation .....                   | (330,000)         | (260,000)         |
| Total assets .....                               | <u>\$ 940,000</u> | <u>\$ 870,000</u> |
| Current liabilities .....                        | \$ 270,000        | \$ 330,000        |
| Stockholders' equity .....                       | 670,000           | 540,000           |
| Total liabilities and stockholders' equity ..... | <u>\$ 940,000</u> | <u>\$ 870,000</u> |

**Income Statement**  
**For the Year Ended December 31, 20x1**

|                          |                   |
|--------------------------|-------------------|
| Net sales .....          | \$1,200,000       |
| Cost of goods sold ..... | 780,000           |
| Gross margin .....       | <u>\$ 420,000</u> |
| Operating expenses ..... | 240,000           |
| Net income .....         | <u>\$ 180,000</u> |

**Required:**

- Assuming that all sales are on account, what is the company's accounts receivable turnover for 20x1?
- What is the rate of return on assets for 20x1? The company had no interest expense in 20x1.

(CPA, adapted)

Refer to the data given in the preceding exercise for Party Animal Company.

**Required:**

- Restate the comparative balance sheet and the income statement in common-size format.
- For what purpose are common-size statements useful?

Selected data for two companies in the soccer equipment industry are as follows (all data in thousands).

|                                 | Terry<br>Corporation | Habecker<br>Enterprises |
|---------------------------------|----------------------|-------------------------|
| Cash .....                      | \$ 400               | \$ 1,400                |
| Marketable securities .....     | 200                  | 1,200                   |
| Accounts receivable .....       | 4,500                | 8,000                   |
| Inventory .....                 | 9,000                | 3,700                   |
| Prepaid expenses .....          | 1,000                | 800                     |
| Total current assets .....      | <u>\$15,100</u>      | <u>\$15,100</u>         |
| Accounts payable .....          | \$ 2,000             | \$ 4,000                |
| Accrued expenses payable .....  | 4,000                | 2,100                   |
| Note payable .....              | 1,000                | 900                     |
| Total current liabilities ..... | <u>\$ 7,000</u>      | <u>\$ 7,000</u>         |

**Required:**

- Calculate each company's working capital amount, current ratio, and acid-test ratio.
- Comment on each firm's ability to pay its short-term debts.

The following selected financial data pertain to Across the Miles, Inc., a manufacturer of greeting cards. (The information is continued on the next page.)

**December 31, 20x1 and 20x0**

|                                 | 20x1      | 20x0      |
|---------------------------------|-----------|-----------|
| Cash .....                      | \$ 10,000 | \$ 80,000 |
| Marketable securities .....     | 30,000    | 10,000    |
| Accounts receivable (net) ..... | 50,000    | 150,000   |

■ **Exercise 21–24**  
Common-size Financial  
Statements  
(LO 4)

■ **Exercise 21–25**  
Current and Acid-Test  
Ratios; Comparing Firms  
(LO 2, LO 5)

■ **Exercise 21–26**  
Ratio Analysis  
(LO 2, LO 5)



|  | 20x1        | 20x0        |
|--|-------------|-------------|
| Merchandise inventory . . . . .                      | \$ 90,000   | \$ 150,000  |
| Land and buildings (net) . . . . .                   | 345,000     | 360,000     |
| Mortgage payable (no current portion) . . . . .      | 275,000     | 280,000     |
| Accounts payable . . . . .                           | 70,000      | 110,000     |
| Short-term notes payable . . . . .                   | 20,000      | 40,000      |
| <b>For the Year Ended December 31, 20x1 and 20x0</b> |             |             |
| Cash sales . . . . .                                 | \$1,800,000 | \$1,600,000 |
| Credit sales . . . . .                               | 500,000     | 800,000     |
| Cost of goods sold . . . . .                         | 1,000,000   | 1,400,000   |

**Required:**

Compute the following ratios.

1. Acid-test ratio as of December 31, 20x1.
2. Accounts receivable turnover for 20x1.
3. Inventory turnover for 20x1.
4. Current ratio as of December 31, 20x1.

(CPA, adapted)

■ **Exercise 21–27**  
Financial Leverage  
(LO 2, LO 5)

The following data relate to Sky World, Inc., a theme park located near Kitty Hawk, North Carolina.

|   |                         |
|---|-------------------------|
| Operating income . . . . .                        | \$680,000               |
| Less: Bond interest . . . . .                     | 600,000*                |
| Income before taxes . . . . .                     | <u>\$ 80,000</u>        |
| Income-tax expense (25%) . . . . .                | 20,000                  |
| Income available to common stockholders . . . . . | <u><u>\$ 60,000</u></u> |

\*Bonds payable, \$5,000,000; interest rate, 12%; bond interest, \$600,000 = \$5,000,000 × 12%.

**Required:**

1. Calculate the percentage change in income available to the common stockholders if operating income (a) increases by 10 percent or (b) decreases by 10 percent.
2. Is Sky World a heavily leveraged company? Explain.

■ **Exercise 21–28**  
Earnings per Share  
(LO 2, LO 5)

The following facts relate to Contented Critters, Inc., a manufacturer of cat food and pet supplies.

|  |                            |
|--|----------------------------|
| Sales . . . . .  | \$60,000,000               |
| Cost of goods sold . . . . .                           | 40,000,000                 |
| Gross margin . . . . .                                 | <u>\$20,000,000</u>        |
| Operating expenses . . . . .                           | 7,000,000                  |
| Operating income . . . . .                             | <u>\$13,000,000</u>        |
| Interest expense . . . . .                             | 1,000,000                  |
| Income before taxes and extraordinary item . . . . .   | <u>\$12,000,000</u>        |
| Income tax (25%) . . . . .                             | 3,000,000                  |
| Income before extraordinary item . . . . .             | <u>\$ 9,000,000</u>        |
| Extraordinary item: loss due to fire . . . . .         | \$800,000                  |
| Less applicable income tax reduction (25%) . . . . .   | <u>200,000</u>             |
| Net impact on income from extraordinary loss . . . . . | 600,000                    |
| Net income . . . . .                                   | <u>\$ 8,400,000</u>        |
| Dividends on preferred stock . . . . .                 | 1,100,000                  |
| Net income available to common stockholders . . . . .  | <u><u>\$ 7,300,000</u></u> |
| Common stock outstanding (weighted-average) . . . . .  | 1,825,000 shares           |

Tom Katz, the company president, made a calculation of earnings per share, as follows:

$$\text{Earnings per share} = \frac{\$7,300,000}{1,825,000} = \$4 \text{ per share}$$

**Required:**

Did Katz make the earnings per share calculation correctly? If not, prepare an analysis determining the correct earnings per share.

## Problems

Living History Travel Guides, Inc. publishes travel books focusing on historical sites in the United States and Canada. The firm's condensed financial statements for 20x0 are as follows:

■ **Problem 21–29**  
Ratio Analysis  
(LO 2, LO 5)

**Living History Travel Guides, Inc.**  
**Income Statement**  
**For the Year Ended December 31, 20x0**  
**(in thousands)**

|                                  |         |
|----------------------------------|---------|
| Sales .....                      | \$1,190 |
| Cost of goods sold .....         | 690     |
| Gross margin .....               | \$ 500  |
| Operating expenses .....         | 250     |
| Operating income .....           | \$ 250  |
| Interest expense .....           | 50      |
| Income before income taxes ..... | \$ 200  |
| Income-tax expense .....         | 100     |
| Net income .....                 | \$ 100  |

**Living History Travel Guides, Inc.**  
**Balance Sheet**  
**December 31, 20x0**  
**(in thousands)**

| <b>Assets</b>   |         | <b>Liabilities and Stockholders' Equity</b>    |         |
|---|---------|--|---------|
| Cash .....  | \$ 100  | Accounts payable .....                         | \$ 120  |
| Marketable securities .....   | 150     | Short-term note payable .....                  | 180     |
| Accounts receivable (net of \$15<br>allowance for uncollectible accounts) ..... | 200     | Accrued liabilities .....                      | 100     |
| Inventories .....   | 400     | Bonds payable .....                            | 400     |
| Prepaid expenses .....  | 50      | Preferred stock .....                          | 200     |
| Property, plant, and equipment (net of<br>\$220 accumulated depreciation) ..... | 530     | Common stock .....                             | 200     |
| Patents .....   | 70      | Additional paid-in capital .....               | 100     |
| Total assets .....  | \$1,500 | Retained earnings .....                        | 200     |
|   |         | Total liabilities and stockholders' equity ... | \$1,500 |

### Additional Information

- Gross accounts receivable amounted to \$200,000, and the allowance for uncollectible accounts was \$20,000 as of January 1, 20x0.
- Total assets amounted to \$1,300,000, and common stockholders' equity amounted to \$300,000 on January 1, 20x0.
- The liquidation value of the preferred stock is equal to par value. Preferred dividends are paid at the rate of 8 percent.
- The company's income tax rate was 50 percent.

**Required:**

Compute the following ratios.

1. Current ratio on December 31, 20x0.
2. Debt-equity ratio on December 31, 20x0.
3. Return on assets for 20x0.
4. Return on equity for 20x0.
5. Interest coverage for 20x0.
6. Average collection period in 20x0. (Assume that all sales were on account.)

(CMA, adapted)

■ **Problem 21–30**  
Ratio Analysis  
(LO 2, LO 5)

The balance sheet and income statement for Jason's of Chicago, Inc., a clothing manufacturer, for 20x1 are as follows:

**Jason's of Chicago, Inc.**  
**Balance Sheet**  
**December 31, 20x1**  
**(in thousands)**

| <b>Assets</b>  |       |                 |
|--|-------|-----------------|
| Cash   | ..... | \$12,000        |
| Accounts receivable  | ..... | 12,000          |
| Inventory  | ..... | 5,000           |
| Property, plant, and equipment   | ..... | \$47,900        |
| Less: Accumulated depreciation   | ..... | <u>11,400</u>   |
| Total assets   | ..... | <u>\$65,500</u> |
| <b>Liabilities and Stockholders' Equity</b>  |       |                 |
| Accounts payable   | ..... | \$10,700        |
| Short-term notes payable   | ..... | 5,300           |
| Bonds payable (due in 20x4)  | ..... | 9,500           |
| Common stock (\$10 par value; 4,500,000 shares authorized; 2,500,000 shares issued and outstanding during the entire year) | ..... | 25,000          |
| Additional paid-in capital   | ..... | 5,000           |
| Retained earnings  | ..... | <u>10,000</u>   |
| Total liabilities and stockholders' equity   | ..... | <u>\$65,500</u> |

**Jason's of Chicago, Inc.**  
**Income Statement**  
**For the Year Ended December 31, 20x1**  
**(in thousands)**

|                                      |       |               |
|--------------------------------------|-------|---------------|
| Sales in cash                        | ..... | \$10,000      |
| Sales on account                     | ..... | <u>60,000</u> |
| Total sales                          | ..... | \$70,000      |
| Cost of goods sold:                  |       |               |
| Inventory of finished goods 1/1/x1   | ..... | \$ 4,000      |
| Cost of goods manufactured           | ..... | <u>50,000</u> |
| Cost of goods available for sale     | ..... | \$54,000      |
| Inventory of finished goods 12/31/x1 | ..... | <u>5,000</u>  |
|                                      |       | <u>49,000</u> |
| Gross margin                         | ..... | \$21,000      |
| Operating expenses:                  |       |               |
| Selling                              | ..... | \$ 3,000      |
| Administrative                       | ..... | <u>10,800</u> |
|                                      |       | <u>13,800</u> |
| Operating income                     | ..... | \$ 7,200      |

|                                  |                 |
|----------------------------------|-----------------|
| Interest expense .....           | 1,200           |
| Income before income taxes ..... | \$ 6,000        |
| Income-tax expense .....         | 2,400           |
| Net income .....                 | <u>\$ 3,600</u> |

**Required:**

Compute the following ratios for Jason's of Chicago, Inc.

1. Current ratio.
2. Average collection period. (Assume there was no change in the accounts receivable balance between January 1 and December 31, 20x1.)
3. Inventory turnover.
4. Ratio of total debt to stockholders' equity.
5. Earnings per share.
6. Return on equity. (Assume there was no change in total stockholders' equity during 20x1.)
7. Interest coverage.

(CMA, adapted)

Kazarinoff Corporation manufactures ukuleles. The company's recent financial statements are presented here.

■ **Problem 21–31**  
Ratio Analysis  
(LO 2, LO 5)

| <b>Kazarinoff Corporation</b>                    |                |                |
|--|----------------|----------------|
| <b>Balance Sheet</b>                             |                |                |
| <b>December 31, 20x1 and 20x0</b>                |                |                |
| <b>(in thousands)</b>                            |                |                |
| <b>Assets</b>                                    | <b>20x1</b>    | <b>20x0</b>    |
| Current assets:                                  |                |                |
| Cash and marketable securities .....             | \$ 400         | \$ 380         |
| Accounts receivable (net) .....                  | 1,700          | 1,500          |
| Inventories .....                                | <u>2,200</u>   | <u>2,120</u>   |
| Total current assets .....                       | <u>\$4,300</u> | <u>\$4,000</u> |
| Long-lived assets:                               |                |                |
| Land .....                                       | \$ 500         | \$ 500         |
| Buildings and equipment (net) .....              | <u>4,700</u>   | <u>4,000</u>   |
| Total long-lived assets .....                    | <u>\$5,200</u> | <u>\$4,500</u> |
| Total assets .....                               | <u>\$9,500</u> | <u>\$8,500</u> |
| <b>Liabilities and Stockholders' Equity</b>      |                |                |
| Current liabilities:                             |                |                |
| Accounts payable .....                           | \$1,400        | \$ 700         |
| Current portion of long-term debt .....          | <u>1,000</u>   | <u>500</u>     |
| Total current liabilities .....                  | <u>\$2,400</u> | <u>\$1,200</u> |
| Long-term debt .....                             | 3,000          | 4,000          |
| Total liabilities .....                          | <u>\$5,400</u> | <u>\$5,200</u> |
| Stockholders' equity:                            |                |                |
| Common stock .....                               | \$3,000        | \$3,000        |
| Retained earnings .....                          | <u>1,100</u>   | <u>300</u>     |
| Total stockholders' equity .....                 | <u>\$4,100</u> | <u>\$3,300</u> |
| Total liabilities and stockholders' equity ..... | <u>\$9,500</u> | <u>\$8,500</u> |

**Kazarinoff Corporation**  
**Income and Retained Earnings Statement**  
**For the Year Ended December 31, 20x1**  
**(In thousands)**

|  |          |          |
|--|----------|----------|
| Sales (all on account) .....           |          | \$28,800 |
| Less: Cost of goods sold .....         | \$15,120 |          |
| Selling expenses .....                 | 7,180    |          |
| Administrative expenses .....          | 4,100    |          |
| Interest expense .....                 | 400      |          |
| Income-tax expense .....               | 800      |          |
|  | 27,600   |          |
| Net income .....                       |          | \$ 1,200 |
| Retained earnings, January 1 .....     |          | 300      |
| Subtotal .....                         |          | \$ 1,500 |
| Cash dividends declared and paid ..... |          | 400      |
| Retained earnings, December 31 .....   |          | \$ 1,100 |

**Required:**

Compute the following ratios for 20x1.

1. Acid-test ratio on December 31, 20x1.
2. Average collection period.
3. Interest coverage.
4. Inventory turnover.
5. Operating income as a percentage of sales.
6. Dividend payout ratio.

(CMA, adapted)

■ **Problem 21–32**  
 Common-Size Financial  
 Statements  
 (LO 4)

Refer to the data given in the preceding problem for Kazarinoff Corporation.

**Required:**

Prepare a common-size balance sheet as of December 31, 20x1, and a common-size income statement for 20x1.

■ **Problem 21–33**  
 Financial Statement  
 Analysis; Multiple Choice  
 (LO 2, LO 5)

Several of Ballard Company's transactions during the most recent year are described below. Assume that total quick assets exceeded total current liabilities both before and after each transaction described. Further, assume that Ballard has positive net income for the year and a credit balance throughout the year in its retained earnings account.

**Required:**

Choose the best answer to complete each statement.

1. Payment of accounts payable of \$59,000 would
  - a. increase the current ratio, but the acid-test ratio would not be affected
  - b. increase the acid-test ratio, but the current ratio would not be affected
  - c. increase both the current and acid-test ratios
  - d. decrease both the current and acid-test ratios
  - e. have no effect on the current and acid-test ratios
2. The purchase of raw materials for \$78,000 on account would
  - a. increase the current ratio
  - b. decrease the current ratio
  - c. increase working capital
  - d. decrease working capital
  - e. increase both the current ratio and working capital

3. The collection of current accounts receivable of \$31,000 would
  - a. increase the current ratio
  - b. decrease the current ratio
  - c. increase the acid-test ratio
  - d. decrease the acid-test ratio
  - e. not affect the current and acid-test ratios
4. Obsolete inventory of \$95,000 was written off. This would
  - a. decrease the acid-test ratio
  - b. increase the acid-test ratio
  - c. increase working capital
  - d. decrease the current ratio
  - e. decrease both the current and acid-test ratios
5. The early liquidation of a long-term note with cash would
  - a. affect the current ratio to a greater degree than the acid-test ratio
  - b. affect the acid-test ratio to a greater degree than the current ratio
  - c. affect the current and acid-test ratios to the same degree
  - d. affect the current ratio but not the acid-test ratio
  - e. affect the acid-test ratio but not the current ratio

(CMA, adapted)

Yucatan Imports, Inc., imports and distributes ceramic pottery and woven goods handcrafted in Mexico. Comparative balance sheets and income statements covering the last two years are shown here. The market price of Yucatan's common stock was \$20 per share on December 31, 20x1.

■ **Problem 21–34**  
Ratio Analysis  
(LO 2, LO 5)

**Yucatan Imports, Inc.**  
**Comparative Balance Sheets**  
**December 31, 20x1 and 20x0**  
**(in thousands)**

|  | <b>Assets</b> | <b>20x1</b>      | <b>20x0</b>      |
|--|---------------|------------------|------------------|
| <b>Current assets:</b>                         |               |                  |                  |
| Cash   |               | \$ 3,000         | \$ 2,000         |
| Marketable securities                          |               | 1,000            | 1,000            |
| Accounts receivable (net)                      |               | 14,000           | 11,000           |
| Merchandise inventory                          |               | 24,000           | 16,000           |
| Total current assets                           |               | <u>\$ 42,000</u> | <u>\$ 30,000</u> |
| Property, plant, and equipment (net)           |               | 68,000           | 60,000           |
| Long-term investments                          |               | 10,000           | 10,000           |
| Total assets                                   |               | <u>\$120,000</u> | <u>\$100,000</u> |
| <b>Liabilities and Stockholders' Equity</b>    |               |                  |                  |
| <b>Current liabilities:</b>                    |               |                  |                  |
| Accounts payable                               |               | \$ 5,000         | \$ 4,000         |
| Wages payable                                  |               | 1,000            | 1,000            |
| Total current liabilities                      |               | <u>\$ 6,000</u>  | <u>\$ 5,000</u>  |
| Bonds payable (10%, due 20x9)                  |               | 20,000           | 20,000           |
| Total liabilities                              |               | <u>\$ 26,000</u> | <u>\$ 25,000</u> |
| <b>Stockholders' equity:</b>                   |               |                  |                  |
| Common stock (10,000,000 shares, no par value) |               | \$ 25,000        | \$ 25,000        |
| Retained earnings                              |               | 69,000           | 50,000           |
| Total stockholders' equity                     |               | <u>\$ 94,000</u> | <u>\$ 75,000</u> |
| Total liabilities and stockholders' equity     |               | <u>\$120,000</u> | <u>\$100,000</u> |

**Yucatan Imports, Inc.**  
**Comparative Income Statements**  
**For the Years Ended December 31, 20x1 and 20x0**  
**(In thousands)**

|   | <b>20x1</b>      | <b>20x0</b>      |
|---|------------------|------------------|
| Sales (all made on account) . . . . .         | \$200,000        | \$140,000        |
| Cost of goods sold . . . . .                  | 120,000          | 80,000           |
| Gross margin . . . . .                        | \$ 80,000        | \$ 60,000        |
| Selling and administrative expenses . . . . . | 38,000           | 30,000           |
| Operating income . . . . .                    | \$ 42,000        | \$ 30,000        |
| Interest expense . . . . .                    | 2,000            | 2,000            |
| Income before income taxes . . . . .          | \$ 40,000        | \$ 28,000        |
| Income-tax expense . . . . .                  | 15,000           | 11,000           |
| Net income . . . . .                          | <u>\$ 25,000</u> | <u>\$ 17,000</u> |

**Required:**

Compute the following ratios.

1. Current ratio as of December 31, 20x1.
2. Acid-test ratio as of December 31, 20x1.
3. Accounts receivable turnover for 20x1.
4. Inventory turnover for 20x1.
5. Interest coverage for 20x1.
6. Book value per share of common stock as of December 31, 20x1.
7. Dividend yield ratio for 20x1.
8. Return on equity for 20x1.

(CMA, adapted)

■ **Problem 21–35**  
**Interpretation and Use of**  
**Financial Ratios**  
**(LO 1, LO 5)**

Radatron, Inc. is a manufacturer of highly specialized electronic components used in radar systems. The company's financial position is being reviewed by its bank, an important potential customer, and a new supplier of raw materials. As part of the review process, Radatron was required to provide its latest financial statements, along with information on selected financial ratios. A summary of the information provided by Radatron follows.

**Selected Financial Ratios**

|   | <b>Radatron, Inc.</b> |             | <b>Current</b>  |
|---|-----------------------|-------------|-----------------|
|   | <b>20x1</b>           | <b>20x0</b> | <b>Industry</b> |
|   |                       |             | <b>Average</b>  |
| Current ratio . . . . .                       | 2.02                  | 2.11        | 2.16            |
| Interest coverage . . . . .                   | 4.9                   | 3.8         | 4.5             |
| Net profit as a percentage of sales . . . . . | 13.2%                 | 12.1%       | 12.0%           |
| Debt-equity ratio . . . . .                   | 1.16                  | 1.04        | 1.10            |

**Radatron, Inc.**  
**Income Statement**  
**For the Year Ended December 31, 20x2**  
**(in thousands)**

|   |                 |
|---|-----------------|
| Sales . . . . .                               | \$20,100        |
| Less: Cost of goods sold . . . . .            | \$11,060        |
| Selling and administrative expenses . . . . . | 2,340           |
| Depreciation expense . . . . .                | 1,120           |
| Interest expense . . . . .                    | 1,200           |
| Income before taxes . . . . .                 | \$ 4,380        |
| Income tax expense . . . . .                  | 1,760           |
| Net income . . . . .                          | <u>\$ 2,620</u> |

**Radatron, Inc.**  
**Balance Sheet**  
**December 31, 20x2**  
**(In thousands)**

**Assets**

|  |                 |
|--|-----------------|
| Current assets:                            |                 |
| Cash .....                                 | \$ 450          |
| Accounts receivable (net) .....            | 2,050           |
| Inventory .....                            | 3,300           |
| Total current assets .....                 | <u>\$ 5,800</u> |
| Property, plant, and equipment (net) ..... | 4,600           |
| Total assets .....                         | <u>\$10,400</u> |

**Liabilities and Stockholders' Equity**

|  |                 |
|--|-----------------|
| Current liabilities:                             |                 |
| Accounts payable .....                           | \$ 1,770        |
| Income taxes payable .....                       | 245             |
| Accrued expenses .....                           | 960             |
| Total current liabilities .....                  | <u>\$ 2,975</u> |
| Long-term debt .....                             | 2,720           |
| Total liabilities .....                          | <u>\$ 5,695</u> |
| Stockholders' equity:                            |                 |
| Common stock (\$10 par value) .....              | \$ 1,800        |
| Paid-in-capital in excess of par .....           | 1,250           |
| Retained earnings .....                          | 1,655           |
| Total stockholders' equity .....                 | <u>\$ 4,705</u> |
| Total liabilities and stockholders' equity ..... | <u>\$10,400</u> |

Each of the following parties must recommend an action based on its evaluation of Radatron's financial position.

- Northwest Bank is currently reviewing a request from Radatron for additional financing. While Northwest has been Radatron's primary bank for the past several years, bank regulations require that Northwest evaluate a company's financial position before each major transaction.
- Wilson Aviation has recently received a substantial government contract and is considering subcontracting a portion of the work to Radatron. The contract would result in a significant increase in Radatron's annual sales over the next three years.
- Allied Electronics, a manufacturer of transistors and diodes, has recently been asked by Radatron to bid on a contract requiring the shipment of approximately \$10,000 of components per month for 12 months. Allied has not previously done business with Radatron and must decide whether to respond to the request for a bid, and if the company does respond, what terms it should offer.

**Required:**

1. Explain the analytical use of each of the ratios presented in the problem.
2. Calculate a new set of ratios for 20x2 for Radatron, Inc. based on the financial statements presented. (Assume total assets were unchanged throughout the year.)
3. For each of the parties reviewing Radatron's financial position.
  - a. Select two ratios, from those ratios presented, that would be most valuable as a basis for its decision regarding Radatron.
  - b. Using the ratios given in the problem, explain what the two ratios reveal about Radatron's financial performance.

(CMA, adapted)



■ **Problem 21–36**  
Ratio Analysis and  
Discussion  
(LO 1, LO 5)

The accounting staff of Des Moines Container Corporation has completed the preparation of financial statements for 20x1. The income statement for the current year and the comparative balance sheet for 20x0 and 20x1 are shown here. The company's income tax rate is 40 percent.

**Des Moines Container Corporation**  
**Income Statement**  
**For the Year Ended December 31, 20x1**  
**(in thousands)**

|                                  |                  |
|----------------------------------|------------------|
| Revenue:                         |                  |
| Net sales .....                  | \$795,000        |
| Other .....                      | 65,000           |
| Total revenue .....              | <u>\$860,000</u> |
| Expenses:                        |                  |
| Cost of goods sold .....         | \$540,000        |
| Research and development .....   | 25,000           |
| Selling and administrative ..... | 155,000          |
| Interest .....                   | 20,000           |
| Total expenses .....             | <u>\$740,000</u> |
| Income before income taxes ..... | \$120,000        |
| Income tax expense .....         | 48,000           |
| Net income .....                 | <u>\$ 72,000</u> |

**Des Moines Container Corporation**  
**Comparative Balance Sheets**  
**December 31, 20x1 and 20x0**  
**(in thousands)**

| <b>Assets</b>   | <b>20x1</b>      | <b>20x0</b>      |
|---|------------------|------------------|
| Current assets:   |                  |                  |
| Cash and marketable securities .....  | \$ 26,000        | \$ 21,000        |
| Receivables, less allowance for doubtful accounts<br>(\$1,100 in 20x1 and \$1,400 in 20x0) .....          | 48,000           | 50,000           |
| Inventories .....   | 65,000           | 62,000           |
| Prepaid expenses .....  | 5,000            | 3,000            |
| Total current assets .....  | <u>\$144,000</u> | <u>\$136,000</u> |
| Long-term investments .....   | <u>\$116,000</u> | <u>\$114,000</u> |
| Property, plant, and equipment  |                  |                  |
| Land .....  | \$ 12,000        | \$ 12,000        |
| Buildings and equipment, less accumulated depreciation<br>(\$126,000 in 20x1 and \$122,000 in 20x0) ..... | 268,000          | 248,000          |
| Total property, plant, and equipment .....  | <u>\$280,000</u> | <u>\$260,000</u> |
| Total assets .....  | <u>\$540,000</u> | <u>\$510,000</u> |

**Liabilities and Stockholders' Equity**

|                                  | <b>20x1</b>      | <b>20x0</b>      |
|----------------------------------|------------------|------------------|
| Current liabilities:             |                  |                  |
| Short-term loans .....           | \$ 22,000        | \$ 24,000        |
| Accounts payable .....           | 72,000           | 71,000           |
| Salaries, wages, and other ..... | 26,000           | 27,000           |
| Total current liabilities .....  | <u>\$120,000</u> | <u>\$122,000</u> |
| Long-term debt .....             | 160,000          | 171,000          |
| Total liabilities .....          | <u>\$280,000</u> | <u>\$293,000</u> |

|  | 20x1             | 20x0             |
|--|------------------|------------------|
| Stockholders' equity:                            |                  |                  |
| Common stock, at par .....                       | \$ 44,000        | \$ 42,000        |
| Additional paid-in capital .....                 | 64,000           | 61,000           |
| Total paid-in capital .....                      | <u>\$108,000</u> | <u>\$103,000</u> |
| Retained earnings .....                          | 152,000          | 114,000          |
| Total stockholders' equity .....                 | <u>\$260,000</u> | <u>\$217,000</u> |
| Total liabilities and stockholders' equity ..... | <u>\$540,000</u> | <u>\$510,000</u> |

The accounting staff calculates selected financial ratios after the financial statements are prepared. Financial ratios that were calculated for 20x0 are as follows:

- Interest coverage, 5.16 times.
- Return on assets, 12.5%.
- Return on equity, 29.1%.

**Required:**

1. Explain how the use of financial ratios can be advantageous to management.
2. Calculate the following financial ratios for 20x1.
  - a. Interest coverage.
  - b. Return on assets.
  - c. Return on equity.
  - d. Debt-equity ratio.
  - e. Current ratio.
  - f. Acid-test ratio.

(CMA, adapted)

AutoSound, Inc. manufactures radios, tape players, and compact disk players for automobiles. Comparative balance sheets and income statements for 20x0 and 20x1 are presented here.

■ **Problem 21–37**  
Comprehensive Problem on  
Ratio Analysis  
(LO 2, LO 5)

**AutoSound, Inc.**  
**Comparative Balance Sheets**  
**December 31, 20x1 and 20x0**  
**(in thousands)**

| Assets   | 20x1            | 20x0            |
|--|-----------------|-----------------|
| Current assets:                                  |                 |                 |
| Cash .....                                       | \$ 200          | \$ 170          |
| Marketable securities .....                      | 120             | 90              |
| Accounts receivable, net .....                   | 3,000           | 2,500           |
| Inventory .....                                  | 5,000           | 4,200           |
| Prepaid expenses .....                           | 75              | 60              |
| Total current assets .....                       | <u>8,395</u>    | <u>7,020</u>    |
| Long-term investments .....                      | 450             | 500             |
| Property, furnishings, and equipment:            |                 |                 |
| Land .....                                       | 2,000           | 2,000           |
| Buildings, net .....                             | 14,000          | 12,000          |
| Equipment and furnishings, net .....             | 7,000           | 6,000           |
| Total property, furnishings, and equipment ..... | <u>23,000</u>   | <u>20,000</u>   |
| Total assets .....                               | <u>\$31,845</u> | <u>\$27,520</u> |
| <b>Liabilities and Stockholders' Equity</b>      |                 |                 |
| Current liabilities:                             |                 |                 |
| Accounts payable .....                           | \$ 1,500        | \$ 1,400        |
| Accrued expenses .....                           | 600             | 500             |
| Notes payable .....                              | 780             | 900             |
| Total current liabilities .....                  | <u>2,880</u>    | <u>2,800</u>    |
| Long-term liabilities:                           |                 |                 |
| Bonds payable (\$1,000 face value; 10%) .....    | 9,000           | 8,500           |
| Total liabilities .....                          | <u>11,880</u>   | <u>11,300</u>   |

|  | 20x1            | 20x0            |
|--|-----------------|-----------------|
| Stockholders' equity:                      |                 |                 |
| Preferred stock (\$100 par value; 8%)      | \$ 1,500        | \$ 1,500        |
| Common stock (\$10 par value)              | 6,000           | 5,500           |
| Additional paid-in capital                 | 1,000           | 900             |
| Retained earnings                          | 11,465          | 8,320           |
| Total stockholders' equity                 | <u>19,965</u>   | <u>16,220</u>   |
| Total liabilities and stockholders' equity | <u>\$31,845</u> | <u>\$27,520</u> |

**AutoSound, Inc.**  
**Comparative Income and Retained Earnings Statements**  
**For the Years Ended December 31, 20x1 and 20x0**  
**(in thousands)**

|   | 20x1            | 20x0            |
|---|-----------------|-----------------|
| Sales                                       | \$26,700        | \$25,550        |
| Cost of goods sold                          | <u>18,000</u>   | <u>17,500</u>   |
| Gross margin                                | 8,700           | 8,050           |
| Operating expenses:                         |                 |                 |
| Selling expenses                            | 1,400           | 1,350           |
| Administrative expenses                     | <u>400</u>      | <u>350</u>      |
| Total operating expenses                    | <u>1,800</u>    | <u>1,700</u>    |
| Operating income                            | 6,900           | 6,350           |
| Interest expense                            | <u>900</u>      | <u>850</u>      |
| Income before taxes                         | 6,000           | 5,500           |
| Income-tax expense (30%)                    | <u>1,800</u>    | <u>1,650</u>    |
| Net income                                  | 4,200           | 3,850           |
| Dividends on preferred stock                | <u>120</u>      | <u>120</u>      |
| Net income available to common stockholders | 4,080           | 3,730           |
| Dividends on common stock                   | <u>935</u>      | <u>730</u>      |
| Net income added to retained earnings       | 3,145           | 3,000           |
| Retained earnings, January 1                | <u>8,320</u>    | <u>5,320</u>    |
| Retained earnings, December 31              | <u>\$11,465</u> | <u>\$ 8,320</u> |

**Additional Information**

- All sales were made on account.
- Each share of preferred stock is convertible into five shares of common stock.
- The market price per share of common stock is \$50 per share.
- 50,000 shares of common stock were issued on January 1, 20x1. Therefore, the weighted-average number of shares during 20x1 was 600,000 shares.

**Required:**

Compute each of the following amounts or ratios for 20x1.

1. Working capital, 12/31/x1.
2. Current ratio, 12/31/x1.
3. Quick assets, 12/31/x1.
4. Acid-test ratio, 12/31/x1.
5. Accounts receivable turnover.
6. Average collection period.
7. Inventory turnover.
8. Average number of days per inventory turnover.
9. Number of bonds and number of shares of stock outstanding, 12/31/x1.
10. Book value of securities: (a) per bond, (b) per share of preferred stock, and (c) per share of common stock, 12/31/x1.

11. Capitalization ratios, 12/31/x1.
12. Debt-equity ratio, 12/31/x1.
13. Interest coverage.
14. Coverage of dividends on preferred stock.
15. Earnings per share.
16. Diluted earnings per share.
17. Return on assets.
18. Return on equity.
19. Return on sales.
20. Dividend payout ratio.
21. Dividend yield ratio.

Refer to the data given in the preceding problem for AutoSound, Inc.

**Required:**

Prepare a common-size balance sheet as of December 31, 20x1, and a common-size income and retained earnings statement for 20x1.

Refer to the data given in Problem 21–37 for AutoSound, Inc.

**Required:**

Prepare two additional columns for each financial statement, which show the dollar change and percentage change from 20x0 to 20x1.

Finn Company's capital structure is as follows:

|                                       | December 31    |                |
|---------------------------------------|----------------|----------------|
|                                       | 20x4           | 20x3           |
| Outstanding shares of:                |                |                |
| Common stock . . . . .                | 300,000 shares | 300,000 shares |
| Convertible preferred stock . . . . . | 10,000 shares  | 10,000 shares  |
| 8% nonconvertible bonds . . . . .     | \$1,000,000    | \$1,000,000    |

The following additional information is available:

- Net income for the year ended December 31, 20x4, was \$750,000.
- During 20x4 Finn Company paid dividends of \$3.00 per share on its convertible preferred stock.
- Each share of preferred stock is convertible into four shares of common stock.

**Required:**

1. Compute the number of shares that should be used for the computation of diluted earnings per share for the year ended December 31, 20x4.
2. Compute the diluted earnings per share for the year ended December 31, 20x4.

(CPA, adapted)

## Cases

ElectroStar Corporation is a manufacturer of electronic components with total assets of \$20,000,000. Selected financial ratios for ElectroStar and the industry averages for firms of similar size are as follows:

|                              | ElectroStar |      |      | Industry<br>Average |
|------------------------------|-------------|------|------|---------------------|
|                              | 20x2        | 20x1 | 20x0 |                     |
| Current ratio . . . . .      | 2.61        | 2.32 | 2.09 | 2.28                |
| Acid-test ratio . . . . .    | 1.21        | 1.12 | 1.15 | 1.22                |
| Inventory turnover . . . . . | 2.02        | 2.18 | 2.40 | 3.50                |
| Return on equity . . . . .   | 0.17        | 0.15 | 0.14 | 0.11                |
| Debt-equity ratio . . . . .  | 1.44        | 1.37 | 1.41 | 0.95                |

■ **Problem 21–38**  
Common-size Financial  
Statements  
(LO 4)

■ **Problem 21–39**  
Dollar and Percentage  
Changes  
(LO 2)

■ **Problem 21–40**  
Diluted Earnings per Share  
(LO 2, LO 5)

■ **Case 21–41**  
Interpretation and Use of  
Financial Ratios; Ethics  
(LO 1, LO 5)

ElectroStar is under review by several entities whose interests vary, and the company's financial ratios are part of the data being considered. Each of the following parties must recommend an action based on its evaluation of ElectroStar's financial position. ElectroStar has given the requested information to each party on a confidential basis.

- **MidCoastal Bank.** The bank is processing ElectroStar's application for a new five-year note. MidCoastal has been ElectroStar's banker for several years, but must evaluate the company's financial position for each major transaction.
- **Ozawa Company.** Ozawa is a new supplier to ElectroStar and must decide on the appropriate credit terms to extend to the company.
- **Drucker & Denon.** A brokerage firm specializing in the stock of electronics firms, Drucker & Denon must decide if it will include ElectroStar in a new mutual fund being established for sale to Drucker & Denon's clients.
- **Working Capital Management Committee.** This is a committee of ElectroStar's management personnel chaired by the chief operating officer. The committee is charged with the responsibility of periodically reviewing the company's working capital position, comparing actual data against budgets, and recommending changes in strategy as needed.

**Required:**

1. Describe the analytical use of the given ratios.
2. For each of the four entities described above, identify two financial ratios from those ratios presented that would be most valuable as a basis for its decision regarding ElectroStar.
3. Discuss what the financial ratios presented in the problem reveal about ElectroStar. Support your answer by citing specific ratio levels and trends as well as the interrelationships among the ratios.
4. Mark Damon is the assistant controller for Ozawa Company, and he has been given the job of evaluating ElectroStar. Martha Jenkins is the analyst at Drucker & Denon who has been charged with the responsibility for analyzing ElectroStar. As luck would have it the two friends ran into each other at a Little League game. After the usual chitchat about the weather and the prospects for their kids' baseball teams, the talk turned to business. Damon mentioned that sales were up for Ozawa and that his firm had just picked up ElectroStar as a new customer.

**Jenkins:** That's interesting. Drucker & Denon is looking at ElectroStar right now, too. We may include their stock in a new mutual fund we're putting together. What do you think of ElectroStar?

**Damon:** Well, I'm glad to have their business. I am a little concerned, though, about their inventory turnover the last couple of years. It's heading downhill, and it's way below the industry average.

**Jenkins:** Have you checked it out?

**Damon:** Actually, we did. It seems they've got some components that were earmarked for a government satellite program that's been delayed by Congress. I don't think ElectroStar's going to be able to move the stuff.

**Jenkins:** Doesn't sound good. Hey, look! Your son's up to bat.

Comment on any ethical issues you see in this scenario.

(CMA, adapted)

■ **Case 21-42**  
Interpretation and Use of  
Financial Ratios  
(LO 1, LO 5)

Tioga Chemical Corporation has a line of credit from the Southern Tier National Bank that is due to be renewed February 1, 20x2. The bank has requested the current income statement and comparative balance sheets for December 31, 20x0 and 20x1, which follow:

**Tioga Chemical Corporation**  
**Income and Retained Earnings Statement**  
**For the Year Ended December 31, 20x1**  
**(In thousands)**

|                     |          |
|---------------------|----------|
| Revenue:            |          |
| Net sales .....     | \$60,000 |
| Other .....         | 4,500    |
| Total revenue ..... | \$64,500 |

|   |                 |
|---|-----------------|
| Expenses:   |                 |
| Cost of goods sold  | \$40,500        |
| Selling and administrative expense                        | 11,625          |
| Depreciation and amortization expense                     | 1,875           |
| Interest expense  | 1,500           |
| Total expenses  | <u>\$55,500</u> |
| Income before income taxes                                | \$ 9,000        |
| Income tax expense (40%)                                  | <u>3,600</u>    |
| Net income  | \$ 5,400        |
| Less: Dividends to common stockholders (\$3.86 per share) | <u>2,550</u>    |
| Net income added to retained earnings                     | \$ 2,850        |
| Retained earnings, 1/1/x1                                 | <u>8,550</u>    |
| Retained earnings, 12/31/x1                               | <u>\$11,400</u> |
| Earnings per share  | <u>\$ 8.18</u>  |

**Tioga Chemical Corporation**  
**Comparative Balance Sheets**  
**December 31, 20x1 and 20x0**  
**(in thousands)**

| <b>Assets</b>   | <b>20x1</b>     | <b>20x0</b>     |
|---|-----------------|-----------------|
| Current assets:   |                 |                 |
| Cash and marketable securities  | \$ 1,950        | \$ 1,575        |
| Receivables, less allowance for doubtful accounts<br>(\$84 in 20x1 and \$105 in 20x0)           | 3,600           | 3,750           |
| Inventories (at lower of cost or market)  | 4,875           | 4,650           |
| Prepaid items and other current assets  | 375             | 225             |
| Total current assets  | <u>\$10,800</u> | <u>\$10,200</u> |
| Other assets:   |                 |                 |
| Investments (at cost)   | \$ 7,950        | \$ 7,950        |
| Deposits  | 750             | 600             |
| Total other assets  | <u>\$ 8,700</u> | <u>\$ 8,550</u> |
| Property, plant, and equipment:   |                 |                 |
| Land  | \$ 900          | \$ 900          |
| Buildings and equipment, less accumulated depreciation<br>(\$9,450 in 20x1 and \$9,150 in 20x0) | \$20,100        | \$18,600        |
| Total property, plant, and equipment  | <u>\$21,000</u> | <u>\$19,500</u> |
| Total assets  | <u>\$40,500</u> | <u>\$38,250</u> |
| <b>Liabilities and Stockholders' Equity</b>   |                 |                 |
| Current liabilities:  |                 |                 |
| Short-term loans  | \$ 1,650        | \$ 1,800        |
| Accounts payable  | 5,400           | 5,325           |
| Salaries, wages, and other  | 1,950           | 2,025           |
| Total current liabilities   | <u>\$ 9,000</u> | <u>\$ 9,150</u> |
| Long-term debt  | 12,000          | 12,825          |
| Total liabilities   | <u>\$21,000</u> | <u>\$21,975</u> |
| Stockholders' equity:   |                 |                 |
| Common stock, at par  | \$ 3,300        | \$ 3,150        |
| Paid-in capital in excess of par  | 4,800           | 4,575           |
| Total paid-in capital   | <u>\$ 8,100</u> | <u>\$ 7,725</u> |
| Retained earnings   | 11,400          | 8,550           |
| Total stockholders' equity  | <u>\$19,500</u> | <u>\$16,275</u> |
| Total liabilities and stockholders' equity  | <u>\$40,500</u> | <u>\$38,250</u> |

The bank also has requested that Tioga Chemical Corporation calculate several ratios and report the latest industry ratios. The firm's ratios have not been calculated for 20x1. However, the accounting staff has gathered the following industry ratios, which are the latest available.

|                             |        |
|-----------------------------|--------|
| Current ratio .....         | 1.86   |
| Acid-test ratio .....       | .85    |
| Debt-equity ratio .....     | 1.23   |
| Interest coverage .....     | 7.78   |
| Dividend payout ratio ..... | 39.57% |
| Return on sales .....       | 3.42%  |
| Return on assets .....      | 6.37%  |
| Return on equity .....      | 12.48% |

**Required:**

1. Explain why the bank would be interested in the comparative financial statements and the preceding financial ratios.
2. Calculate the following financial ratios for 20x1 for Tioga:
  - a. Return on sales.
  - b. Return on assets.
  - c. Return on equity.
  - d. Current ratio.
  - e. Acid-test ratio.
  - f. Debt-equity ratio.
  - g. Interest coverage.
  - h. Dividend payout ratio.
3. By comparing the ratios calculated in requirement 2 with the industry ratios, evaluate Tioga's operations.

(CMA, adapted)