

## Financial Statement Analysis

### Balance Sheet

|                                                                                                                    | December 31           |                       |
|--------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|
| Assets                                                                                                             | 2003                  | 2002                  |
| Current assets                                                                                                     |                       |                       |
| Cash                                                                                                               | \$ 363                | \$ 288                |
| Marketable securities                                                                                              | 68                    | 51                    |
| Accounts receivable                                                                                                | 503                   | 365                   |
| Inventories                                                                                                        | 289                   | 300                   |
| Total current assets                                                                                               | <u>\$1,223</u>        | <u>\$1,004</u>        |
| Gross fixed assets (at cost) <sup>a</sup>                                                                          |                       |                       |
| Land and buildings                                                                                                 | \$2,072               | \$1,903               |
| Machinery and equipment                                                                                            | 1,866                 | 1,693                 |
| Furniture and fixtures                                                                                             | 358                   | 316                   |
| Vehicles                                                                                                           | 275                   | 314                   |
| Other (includes financial leases)                                                                                  | 98                    | 96                    |
| Total gross fixed assets (at cost)                                                                                 | <u>\$4,669</u>        | <u>\$4,322</u>        |
| Less: Accumulated depreciation                                                                                     | <u>2,295</u>          | <u>2,056</u>          |
| Net fixed assets                                                                                                   | <u>\$2,374</u>        | <u>\$2,266</u>        |
| Total assets                                                                                                       | <u><u>\$3,597</u></u> | <u><u>\$3,270</u></u> |
| Liabilities and Stockholders' Equity                                                                               |                       |                       |
| Current liabilities                                                                                                |                       |                       |
| Accounts payable                                                                                                   | \$ 382                | \$ 270                |
| Notes payable                                                                                                      | 79                    | 99                    |
| Accruals                                                                                                           | 159                   | 114                   |
| Total current liabilities                                                                                          | <u>\$ 620</u>         | <u>\$ 483</u>         |
| Long-term debt (includes financial leases) <sup>b</sup>                                                            | <u>\$1,023</u>        | <u>\$ 967</u>         |
| Total liabilities                                                                                                  | <u>\$1,643</u>        | <u>\$1,450</u>        |
| Stockholders' equity                                                                                               |                       |                       |
| Preferred stock—cumulative 5%, \$100 par, 2,000 shares authorized and issued <sup>c</sup>                          | \$ 200                | \$ 200                |
| Common stock—\$2.50 par, 100,000 shares authorized, shares issued and outstanding in 2003: 76,262; in 2002: 76,244 | 191                   | 190                   |
| Paid-in capital in excess of par on common stock                                                                   | 428                   | 418                   |
| Retained earnings                                                                                                  | 1,135                 | 1,012                 |
| Total stockholders' equity                                                                                         | <u>\$1,954</u>        | <u>\$1,820</u>        |
| Total liabilities and stockholders' equity                                                                         | <u><u>\$3,597</u></u> | <u><u>\$3,270</u></u> |

<sup>a</sup>In 2003, the firm has a 6-year financial lease requiring annual beginning-of-year payments of \$35,000. Four years of the lease have yet to run.

<sup>b</sup>Annual principal repayments on a portion of the firm's total outstanding debt amount to \$71,000.

<sup>c</sup>The annual preferred stock dividend would be \$5 per share (5% × \$100 par), or a total of \$10,000 annually (\$5 per share × 2,000 shares).

### Income Statement

|                                            | For the years ended<br>December 31 |                      |
|--------------------------------------------|------------------------------------|----------------------|
|                                            | 2003                               | 2002                 |
| Sales revenue                              | \$3,074                            | \$2,567              |
| Less: Cost of goods sold                   | <u>2,088</u>                       | <u>1,711</u>         |
| Gross profits                              | <u>\$ 986</u>                      | <u>\$ 856</u>        |
| Less: Operating expenses                   |                                    |                      |
| Selling expense                            | \$ 100                             | \$ 108               |
| General and administrative expenses        | 194                                | 187                  |
| Lease expense <sup>a</sup>                 | 35                                 | 35                   |
| Depreciation expense                       | <u>239</u>                         | <u>223</u>           |
| Total operating expense                    | <u>\$ 568</u>                      | <u>\$ 553</u>        |
| Operating profits                          | \$ 418                             | \$ 303               |
| Less: Interest expense                     | <u>93</u>                          | <u>91</u>            |
| Net profits before taxes                   | \$ 325                             | \$ 212               |
| Less: Taxes (rate = 29%) <sup>b</sup>      | <u>94</u>                          | <u>64</u>            |
| Net profits after taxes                    | \$ 231                             | \$ 148               |
| Less: Preferred stock dividends            | <u>10</u>                          | <u>10</u>            |
| Earnings available for common stockholders | <u><u>\$ 221</u></u>               | <u><u>\$ 138</u></u> |
| Earnings per share (EPS) <sup>c</sup>      | \$ 2.90                            | \$ 1.81              |
| Dividend per share (DPS) <sup>d</sup>      | \$ 1.29                            | \$ 0.75              |

<sup>a</sup>Lease expense is shown here as a separate item rather than being included as part of interest expense, as specified by the FASB for financial-reporting purposes. The approach used here is consistent with tax-reporting rather than financial-reporting procedures.

<sup>b</sup>The 29% tax rate for 2003 results because the firm has certain special tax write-offs that do not show up directly on its income statement.

<sup>c</sup>Calculated by dividing the earnings available for common stockholders by the number of shares of common stock outstanding—76,262 in 2003 and 76,244 in 2002. Earnings per share in 2003:  $\$221,000 \div 76,262 = \$2.90$ ; in 2002:  $\$138,000 \div 76,244 = \$1.81$ .

<sup>d</sup>Calculated by dividing the dollar amount of dividends paid to common stockholders by the number of shares of common stock outstanding. Dividends per share in 2003:  $\$98,000 \div 76,262 = \$1.29$ ; in 2002:  $\$57,183 \div 76,244 = \$0.75$ .

**Exercise 1:** Compute key financial ratios to complete below table.

| Ratios                                             | 2003 | 2002 |
|----------------------------------------------------|------|------|
| <b>1. Liquidity Ratio</b>                          |      |      |
| 1.1 Current ratio                                  |      |      |
| 1.2 Quick ratio                                    |      |      |
| 1.3 Cash ratio                                     |      |      |
| <b>2. Activity Ratio</b>                           |      |      |
| 2.1 Account receivable turnover                    |      |      |
| Account receivable days                            |      |      |
| 2.3 Inventory turnover                             |      |      |
| Inventory days                                     |      |      |
| 2.4 Account payable turnover                       |      |      |
| Account payable days                               |      |      |
| 2.5 Fixed asset turnover                           |      |      |
| 2.6 Total asset turnover                           |      |      |
| 2.7 Capital intensity ratio                        |      |      |
| <b>3. Leverage Ratio</b>                           |      |      |
| 3.1 Proprietary ratio                              |      |      |
| 3.2 Equity multiplier ratio                        |      |      |
| 3.3 Total debt ratio                               |      |      |
| 3.4 Debt to equity ratio                           |      |      |
| 3.5 Long-term debt to total capitalization ratio   |      |      |
| 3.6 Interest coverage ratio / Time-interest earned |      |      |
| 3.7 Cash flow coverage ratio                       |      |      |
| <b>4. Profitability Ratio</b>                      |      |      |
| 4.1 Gross profit margin                            |      |      |
| 4.2 Operating profit margin                        |      |      |
| 4.3 Net profit margin                              |      |      |
| <b>5. Market Value Ratio</b>                       |      |      |
| 5.1 Earning per share (EPS)                        |      |      |
| 5.2 Price/Earning ratio (P/E ratio)                |      |      |
| 5.3 Price/Book ratio                               |      |      |
| 5.4 Dividend yield                                 |      |      |

**Exercise 2:** As you can see, someone has spilled ink over some of the entries in the balance sheet and income statement of Transylvania Railroad. Can you use the following information to work out the missing entries:

|                           |           |
|---------------------------|-----------|
| Long-term debt ratio      | 0.40      |
| Times interest earned     | 8.00      |
| Current ratio             | 1.40      |
| Quick ratio               | 1.00      |
| Cash ratio                | 0.20      |
| Return on assets          | 18%       |
| Return on equity          | 41%       |
| Inventory turnover        | 5.00      |
| Average collection period | 71.2 days |

**INCOME STATEMENT (figures in millions of dollars)**

|                                               |     |
|-----------------------------------------------|-----|
| Net sales                                     | ... |
| Cost of goods sold                            | ... |
| Selling, general, and administrative expenses | 10  |
| Depreciation                                  | 20  |
| Earnings before interest and taxes (EBIT)     | ... |
| Interest expense                              | ... |
| Income before tax                             | ... |
| Tax                                           | ... |
| Net income                                    | ... |

**BALANCE SHEET (figures in millions of dollars)**

|                                                   | This Year  | Last Year  |
|---------------------------------------------------|------------|------------|
| <b>Assets</b>                                     |            |            |
| Cash and marketable securities                    | ...        | 20         |
| Receivables                                       | ...        | 34         |
| Inventories                                       | ...        | 26         |
| <i>Total current assets</i>                       | ...        | 80         |
| Net property, plant, and equipment                | ...        | 25         |
| <b>Total assets</b>                               | ...        | <b>105</b> |
| <b>Liabilities and shareholders' equity</b>       |            |            |
| Accounts payable                                  | 25         | 20         |
| Notes payable                                     | 30         | 35         |
| <i>Total current liabilities</i>                  | ...        | 55         |
| Long-term debt                                    | ...        | 20         |
| Shareholders' equity                              | ...        | 30         |
| <b>Total liabilities and shareholders' equity</b> | <b>115</b> | <b>105</b> |

## Summary

### 1. Liquidity Ratio

|                   |   |                                                                               |
|-------------------|---|-------------------------------------------------------------------------------|
| 1.1 Current ratio | = | $\frac{\text{Current Assets}}{\text{Current Liabilities}}$                    |
| 1.2 Quick ratio   | = | $\frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}}$ |
| 1.3 Cash ratio    | = | $\frac{\text{Cash}}{\text{Current Liabilities}}$                              |

### 2. Activity Ratio

|                                 |   |                                                                                                                                |
|---------------------------------|---|--------------------------------------------------------------------------------------------------------------------------------|
| 2.1 Account receivable turnover | = | $\frac{\text{Sale}}{\text{Account Receivable}}$                                                                                |
| Account receivable days         | = | $\frac{365 \text{ days (for 1 year)}}{\text{AR Turnover}} = \frac{\text{Account Receivable}}{\text{Sale per Day}}$             |
| 2.2 Inventory turnover          | = | $\frac{\text{Cost of Goods Sold}}{\text{Inventory}}$                                                                           |
| Inventory days                  | = | $\frac{365 \text{ days (for 1 year)}}{\text{Inventory Turnover}} = \frac{\text{Inventory}}{\text{Cost of Goods Sold per day}}$ |
| 2.3 Account payable turnover    | = | $\frac{\text{Cost of Goods Sold}}{\text{Account Payable}}$                                                                     |
| Account payable days            | = | $\frac{365 \text{ days (for 1 year)}}{\text{AP Turnover}} = \frac{\text{Account Payable}}{\text{Cost of Goods Sold per day}}$  |
| 2.4 Fixed asset turnover        | = | $\frac{\text{Sale}}{\text{Fixed Assets}}$                                                                                      |
| 2.5 Total asset turnover        | = | $\frac{\text{Sale}}{\text{Total Asset}}$                                                                                       |
| 2.6 Capital intensity ratio     | = | $\frac{\text{Total Asset}}{\text{Sale}}$                                                                                       |

### 3. Leverage Ratio

|                                                       |   |                                                                                                                                                                                     |
|-------------------------------------------------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3.1 Proprietary ratio                                 | = | $\frac{\text{Equity}}{\text{Total Asset}}$                                                                                                                                          |
| 3.2 Equity multiplier ratio                           | = | $\frac{\text{Total Asset}}{\text{Equity}}$                                                                                                                                          |
| 3.3 Total debt ratio                                  | = | $\frac{\text{Total Debt}}{\text{Total Asset}}$                                                                                                                                      |
| 3.4 Debt to equity ratio                              | = | $\frac{\text{Total Debt}}{\text{Equity}}$                                                                                                                                           |
| 3.5 Long-term debt to total capitalization ratio      | = | $\frac{\text{LT Debt}}{\text{LT Debt} + \text{Equity}}$                                                                                                                             |
| 3.6 Interest coverage ratio /<br>Time-interest earned | = | $\frac{\text{Operating Profit}}{\text{Interest Expense}}$                                                                                                                           |
| 3.7 Cash flow coverage ratio =                        |   | $\frac{\text{Operating Profit} + \text{Rent Expense} + \text{Depreciation}}{\text{Interest Expense} + \text{Rent Expense} + \text{Preferred Stock Dividend}/(1 - \text{Tax Rate})}$ |

### 4. Profitability Ratio

|                             |   |                                               |
|-----------------------------|---|-----------------------------------------------|
| 4.1 Gross profit margin     | = | $\frac{\text{Gross Profit}}{\text{Sale}}$     |
| 4.2 Operating profit margin | = | $\frac{\text{Operating Profit}}{\text{Sale}}$ |
| 4.3 Net profit margin       | = | $\frac{\text{Net Profit}}{\text{Sale}}$       |

**5. Market Value Ratio**

|                                        |   |                                                                            |
|----------------------------------------|---|----------------------------------------------------------------------------|
| 5.1 Earning per share (EPS)            | = | $\frac{\text{Net Profit}}{\text{Number of Common Stocks}}$                 |
| 5.2 Price/Earning ratio<br>(P/E ratio) | = | $\frac{\text{Market Price per Share}}{\text{Number of Common Stocks}}$     |
| 5.3 Price/Book ratio                   | = | $\frac{\text{Market Price per Share}}{\text{Book Value per Share}}$        |
| 5.4 Dividend yield                     | = | $\frac{\text{Expected Dividend per Share}}{\text{Market Price per Share}}$ |