

CHAPTER 14 (MAN) FINANCIAL STATEMENT ANALYSIS

DISCUSSION QUESTIONS

1. Horizontal analysis is the analysis of increases and decreases in financial statement items. The change in the amount and the percentage increase (decrease) in the item is presented. The amount and percent increase or decrease in the cash balances between the end of the current year and the end of the previous year is an example. Vertical analysis is the percentage analysis showing the relationship of the component parts to the total in a single statement. The percent of cash as a portion of total assets at the end of the current year is an example.
2. Comparative statements provide information as to changes between dates or periods. Trends indicated by comparisons may be far more significant than the data for a single date or period.
3. Before this question can be answered, the increase in net income should be compared with changes in sales, expenses, and assets devoted to the business for the current year. The return on assets for both periods should also be compared. If these comparisons indicate favorable trends, the operating performance has improved; if not, the apparent favorable increase in net income may be offset by unfavorable trends in other areas.
4. Generally, the two ratios would be very close because most service businesses sell services and hold very little inventory.
5.
 - a. A high inventory turnover minimizes the amount invested in inventories, thus freeing funds for more advantageous use. Storage costs, administrative expenses, and losses caused by obsolescence and adverse changes in prices are also kept to a minimum.
 - b. Yes. The inventory turnover relates to the “turnover” of inventory during the year, while the number of days’ sales in inventory relates to the amount of inventory on hand at the beginning and end of the year. Therefore, a business could have a high inventory turnover during the year, yet have a high number of days’ sales in inventory based on the beginning and end-of-year inventory amounts.
6. The ratio of fixed assets to long-term liabilities increased from 3.4 for the preceding year to 4.2 for the current year, indicating that the company is in a stronger position now than in the preceding year to borrow additional funds on a long-term basis.
7.
 - a. The rate earned on total assets adds interest expense to the net income, which is divided by average total assets. It measures the profitability of the total assets, without regard for how the assets are financed. The rate earned on stockholders’ equity divides net income by the average total stockholders’ equity. It measures the profitability of the stockholders’ investment.
 - b. The rate earned on stockholders’ equity is normally higher than the rate earned on total assets. This is because of leverage, which compensates stockholders for the higher risk of their investments.

DISCUSSION QUESTIONS (Concluded)

8. The price-earnings ratio measures the market's expectations of a company's future earnings prospects. Kroger's low price-earnings ratio compared to the industry average suggests that the market has low expectations about the company's future earnings.
9. The dividend yield measures the rate of return common stockholders receive from a cash dividend. The high dividend yield for Suburban Propane indicates that a significant portion of the return to their shareholders comes in the form of a cash dividend. The lack of a dividend yield for Google indicates that the return to shareholders comes solely from stock appreciation.
10. One report is the Report on Internal Control, which verifies management's conclusions on internal control. Another report is the Report on Fairness of the Financial Statements of Independent Registered Public Accounting Firm, where the Certified Public Accounting (CPA) firm that conducts the audit renders an opinion on the fairness of the statements.

PRACTICE EXERCISES**PE 14–1A (MAN)**

Temporary investments.....	\$7,280 increase (\$59,280 – \$52,000), or 14%
Inventory.....	\$5,320 decrease (\$70,680 – \$76,000), or –7%

PE 14–1B (MAN)

Accounts payable.....	\$11,000 increase (\$111,000 – \$100,000), or 11%
Long-term debt.....	\$8,680 increase (\$132,680 – \$124,000), or 7%

PE 14–2A (MAN)

	<u>Amount</u>	<u>Percentage</u>	
Sales.....	\$725,000	100%	(\$725,000 ÷ \$725,000)
Cost of goods sold.....	<u>391,500</u>	<u>54%</u>	(\$391,500 ÷ \$725,000)
Gross profit.....	<u>\$333,500</u>	<u>46%</u>	(\$333,500 ÷ \$725,000)

PE 14–2B (MAN)

	<u>Amount</u>	<u>Percentage</u>	
Sales.....	\$1,200,000	100%	(\$1,200,000 ÷ \$1,200,000)
Cost of goods sold.....	<u>780,000</u>	<u>65%</u>	(\$780,000 ÷ \$1,200,000)
Gross profit.....	<u>\$ 420,000</u>	<u>35%</u>	(\$420,000 ÷ \$1,200,000)

PE 14–3A (MAN)

a. **Current Ratio** = **Current Assets ÷ Current Liabilities**
= (\$160,000 + \$75,000 + \$65,000 + \$140,000) ÷ \$200,000
= 2.2

b. **Quick Ratio** = **Quick Assets ÷ Current Liabilities**
= (\$160,000 + \$75,000 + \$65,000) ÷ \$200,000
= 1.5

PE 14–3B (MAN)

$$\begin{aligned}
 \text{a. Current Ratio} &= \text{Current Assets} \div \text{Current Liabilities} \\
 &= (\$210,000 + \$120,000 + \$110,000 + \$160,000) \div \$200,000 \\
 &= 3.0
 \end{aligned}$$

$$\begin{aligned}
 \text{b. Quick Ratio} &= \text{Quick Assets} \div \text{Current Liabilities} \\
 &= (\$210,000 + \$120,000 + \$110,000) \div \$200,000 \\
 &= 2.2
 \end{aligned}$$

PE 14–4A (MAN)

$$\begin{aligned}
 \text{a. Accounts Receivable Turnover} &= \text{Sales} \div \text{Average Accounts Receivable} \\
 &= \$832,000 \div \$80,000 \\
 &= 10.4
 \end{aligned}$$

$$\begin{aligned}
 \text{b. Number of Days' Sales in Receivables} &= \frac{\text{Average Accounts Receivable}}{\text{Average Daily Sales}} \\
 &= \$80,000 \div (\$832,000 \div 365) \\
 &= \$80,000 \div \$2,279 \\
 &= 35.1 \text{ days}
 \end{aligned}$$

PE 14–4B (MAN)

$$\begin{aligned}
 \text{a. Accounts Receivable Turnover} &= \text{Sales} \div \text{Average Accounts Receivable} \\
 &= \$3,150,000 \div \$210,000 \\
 &= 15.0
 \end{aligned}$$

$$\begin{aligned}
 \text{b. Number of Days' Sales in Receivables} &= \frac{\text{Average Accounts Receivable}}{\text{Average Daily Sales}} \\
 &= \$210,000 \div (\$3,150,000 \div 365) \\
 &= \$210,000 \div \$8,630 \\
 &= 24.3 \text{ days}
 \end{aligned}$$

PE 14-5A (MAN)

a. **Inventory Turnover = Cost of Goods Sold ÷ Average Inventory**
= \$630,000 ÷ \$90,000
= 7.0

b. **Number of Days' Sales in Inventory = $\frac{\text{Average Inventory}}{\text{Average Daily Cost of Goods Sold}}$**
= \$90,000 ÷ (\$630,000 ÷ 365)
= \$90,000 ÷ \$1,726
= 52.1 days

PE 14-5B (MAN)

a. **Inventory Turnover = Cost of Goods Sold ÷ Average Inventory**
= \$435,000 ÷ \$72,500
= 6.0

b. **Number of Days' Sales in Inventory = $\frac{\text{Average Inventory}}{\text{Average Daily Cost of Goods Sold}}$**
= \$72,500 ÷ (\$435,000 ÷ 365)
= \$72,500 ÷ \$1,192
= 60.8 days

PE 14–6A (MAN)

$$\begin{aligned} \text{a. Ratio of Fixed Assets to Long-Term Liabilities} &= \frac{\text{Fixed Assets}}{\text{Long-Term Liabilities}} \\ &= \$2,000,000 \div \$800,000 \\ &= 2.5 \end{aligned}$$

$$\begin{aligned} \text{b. Ratio of Liabilities to Stockholders' Equity} &= \frac{\text{Total Liabilities}}{\text{Total Stockholders' Equity}} \\ &= \$1,000,000 \div \$625,000 \\ &= 1.6 \end{aligned}$$

PE 14–6B (MAN)

$$\begin{aligned} \text{a. Ratio of Fixed Assets to Long-Term Liabilities} &= \frac{\text{Fixed Assets}}{\text{Long-Term Liabilities}} \\ &= \$860,000 \div \$200,000 \\ &= 4.3 \end{aligned}$$

$$\begin{aligned} \text{b. Ratio of Liabilities to Stockholders' Equity} &= \frac{\text{Total Liabilities}}{\text{Total Stockholders' Equity}} \\ &= \$600,000 \div \$250,000 \\ &= 2.4 \end{aligned}$$

PE 14–7A (MAN)

$$\begin{aligned} \text{Number of Times Interest Charges Are Earned} &= \frac{\text{Income Before Income Tax} + \text{Interest Expense}}{\text{Interest Expense}} \\ &= \frac{\$4,000,000 + \$400,000}{\$400,000} \\ &= 11.0 \end{aligned}$$

PE 14–7B (MAN)

$$\begin{aligned} \text{Number of Times Interest Charges Are Earned} &= \frac{\text{Income Before Income Tax} + \text{Interest Expense}}{\text{Interest Expense}} \\ &= \frac{\$8,000,000 + \$500,000}{\$500,000} \\ &= 17.0 \end{aligned}$$

PE 14–8A (MAN)

$$\begin{aligned}
 \text{Ratio of Sales to Assets} &= \text{Sales} \div \text{Average Total Assets} \\
 &= \$1,800,000 \div \$1,125,000 \\
 &= 1.6
 \end{aligned}$$

PE 14–8B (MAN)

$$\begin{aligned}
 \text{Ratio of Sales to Assets} &= \text{Sales} \div \text{Average Total Assets} \\
 &= \$4,400,000 \div \$2,000,000 \\
 &= 2.2
 \end{aligned}$$

PE 14–9A (MAN)

$$\begin{aligned}
 \text{Rate Earned on Total Assets} &= \frac{\text{Net Income} + \text{Interest Expense}}{\text{Average Total Assets}} \\
 &= \frac{\$250,000 + \$100,000}{\$2,500,000} \\
 &= \frac{\$350,000}{\$2,500,000} \\
 &= 14.0\%
 \end{aligned}$$

PE 14–9B (MAN)

$$\begin{aligned}
 \text{Rate Earned on Total Assets} &= \frac{\text{Net Income} + \text{Interest Expense}}{\text{Average Total Assets}} \\
 &= \frac{\$410,000 + \$90,000}{\$5,000,000} \\
 &= \frac{\$500,000}{\$5,000,000} \\
 &= 10.0\%
 \end{aligned}$$

PE 14–10A (MAN)

$$\begin{aligned}
 \text{a. Rate Earned on Stockholders' Equity} &= \frac{\text{Net Income}}{\text{Average Stockholders' Equity}} \\
 &= \$375,000 \div \$2,500,000 \\
 &= 15.0\%
 \end{aligned}$$

$$\begin{aligned}
 \text{b. Rate Earned on Common Stockholders' Equity} &= \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Average Common Stockholders' Equity}} \\
 &= \frac{\$375,000 - \$75,000}{\$1,875,000} \\
 &= 16.0\%
 \end{aligned}$$

PE 14–10B (MAN)

$$\begin{aligned}
 \text{a. Rate Earned on Stockholders' Equity} &= \frac{\text{Net Income}}{\text{Average Stockholders' Equity}} \\
 &= \$1,000,000 \div \$6,250,000 \\
 &= 16.0\%
 \end{aligned}$$

$$\begin{aligned}
 \text{b. Rate Earned on Common Stockholders' Equity} &= \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Average Common Stockholders' Equity}} \\
 &= \frac{\$1,000,000 - \$50,000}{\$3,800,000} \\
 &= 25.0\%
 \end{aligned}$$

PE 14–11A (MAN)

$$\begin{aligned}
 \text{a. Earnings per Share on Common Stock} &= \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Shares of Common Stock Outstanding}} \\
 &= (\$185,000 - \$25,000) \div \$100,000 \\
 &= \$1.60
 \end{aligned}$$

$$\begin{aligned}
 \text{b. Price-Earnings Ratio} &= \frac{\text{Market Price per Share of Common Stock}}{\text{Earnings per Share on Common Stock}} \\
 &= \$20.00 \div \$1.60 \\
 &= 12.5
 \end{aligned}$$

PE 14–11B (MAN)

$$\begin{aligned}
 \text{a. Earnings per Share on Common Stock} &= \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Shares of Common Stock Outstanding}} \\
 &= (\$410,000 - \$60,000) \div \$50,000 \\
 &= \$7.00
 \end{aligned}$$

$$\begin{aligned}
 \text{b. Price-Earnings Ratio} &= \frac{\text{Market Price per Share of Common Stock}}{\text{Earnings per Share on Common Stock}} \\
 &= \$84.00 \div \$7.00 \\
 &= 12.0
 \end{aligned}$$

EXERCISES

Ex. 14-1 (MAN)

a.

GRESHAM, Inc.				
Comparative Income Statement				
For the Years Ended December 31, 20—				
	Current year		Previous year	
	Amount	Percent	Amount	Percent
Sales	\$2,500,000	100%	\$2,350,000	100%
Cost of goods sold	1,500,000	60%	1,292,500	55%
Gross profit	\$1,000,000	40%	\$1,057,500	45%
Selling expenses	300,000	12%	376,000	16%
Administrative expenses	375,000	15%	305,500	13%
Total operating expenses	\$ 675,000	27%	\$ 681,500	29%
Income from operations	325,000	13%	376,000	16%
Income tax expense	150,000	6%	141,000	6%
Net income	\$ 175,000	7%	\$ 235,000	10%

- b. The vertical analysis indicates that the cost of goods sold as a percent of sales increased by 5 percentage points (60% – 55%), while selling expenses decreased by 4 percentage points (12% – 16%), and administrative expenses increased by 2% (13% – 15%). Thus, net income as a percent of sales dropped by 3% (10% – 7%).

Ex. 14-2 (MAN)

a.

SPEEDWAY MOTORSPORTS, INC.				
Comparative Income Statement (in thousands of dollars)				
For the Years Ended December 31, 20—				
	Current Year		Prior Year	
	Amount	Percent	Amount	Percent
Revenues:				
Admissions	\$116,034	23.7%	\$130,239	25.7%
Event-related revenue	151,562	30.9%	163,621	32.3%
NASCAR broadcasting revenue	192,662	39.3%	185,394	36.7%*
Other operating revenue	29,902	6.1%	26,951	5.3%
Total revenue	\$490,160	100.0%	\$506,205	100.0%
Expenses and other:				
Direct expense of events	\$101,402	20.7%	\$106,204	21.0%
NASCAR purse and sanction fees	122,950	25.1%	120,146	23.7%
Other direct expenses	18,908	3.9%	20,352	4.0%
General and administrative	183,215	37.4%	241,223	47.7%
Total expenses and other	\$426,475	87.0%	\$487,925	96.4%
Income from continuing operations	\$ 63,685	13.0%	\$ 18,280	3.5%**

* Actual amount is 36.6%. The amount is rounded up to achieve 100% for total revenue.

** Actual amount is 3.6%. The amount presented is rounded down to equal the difference between Revenues and Expenses.

- b. Overall revenue decreased some between the two years, as did the overall mix of revenue sources. The NASCAR broadcasting revenue increased by almost 3% of total revenue, while admissions revenue decreased by 2% of total revenue. One of the major expense categories, NASCAR purse and sanction fees, increased by 1.3% of total revenue. The Direct expenses of events and Other direct expenses remained relatively constant during the two year period. General and administrative expenses, however, decreased significantly (by over 10% of total revenue). This cost reduction was the driving factor behind the significant increase in income from continuing operations, increasing from 3.5% to 13% of total revenue. It appears that aggressive cost cutting has helped the company significantly improve its income from continuing operations.

Ex. 14-3 (MAN)

a.

TANNENHILL COMPANY			
Common-Sized Income Statement			
For the Year Ended December 31, 20—			
	Tannenhill Company		Electronics Industry Average
	Amount	Percent	
Net sales	\$4,000,000	100%	100%
Cost of goods sold	2,120,000	53%	60%
Gross profit	\$1,880,000	47%	40%
Selling expenses	1,080,000	27%	24%
Administrative expenses	640,000	16%	14%
Total operating expenses	\$1,720,000	43%	38%
Operating income	160,000	4%	2%
Other income	120,000	3%	3%
	\$ 280,000	7%	5%
Other expense	80,000	2%	2%
Income before income tax	\$ 200,000	5%	3%
Income tax expense	80,000	2%	2%
Net income	\$ 120,000	3%	1%

- b. The cost of goods sold is 7% lower than the industry average, but the selling expenses and administrative expenses are 3% and 2% higher than the industry average. The combined impact causes net income as a percent of sales to be 2% better than the industry average. Apparently, the company is managing the cost of manufacturing product better than the industry, but has slightly higher selling and administrative expenses relative to the industry. The cause of the higher selling and administrative expenses as a percent of sales, relative to the industry, can be investigated further.

Ex. 14–4 (MAN)

NOVAK COMPANY				
Comparative Balance Sheet				
For the Years Ended December 31, 20—				
	Current year		Previous year	
	Amount	Percent	Amount	Percent
Current assets	\$1,300,000	26%	\$ 945,000	21%
Property, plant, and equipment	3,000,000	60%	3,150,000	70%
Intangible assets	700,000	14%	405,000	9%
Total assets	\$5,000,000	100%	\$4,500,000	100%
Current liabilities	\$1,000,000	20%	\$ 720,000	16%
Long-term liabilities	1,500,000	30%	1,575,000	35%
Common stock	500,000	10%	495,000	11%
Retained earnings	2,000,000	40%	1,710,000	38%
Total liabilities and stockholders' equity	\$5,000,000	100%	\$4,500,000	100%

Ex. 14–5 (MAN)

a.

MORENO COMPANY				
Comparative Income Statement				
For the Years Ended December 31, 20—				
	Current year	Previous year	Increase (Decrease)	
	Amount	Amount	Amount	Percent
Sales	\$1,120,000	\$1,000,000	\$120,000	12.0%
Cost of goods sold	971,250	875,000	96,250	11.0%
Gross profit	\$ 148,750	\$ 125,000	\$ 23,750	19.0%
Selling expenses	71,250	62,500	8,750	14.0%
Administrative expenses	56,000	50,000	6,000	12.0%
Total operating expenses	\$ 127,250	\$ 112,500	\$ 14,750	13.1%
Income before income tax	21,500	12,500	9,000	72.0%
Income tax expense	8,000	5,000	3,000	60.0%
Net income	\$ 13,500	\$ 7,500	\$ 6,000	80.0%

- b. The net income for Moreno Company increased by approximately 80% between years. This increase was the combined result of an increase in sales of 12% and lower percentage increase in cost of goods sold.

The cost of goods sold increased at a slower rate than the increase in sales, thus causing the percentage increase in gross profit to exceed the percentage increase in sales.

Ex. 14–6 (MAN)

- a. (1) Working Capital = Current Assets – Current Liabilities

Current year: $\$1,600,000 = \$2,400,000 - \$800,000$

Previous year: $\$1,260,000 = \$1,960,000 - \$700,000$

(2) Current Ratio = $\frac{\text{Current Assets}}{\text{Current Liabilities}}$

Current year: $\frac{\$2,400,000}{\$800,000} = 3.0$

Previous year: $\frac{\$1,960,000}{\$700,000} = 2.8$

(3) Quick Ratio = $\frac{\text{Quick Assets}}{\text{Current Liabilities}}$

Current year: $\frac{\$1,440,000}{\$800,000} = 1.8$

Previous year: $\frac{\$1,120,000}{\$700,000} = 1.6$

- b. The liquidity of Gostkowski has improved from the preceding year to the current year. The working capital, current ratio, and quick ratio have all increased. Most of these changes are the result of an increase in current assets relative to current liabilities.

Ex. 14–7 (MAN)

a. (1) Current Ratio = $\frac{\text{Current Assets}}{\text{Current Liabilities}}$

Current Year: $\frac{\$18,720}{\$17,089} = 1.1$

Previous Year: $\frac{\$17,441}{\$18,154} = 1.0$

(2) Quick Ratio = $\frac{\text{Quick Assets}}{\text{Current Liabilities}}$

Current Year: $\frac{\$13,660}{\$17,089} = 0.8$

Previous Year: $\frac{\$11,337}{\$18,154} = 0.6$

- b. The solvency of PepsiCo has increased slightly over this time period. The current ratio has increased from 1.0 to 1.1, and the quick ratio has increased by 0.2. PEPSICO appears to have ample resources to meet its short term obligations, and these resources have remained constant during this time period.

Ex. 14–8 (MAN)

- a. The working capital, current ratio, and quick ratio are calculated incorrectly. The working capital and current ratio incorrectly include intangible assets and property, plant, and equipment as a part of current assets. Both are noncurrent. The quick ratio has both an incorrect numerator and denominator. The numerator of the quick ratio is incorrectly calculated as the sum of inventories, prepaid expenses, and property, plant, and equipment (\$36,000 + \$24,000 + \$55,200). The denominator is also incorrect, as it does not include accrued liabilities. The denominator of the quick ratio should be total current liabilities.

The correct calculations are as follows:

$$\begin{aligned} \text{Working Capital} &= \text{Current Assets} - \text{Current Liabilities} \\ \$30,000 &= \$330,000 - \$300,000 \end{aligned}$$

$$\begin{aligned} \text{Current Ratio} &= \frac{\text{Current Assets}}{\text{Current Liabilities}} \\ &= \frac{\$330,000}{\$300,000} = 1.1 \end{aligned}$$

$$\begin{aligned} \text{Quick Ratio} &= \frac{\text{Quick Assets}}{\text{Current Liabilities}} \\ &= \frac{\$102,000 + \$48,000 + \$120,000}{\$300,000} = 0.9 \end{aligned}$$

- b. Unfortunately, the working capital, current ratio, and quick ratio are below the minimum threshold required by the bond indenture. This may require the company to renegotiate the bond contract, including a possible unfavorable change in the interest rate.

Ex. 14–9 (MAN)

a. (1) **Accounts Receivable Turnover** =
$$\frac{\text{Sales}}{\text{Average Accounts Receivable}}$$

2016:
$$\frac{\$3,412,500}{\$487,500^*} = 7.0$$

* $\$487,500 = (\$475,000 + \$500,000) \div 2$

2015:
$$\frac{\$2,836,500}{\$457,500^{**}} = 6.2$$

** $\$457,500 = (\$440,000 + \$475,000) \div 2$

(2) **Number of Days' Sales in Receivables** =
$$\frac{\text{Average Accounts Receivable}}{\text{Average Daily Sales}}$$

2016:
$$\frac{\$487,500^1}{\$9,349^2} = 52.1 \text{ days}$$

2015:
$$\frac{\$457,500^3}{\$7,771^4} = 58.9 \text{ days}$$

¹ $\$487,500 = (\$475,000 + \$500,000) \div 2$

² $\$9,349 = \$3,412,500 \div 365 \text{ days}$

³ $\$457,500 = (\$440,000 + \$475,000) \div 2$

⁴ $\$7,771 = \$2,836,500 \div 365 \text{ days}$

- b. **The collection of accounts receivable has improved. This can be seen in both the increase in accounts receivable turnover and the reduction in the collection period. The credit terms require payment in 55 days. In 2015, the collection period exceeded these terms. However, the company apparently became more aggressive in collecting accounts receivable or more restrictive in granting credit to customers. Thus, in 2016, the collection period is within the credit terms of the company.**

Ex. 14–10 (MAN)

$$\text{a. (1) Accounts Receivable Turnover} = \frac{\text{Sales}}{\text{Average Accounts Receivable}}$$

$$\text{Xavier: } \frac{\$8,500,000}{(\$820,000 + \$880,000) \div 2} = 10.0$$

$$\text{Lestrade: } \frac{\$4,585,000}{(\$600,000 + \$710,000) \div 2} = 7.0$$

$$\text{(2) Number of Days' Sales in Receivables} = \frac{\text{Average Accounts Receivable}}{\text{Average Daily Sales}}$$

$$\text{Xavier: } \frac{(\$820,000 + \$880,000) \div 2}{\$23,287.7^*} = 36.5 \text{ days}$$

$$\text{Lestrade: } \frac{(\$600,000 + \$710,000) \div 2}{\$12,561.6^{**}} = 52.1 \text{ days}$$

* $\$23,287.7 = \$8,500,000 \div 365 \text{ days}$

** $\$12,561.6 = \$4,585,000 \div 365 \text{ days}$

- b. Xavier's accounts receivable turnover is much higher than Lestrade's (10.0 for Xavier vs. 7.0 for Lestrade). The number of days' sales in receivables is lower for Xavier than for Lestrade (36.5 days for Xavier vs. 52.1 days for Lestrade). These differences indicate that Xavier is able to turn over its receivables more quickly than Lestrade. As a result, it takes Xavier less time to collect its receivables.**

Ex. 14-11 (MAN)

a. (1)
$$\text{Inventory Turnover} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$$

$$\text{Current Year: } \frac{\$6,375,000}{(\$860,000 + \$840,000) \div 2} = 7.5$$

$$\text{Previous Year: } \frac{\$7,380,000}{(\$840,000 + \$800,000) \div 2} = 9.0$$

(2)
$$\text{Number of Days' Sales in Inventory} = \frac{\text{Average Inventory}}{\text{Average Daily Cost of Goods Sold}}$$

$$\text{Current Year: } \frac{(\$860,000 + \$840,000) \div 2}{\$17,466^*} = 48.7 \text{ days}$$

$$\text{Previous Year: } \frac{(\$840,000 + \$800,000) \div 2}{\$20,219^{**}} = 40.6 \text{ days}$$

* \$17,466 = \$6,375,000 ÷ 365 days

** \$20,219 = \$7,380,000 ÷ 365 days

- b. The inventory position of the business has deteriorated. The inventory turnover has decreased, while the number of days' sales in inventory has increased. The sales volume has declined faster than the inventory has declined, thus resulting in the deteriorating inventory position.

Ex. 14–12 (MAN)

$$\text{a. (1) Inventory Turnover} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$$

$$\text{Dell: } \frac{\$44,754}{(\$1,382 + \$1,404) \div 2} = 32.1$$

$$\text{HP: } \frac{\$92,385}{(\$6,317 + \$7,490) \div 2} = 13.4$$

$$\text{(2) Number of Days' Sales in Inventory} = \frac{\text{Average Inventory}}{\text{Average Daily Cost of Goods Sold}}$$

$$\text{Dell: } \frac{(\$1,382 + \$1,404) \div 2}{\$122.6^*} = 11.4 \text{ days}$$

$$\text{HP: } \frac{(\$6,317 + \$7,490) \div 2}{\$253.1^{**}} = 27.3 \text{ days}$$

* \$122.6 = \$44,754 ÷ 365 days

** \$253.1 = \$92,385 ÷ 365 days

- b. Dell has a much higher inventory turnover ratio than does HP (32.1 vs. 13.4). Likewise, Dell has a much smaller number of days' sales in inventory (11.4 days vs. 27.3 days). These significant differences are a result of Dell's make-to-order strategy. Dell has successfully developed a manufacturing process that is able to fill a customer order quickly. As a result, Dell does not pre-build as many computers to inventory. HP, in contrast, pre-builds computers, printers, and other equipment to be sold by retail stores and other retail channels. In this industry, there is great obsolescence risk in holding computers in inventory. New technology can make an inventory of computers difficult to sell; therefore, inventory is costly and risky. Dell's operating strategy is considered revolutionary and is now being adopted by many both in and out of the computer industry.

Ex. 14–13 (MAN)

a. **Ratio of Liabilities to Stockholders' Equity** =
$$\frac{\text{Total Liabilities}}{\text{Total Stockholders' Equity}}$$

Current year:
$$\frac{\$2,124,000}{\$2,360,000} = 0.9$$

Previous year:
$$\frac{\$2,200,000}{\$2,000,000} = 1.1$$

b. **Number of Times Bond Interest Charges Are Earned** =
$$\frac{\text{Income Before Income Tax + Interest Expense}}{\text{Interest Expense}}$$

Current year:
$$\frac{\$480,000 + \$120,000^*}{\$120,000} = 5.0$$

Previous year:
$$\frac{\$420,000 + \$140,000^{**}}{\$140,000} = 4.0$$

* $(\$1,000,000 + \$200,000) \times 10\% = \$120,000$

** $(\$1,200,000 + \$200,000) \times 10\% = \$140,000$

- c. **Both the ratio of liabilities to stockholders' equity and the number of times bond interest charges were earned have improved from the previous year. These results are the combined result of a larger income before income taxes and lower serial bonds payable in the current year compared to the previous year.**

Ex. 14–14 (MAN)

a. **Ratio of Liabilities to Stockholders' Equity** =
$$\frac{\text{Total Liabilities}}{\text{Total Stockholders' Equity}}$$

$$\text{Hasbro: } \frac{\$2,818,008}{\$1,507,379} = 1.9$$

$$\text{Mattel, Inc.: } \frac{\$3,459,741}{\$3,067,044} = 1.1$$

b. **Number of Times Interest Charges Are Earned** =
$$\frac{\text{Income Before Income Tax} + \text{Interest Expense}}{\text{Interest Expense}}$$

$$\text{Hasbro: } \frac{\$453,402 + \$117,403}{\$117,403} = 4.9$$

$$\text{Mattel, Inc.: } \frac{\$945,045 + \$88,835}{\$88,835} = 11.6$$

- c. **Hasbro carries a larger proportion of debt to the stockholders' equity than Mattel (1.9 and 1.1 times stockholders' equity). Both companies have strong interest coverage; however, Mattel's ratio is much stronger than Hasbro's. Together, these ratios indicate that both companies provide creditors with a margin of safety, but Mattel's ratio is stronger than Hasbro's. Together, these ratios indicate that earnings are more than enough to make interest payments. With that said, Mattel does provide creditors with a greater margin of safety than Hasbro.**

Ex. 14–15 (MAN)

$$\text{a.} \quad \frac{\text{Ratio of Liabilities to Stockholders' Equity}}{\text{Total Liabilities}} = \frac{\text{Total Liabilities}}{\text{Total Stockholders' Equity}}$$

$$\text{Mondelez: } \frac{\$14,873,000 + \$15,574,000 + \$12,816,000}{\$32,215,000} = 1.3$$

$$\text{Hershey: } \frac{\$1,471,110 + \$1,530,967 + \$716,013}{\$1,036,749} = 3.6$$

$$\text{b.} \quad \frac{\text{Ratio of Fixed Assets to Long-Term Liabilities}}{\text{Fixed Assets (net)}} = \frac{\text{Long-Term Liabilities}}$$

$$\text{Mondelez: } \frac{\$10,010,000}{\$28,390,000} = 0.4$$

$$\text{Hershey: } \frac{\$1,674,071}{\$2,246,980} = 0.7$$

- c. Hershey uses more debt than does Mondelez. As a result, Hershey's total liabilities to stockholders' equity ratio is higher than Mondelez's (3.6 vs. 1.3). Mondelez has a lower ratio of fixed assets to long-term liabilities than Hershey. This ratio divides the property, plant, and equipment (net) by the long-term debt. The ratio for Mondelez is aggressive, with fixed assets covering only 40% of the long-term debt. That is, the creditors of Mondelez have 40 cents of property, plant, and equipment covering every dollar of long-term debt. The same ratio for Hershey shows fixed assets covering 70% of the long-term debt. That is, Hershey's creditors have 70 cents of property, plant, and equipment covering every dollar of long-term debt. This would suggest that Hershey has slightly stronger creditor protection and borrowing capacity than does Mondelez.

Ex. 14–16 (MAN)

$$\text{a. Ratio of Sales to Total Assets} = \frac{\text{Sales}}{\text{Average Total Assets}}$$

$$\text{YRC Worldwide: } \frac{\$4,334,640}{\$2,812,504} = 1.5$$

$$\text{Union Pacific: } \frac{\$16,965,000}{\$42,636,000} = 0.4$$

$$\text{C.H. Robinson Worldwide Inc.: } \frac{\$9,274,305}{\$1,914,974} = 4.8$$

- b. The ratio of sales to assets measures the number of sales dollars earned for each dollar of assets. The greater the number of sales dollars earned for every dollar of assets, the more efficient a firm is in using assets. Thus, the ratio is a measure of the efficiency in using assets. The three companies are different in their efficiency in using assets because they are different in the nature of their operations. Union Pacific earns only 40 cents for every dollar of assets. This is because Union Pacific is very asset intensive. That is, Union Pacific must invest in locomotives, railcars, terminals, tracks, right-of-way, and information systems in order to earn revenues. These investments are significant. YRC Worldwide is able to earn \$1.50 for every dollar of assets and, thus, is able to earn more revenue for every dollar of assets than the railroad. This is because the motor carrier invests in trucks, trailers, and terminals, which require less investment per dollar of revenue than does the railroad. Moreover, the motor carrier does not invest in the highway system because the government owns the highway system. Thus, the motor carrier has no investment in the transportation network itself, unlike the railroad. C.H. Robinson Worldwide Inc., the transportation arranger, hires transportation services from motor carriers and railroads but does not own these assets itself. The transportation arranger has assets in accounts receivable and information systems but does not require transportation assets; thus, it is able to earn the highest revenue per dollar of assets.

Note to Instructors: Students may wonder how asset-intensive companies overcome their asset efficiency disadvantages to competitors with better asset efficiencies, as in the case between railroads and motor carriers. Asset efficiency is part of the financial equation; the other part is the profit margin made on each dollar of sales. Thus, companies with high asset efficiency often operate on thinner margins than do companies with lower asset efficiency. For example, the motor carrier must pay highway taxes, which lowers its operating margins when compared to railroads that own their right-of-way, and thus do not have the tax expense of the highway. While not required in this exercise, the railroad has the highest profit margins, the motor carrier is in the middle, while the transportation arranger operates on very thin margins.

Ex. 14–17 (MAN)

$$\text{a. Rate Earned on Total Assets} = \frac{\text{Net Income} + \text{Interest Expense}}{\text{Average Total Assets}}$$

$$2016: \frac{\$372,000 + \$180,000^1}{\$4,600,000^2} = 12.0\%$$

$$2015: \frac{\$492,000 + \$180,000^3}{\$4,200,000^4} = 16.0\%$$

¹ \$2,250,000 × 8%

² (\$4,800,000 + \$4,400,000) ÷ 2

³ \$2,250,000 × 8%

⁴ (\$4,400,000 + \$4,000,000) ÷ 2

$$\text{Rate Earned on Stockholders' Equity} = \frac{\text{Net Income}}{\text{Average Total Stockholders' Equity}}$$

$$2016: \frac{\$372,000}{\$2,148,000^*} = 17.3\%$$

$$2015: \frac{\$492,000}{\$1,736,000^{**}} = 28.3\%$$

* (\$2,324,000 + \$1,972,000) ÷ 2

** (\$1,972,000 + \$1,500,000) ÷ 2

$$\text{Rate Earned on Common Stockholders' Equity} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Average Common Stockholders' Equity}}$$

$$2016: \frac{\$372,000 - \$20,000^1}{\$1,648,000^2} = 21.4\%$$

$$2015: \frac{\$492,000 - \$20,000^3}{\$1,236,000^4} = 38.2\%$$

¹ \$500,000 × 4%

² (\$1,824,000 + \$1,472,000) ÷ 2

³ \$500,000 × 4%

⁴ (\$1,472,000 + \$1,000,000) ÷ 2

- b. The profitability ratios indicate that Robinson Inc.'s profitability has deteriorated. Most of this change is from net income falling from \$492,000 in 2015 to \$372,000 in 2016. Because the rate of return on common stockholders' equity exceeds the rate earned on total assets in both years, there is positive leverage from the use of debt. However, this leverage is greater in 2015 because the rate of return on assets exceeds the rate earned on common stockholders' equity by a greater amount in 2015.

Ex. 14–18 (MAN)

$$\text{a. Rate Earned on Total Assets} = \frac{\text{Net Income} + \text{Interest Expense}}{\text{Average Total Assets}}$$

$$\text{Fiscal Year 3: } \frac{\$567,600 + \$18,300}{(\$4,981,100 + \$4,648,900) \div 2} = 12.2\%$$

$$\text{Fiscal Year 2: } \frac{\$479,500 + \$22,200}{(\$4,648,900 + \$4,356,500) \div 2} = 11.1\%$$

$$\text{b. Rate Earned on Stockholders' Equity} = \frac{\text{Net Income}}{\text{Average Total Stockholders' Equity}}$$

$$\text{Fiscal Year 3: } \frac{\$567,600}{(\$3,304,700 + \$3,116,600) \div 2} = 17.7\%$$

$$\text{Fiscal Year 2: } \frac{\$479,500}{(\$3,116,600 + \$2,735,100) \div 2} = 16.4\%$$

- c. Both the rate earned on total assets and the rate earned on stockholders' equity have increased over the two-year period. The rate earned on total assets increased from 11.1% to 12.2%, and the rate earned on stockholders' equity increased from 16.4% to 17.7%. The rate earned on stockholders' equity exceeds the rate earned on total assets due to the positive use of leverage.
- d. During fiscal Year 3, Polo Ralph Lauren's results were strong compared to the industry average. The rate earned on total assets for Polo Ralph Lauren was more than the industry average (12.2% vs. 8.0%). The rate earned on stockholders' equity was more than the industry average (17.7% vs. 10.0%). These relationships suggest that Polo Ralph Lauren has more leverage than the industry, on average.

Ex. 14–19 (MAN)

a.
$$\text{Ratio of Fixed Assets to Long-Term Liabilities} = \frac{\text{Fixed Assets (net)}}{\text{Long-Term Liabilities}}$$

$$\frac{\$3,200,000}{\$2,000,000} = 1.6$$

b.
$$\text{Ratio of Liabilities to Stockholders' Equity} = \frac{\text{Total Liabilities}}{\text{Total Stockholders' Equity}}$$

$$\frac{\$3,000,000}{\$5,000,000} = 0.6$$

c.
$$\text{Ratio of Sales to Assets} = \frac{\text{Sales}}{\text{Average Total Assets (excluding long-term investments)}}$$

$$\frac{\$18,900,000}{\$4,500,000^*} = 4.2$$

* $[(\$7,000,000 + \$8,000,000) \div 2] - \$3,000,000$. The end-of-period total assets are equal to the sum of total liabilities (\$3,000,000) and stockholders' equity (\$5,000,000).

d.
$$\text{Rate Earned on Total Assets} = \frac{\text{Net Income} + \text{Interest Expense}}{\text{Average Total Assets}}$$

$$\frac{\$930,000 + \$120,000^*}{\$7,500,000^{**}} = 14.0\%$$

* $\$2,000,000 \times 6\%$

** $(\$7,000,000 + \$8,000,000) \div 2$

e.
$$\text{Rate Earned on Stockholders' Equity} = \frac{\text{Net Income}}{\text{Average Total Stockholders' Equity}}$$

$$\frac{\$930,000}{\$4,785,000^*} = 19.4\%$$

* $[(\$1,570,000 + \$2,000,000 + \$1,000,000) + \$5,000,000] \div 2$

f.
$$\text{Rate Earned on Common Stockholders' Equity} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Average Common Stockholders' Equity}}$$

$$\frac{\$930,000 - \$100,000^*}{\$3,785,000^{**}} = 21.9\%$$

* $(\$1,000,000 \div \$100) \times \$10$

** $[(\$2,000,000 + \$1,570,000) + (\$2,000,000 + \$2,000,000)] \div 2$

Ex. 14-20 (MAN)

$$\text{a.} \quad \frac{\text{Number of Times Bond Interest Charges Are Earned}}{\text{Interest Expense}} = \frac{\text{Income Before Income Tax + Interest Expense}}{\text{Interest Expense}}$$

$$\frac{\$3,000,000 + \$400,000^*}{\$400,000} = 8.5 \text{ times}$$

* \$5,000,000 bonds payable \times 8%

$$\text{b.} \quad \frac{\text{Number of Times Preferred Dividends Are Earned}}{\text{Preferred Dividends}} = \frac{\text{Net Income}}{\text{Preferred Dividends}}$$

$$\frac{\$1,800,000^*}{\$200,000^{**}} = 9.0 \text{ times}$$

* \$3,000,000 income before income tax $-$ \$1,200,000 income taxes

** $(\$2,500,000 \div \$50 \text{ par value per share}) \times \4

$$\text{c.} \quad \frac{\text{Earnings per Share on Common Stock}}{\text{Common Stock Outstanding}} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Common Stock Outstanding}}$$

$$\frac{\$1,800,000 - \$200,000}{500,000 \text{ shares}} = \$3.20$$

$$\text{d.} \quad \frac{\text{Price-Earnings Ratio}}{\text{Earnings per Share}} = \frac{\text{Market Price per Share of Common Stock}}{\text{Earnings per Share}}$$

$$\frac{\$32.00}{\$3.20} = 10.0$$

$$\text{e.} \quad \frac{\text{Dividends per Share of Common Stock}}{\text{Shares of Common Stock Outstanding}} = \frac{\text{Dividends on Common Stock}}{\text{Shares of Common Stock Outstanding}}$$

$$\frac{\$1,200,000}{500,000 \text{ shares}^*} = \$2.40$$

* $\$5,000,000 \div \$10 \text{ par value per share}$

$$\text{f.} \quad \frac{\text{Dividend Yield}}{\text{Market Price per Share of Common Stock}} = \frac{\text{Dividends per Share of Common Stock}}{\text{Market Price per Share of Common Stock}}$$

$$\frac{\$2.40}{\$32.00} = 7.5\%$$

Ex. 14-21 (MAN)

a.
$$\text{Earnings per Share} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Shares of Common Stock Outstanding}}$$

$$\frac{\$1,750,000 - \$250,000^*}{500,000^{**} \text{ shares}} = \$3.00$$

* $(\$2,500,000 \div \$40) \times \$4$

** $\$10,000,000 \div \20

b.
$$\text{Price-Earnings Ratio} = \frac{\text{Market Price per Share of Common Stock}}{\text{Earnings per Share of Common Stock}}$$

$$\frac{\$45.00}{\$3.00} = 15.0$$

c.
$$\text{Dividends per Share} = \frac{\text{Common Dividends}}{\text{Shares of Common Stock Outstanding}}$$

$$\frac{\$1,125,000}{500,000 \text{ shares}} = \$2.25$$

d.
$$\text{Dividend Yield} = \frac{\text{Dividends per Share of Common Stock}}{\text{Market Price per Share of Common Stock}}$$

$$\frac{\$2.25}{\$45.00} = 5.0\%$$

Ex. 14–22 (MAN)

$$\text{a. Price-Earnings Ratio} = \frac{\text{Market Price per Share of Common Stock}}{\text{Earnings per Share}}$$

$$\text{Deere \& Co.: } \frac{\$86.20}{\$8.71} = 9.9$$

$$\text{Google: } \frac{\$873.32}{\$36.75} = 23.8$$

$$\text{The Coca-Cola Company: } \frac{\$39.79}{\$1.97} = 20.2$$

$$\text{Dividend Yield} = \frac{\text{Dividends per Share of Common Stock}}{\text{Market Price per Share of Common Stock}}$$

$$\text{Deere \& Co.: } \frac{\$2.04}{\$86.20} = 2.4\%$$

$$\text{Google: } \frac{\$0.00}{\$873.32} = 0.0\%$$

$$\text{The Coca-Cola Company: } \frac{\$1.02}{\$39.79} = 2.6\%$$

- b. Coca-Cola has a large dividend yield and a high price-earnings ratio. Stock market participants value Coca-Cola common stock on the basis of both its dividend and its potential share price appreciation. Google pays no dividend and, thus, has no dividend yield. However, Google has the largest price-earnings ratio of the three companies. Stock market participants are expecting a return on their investment from appreciation in the stock price. Deere & Co. has the lowest price-earnings ratio. Deere & Co. has a solid dividend, producing a yield of 2.4%. Deere & Co. is expected to produce shareholder returns through a combination of some share price appreciation and a moderate dividend. However, the market does not expect the same share price appreciation they expect from Coca-Cola.**

Ex. 14–23 (MAN)

a. Earnings per share on income before extraordinary items:

Net income.....	\$4,000,000
Less gain on condemnation.....	(800,000)
Plus loss from flood damage.....	<u>400,000</u>
Income before extraordinary items.....	<u>\$3,600,000</u>

$$\text{Earnings Before Extraordinary Items per Share on Common Stock} = \frac{\text{Income Before Extraordinary Items} - \text{Preferred Dividends}}{\text{Shares of Common Stock Outstanding}}$$

$$\frac{\$3,600,000 - \$200,000^{*}}{500,000 \text{ shares}} = \$6.80 \text{ per share}$$

* 100,000 shares × \$2.00 per share

b.
$$\text{Earnings per Share on Common Stock} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Shares of Common Stock Outstanding}}$$

$$\frac{\$4,000,000 - \$200,000}{500,000 \text{ shares}} = \$7.60 \text{ per share}$$

Ex. 14–24 (MAN)

- | | |
|-------|-------|
| a. NR | e. NR |
| b. E | f. NR |
| c. E | g. NR |
| d. NR | |

Ex. 14–25 (MAN)

a.

APEX, INC.	
Partial Income Statement	
For the Year Ended December 31, 20—	
Income from continuing operations before income tax	\$1,000,000
Income tax expense*	400,000
Income from continuing operations	\$ 600,000
Loss on discontinued operations	240,000
Income before extraordinary item	\$ 360,000
Extraordinary item:	
Loss due to hurricane	140,000
Net income	\$ 220,000

* \$1,000,000 × 40%

b.

APEX, INC.	
Partial Income Statement	
For the Year Ended December 31, 20—	
Earnings per common share:	
Income from continuing operations	\$30.00 ¹
Loss from discontinued operations	12.00 ²
Income before extraordinary item	\$18.00
Extraordinary item:	
Loss due to hurricane	7.00 ³
Net income	\$11.00

¹ \$30.00 = \$600,000 ÷ 20,000² \$12.00 = \$240,000 ÷ 20,000³ \$7.00 = \$140,000 ÷ 20,000

Ex. 14–26 (MAN)

- a. Colston Company reported this item correctly in the financial statements. This item is an error in the recognition, measurement, or presentation in the financial statements, which is correctly handled by retroactively restating prior-period earnings.
- b. Colston Company did not report this item correctly. This item is a change from one generally accepted accounting principle to another, which is correctly handled by retroactively restating prior-period earnings. In this case, Colston reports this change cumulatively in the current period, which is incorrect.

PROBLEMS

Prob. 14–1A (MAN)

1.

CLAPTON COMPANY				
Comparative Income Statement				
For the Years Ended December 31, 2016 and 2015				
	2016	2015	Increase (Decrease)	
			Amount	Percent
Sales	\$6,750,000	\$6,000,000	\$ 750,000	12.5%
Cost of goods sold	2,480,000	2,000,000	480,000	24.0%
Gross profit	\$4,270,000	\$4,000,000	\$ 270,000	6.8%
Selling expenses	1,260,000	1,000,000	260,000	26.0%
Administrative expenses	625,000	500,000	125,000	25.0%
Total operating expenses	\$1,885,000	\$1,500,000	\$ 385,000	25.7%
Income from operations	\$2,385,000	2,500,000	\$(115,000)	(4.6%)
Other income	110,000	100,000	10,000	10.0%
Income before income tax	\$2,495,000	\$2,600,000	\$(105,000)	(4.0%)
Income tax expense	60,000	50,000	10,000	20.0%
Net income	\$2,435,000	\$2,550,000	\$(115,000)	(4.5%)

2. Net income has declined from 2015 to 2016. Sales have increased by 12.5%; however, the cost of goods sold has increased by 24.0%, causing the gross profit to increase at a slower pace than sales. In addition, total operating expenses have increased at a faster rate than sales (25.7% increase vs. 12.5% sales increase). Increases in costs and expenses that are higher than the increase in sales have caused the net income to decline by 4.5%.

Prob. 14-2A (MAN)

1.

INDIGO COMPANY				
Comparative Income Statement				
For the Years Ended December 31, 2016 and 2015				
	2016		2015	
	Amount	Percent	Amount	Percent
Sales	\$820,000	100.0%	\$600,000	100.0%
Cost of goods sold	311,600	38.0%	240,000	40.0%
Gross profit	\$508,400	62.0%	\$360,000	60.0%
Selling expenses	164,000	20.0%	108,000	18.0%
Administrative expenses	57,400	7.0%	54,000	9.0%
Total operating expenses	\$221,400	27.0%	\$162,000	27.0%
Income from operations	\$287,000	35.0%	\$198,000	33.0%
Other income	65,600	8.0%	48,000	8.0%
Income before income tax	\$352,600	43.0%	\$246,000	41.0%
Income tax expense	246,000	30.0%	180,000	30.0%
Net income	\$106,600	13.0%	\$ 66,000	11.0%

2. The vertical analysis indicates that the costs other than selling expenses (cost of goods sold and administrative expenses) improved as a percentage of sales. As a result, net income as a percentage of sales increased from 11.0% to 13.0%. The sales promotion campaign appears to have been successful. While selling expenses as a percent of sales increased slightly (2.0%), the increased cost was more than made up for by increased sales.

Prob. 14–3A (MAN)

1. a. **Working Capital = Current Assets – Current Liabilities**

$$\$1,650,000 - \$750,000 = \$900,000$$

b. **Current Ratio = $\frac{\text{Current Assets}}{\text{Current Liabilities}}$**

$$\frac{\$1,650,000}{\$750,000} = 2.2$$

c. **Quick Ratio = $\frac{\text{Quick Assets}}{\text{Current Liabilities}}$**

$$\frac{\$412,500 + \$187,500 + \$300,000}{\$750,000} = 1.2$$

2.

Transaction	Working Capital	Current Ratio	Quick Ratio	Supporting Data		
				Current Assets	Quick Assets	Current Liabilities
a.	\$ 900,000	2.2	1.2	\$1,650,000	\$ 900,000	\$750,000
b.	900,000	2.4	1.2	1,525,000	775,000	625,000
c.	900,000	2.0	1.0	1,760,000	900,000	860,000
d.	900,000	2.4	1.2	1,550,000	800,000	650,000
e.	750,000	1.8	1.0	1,650,000	900,000	900,000
f.	900,000	2.2	1.2	1,650,000	900,000	750,000
g.	1,125,000	2.5	1.5	1,875,000	1,125,000	750,000
h.	900,000	2.2	1.2	1,650,000	900,000	750,000
i.	1,500,000	3.0	2.0	2,250,000	1,500,000	750,000
j.	900,000	2.2	1.2	1,650,000	890,000	750,000

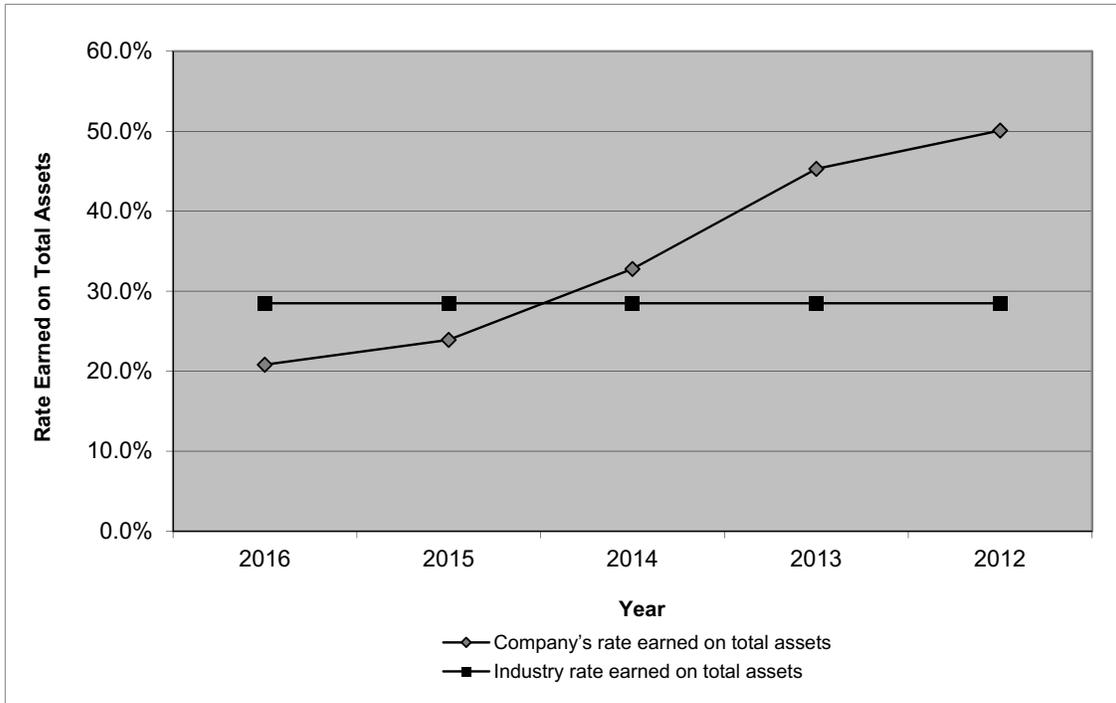
Prob. 14-4A (MAN)

1. Working Capital: $\$1,100,000 - \$440,000 = \$660,000$

Ratio	Numerator	Denominator	Calculated Value
2. Current ratio	\$1,100,000	\$440,000	2.5
3. Quick ratio	\$880,000	\$440,000	2.0
4. Accounts receivable turnover	\$1,200,000	$(\$130,000 + \$110,000) \div 2$	10.0
5. Number of days' sales in receivables	$(\$130,000 + \$110,000) \div 2$	$\$1,200,000 \div 365$	36.5
6. Inventory turnover	\$500,000	$(\$67,000 + \$58,000) \div 2$	8.0
7. Number of days' sales in inventory	$(\$67,000 + \$58,000) \div 2$	$\$500,000 \div 365$	45.6
8. Ratio of fixed assets to long-term liabilities	\$1,320,000	\$1,100,000	1.2
9. Ratio of liabilities to stockholders' equity	\$1,540,000	\$3,230,000	0.5
10. Number of times interest charges are earned	$\$380,000 + \$66,000$	\$66,000	6.8
11. Number of times preferred dividends are earned	\$300,000	\$15,000	20.0
12. Ratio of sales to assets	\$1,200,000	$(\$2,420,000 + \$2,155,000) \div 2$	0.5 or 52.5%
13. Rate earned on total assets	$\$300,000 + \$66,000$	$(\$4,770,000 + \$4,355,000) \div 2$	8.0%
14. Rate earned on stockholders' equity	\$300,000	$(\$3,230,000 + \$2,955,000) \div 2$	9.7%
15. Rate earned on common stockholders' equity	$\$300,000 - \$15,000$	$(\$3,030,000 + \$2,755,000) \div 2$	9.9%
16. Earnings per share on common stock	$\$300,000 - \$15,000$	10,000	\$28.50
17. Price-earnings ratio	71.25	28.50	2.5
18. Dividends per share of common stock	\$10,000	10,000	\$1.00
19. Dividend yield	\$1.00	\$71.25	1.4%

Prob. 14-5A (MAN)

1. a.



$$\text{Rate Earned on Total Assets} = \frac{\text{Net Income} + \text{Interest Expense}}{\text{Average Total Assets}}$$

$$2016: \frac{\$889,453}{\$4,270,764} = 20.8\%$$

$$2013: \frac{\$1,379,000}{\$3,044,250} = 45.3\%$$

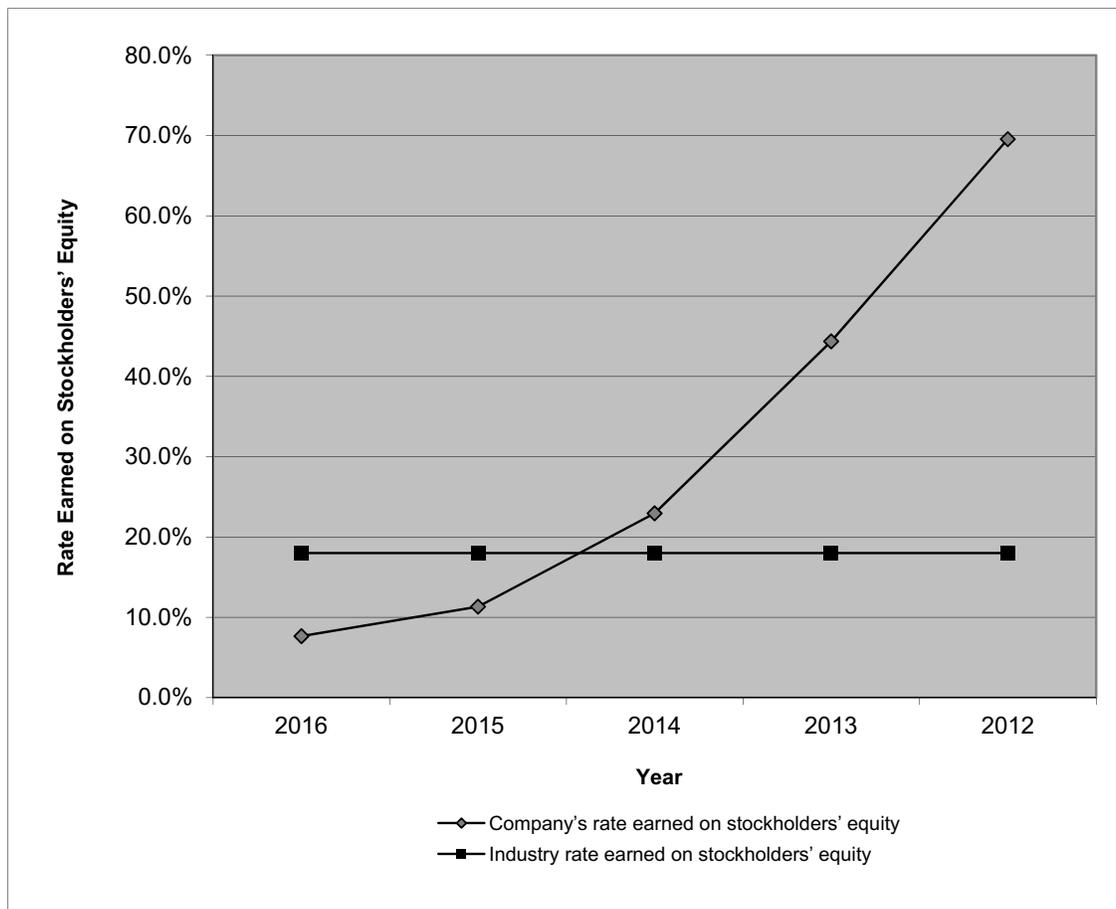
$$2015: \frac{\$939,979}{\$3,928,396} = 23.9\%$$

$$2012: \frac{\$1,240,000}{\$2,475,000} = 50.1\%$$

$$2014: \frac{\$1,159,341}{\$3,535,472} = 32.8\%$$

Prob. 14–5A (MAN) (Continued)

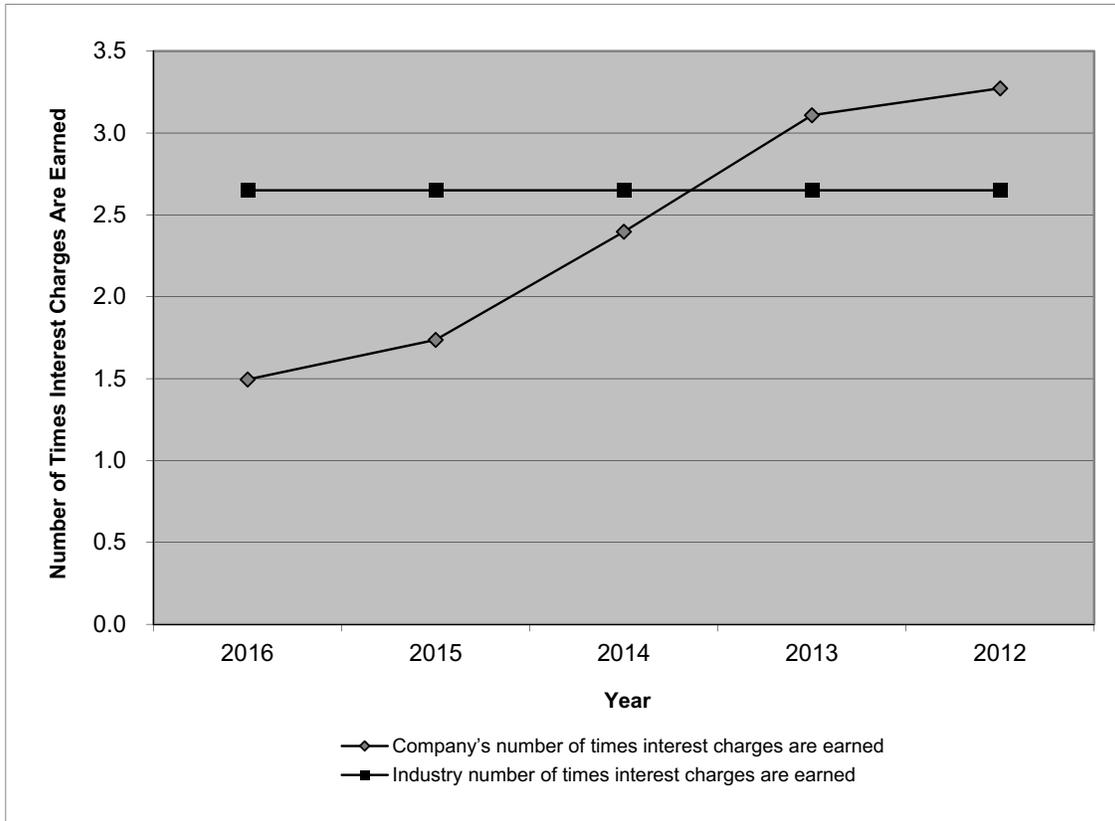
1. b.



	=	Net Income
Rate Earned on Stockholders' Equity		Average Total Stockholders' Equity
<p>2016: $\frac{\\$273,406}{\\$3,569,855} = 7.7\%$</p> <p>2015: $\frac{\\$367,976}{\\$3,249,164} = 11.3\%$</p> <p>2014: $\frac{\\$631,176}{\\$2,749,588} = 23.0\%$</p>		<p>2013: $\frac{\\$884,000}{\\$1,992,000} = 44.4\%$</p> <p>2012: $\frac{\\$800,000}{\\$1,150,000} = 69.6\%$</p>

Prob. 14–5A (MAN) (Continued)

1. c.



$$\text{Number of Times Interest Charges Are Earned} = \frac{\text{Net Income} + \text{Income Tax Expense} + \text{Interest Expense}}{\text{Interest Expense}}$$

$$2016: \frac{\$921,202}{\$616,047} = 1.5$$

$$2013: \frac{\$1,539,000}{\$495,000} = 3.1$$

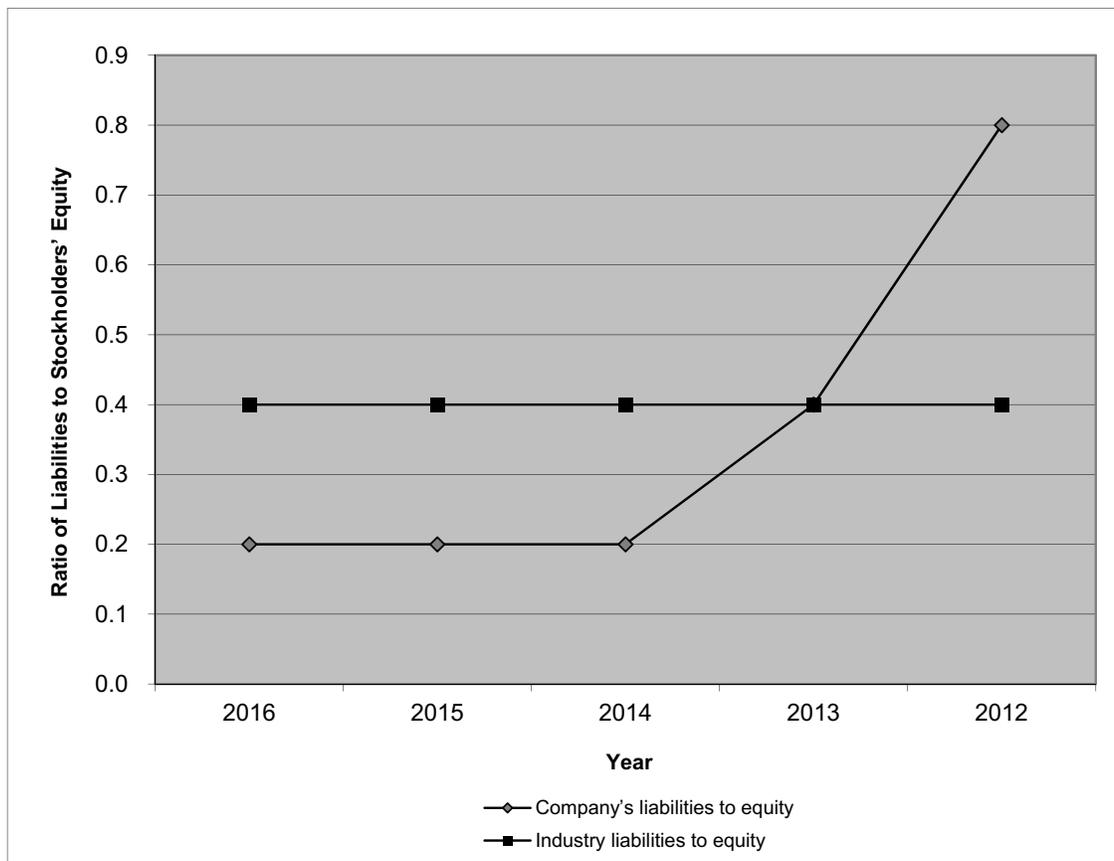
$$2015: \frac{\$993,539}{\$572,003} = 1.7$$

$$2012: \frac{\$1,440,000}{\$440,000} = 3.3$$

$$2014: \frac{\$1,266,061}{\$528,165} = 2.4$$

Prob. 14–5A (MAN) (Continued)

1. d.



$$\text{Ratio of Liabilities to Stockholders' Equity} = \frac{\text{Total Liabilities}}{\text{Total Stockholders' Equity}}$$

$$2016: \frac{\$710,621}{\$3,706,557} = 0.2$$

$$2013: \frac{\$904,500}{\$2,434,000} = 0.4$$

$$2015: \frac{\$691,198}{\$3,433,152} = 0.2$$

$$2012: \frac{\$1,200,000}{\$1,550,000} = 0.8$$

$$2014: \frac{\$667,267}{\$3,065,176} = 0.2$$

Note: The total liabilities are the difference between the total assets and total stockholders' equity ending balances.

Prob. 14–5A (MAN) (Concluded)

- 2. Both the rate earned on total assets and the rate earned on stockholders' equity have been moving in a negative direction in the last five years. Both measures have moved below the industry average over the last two years. The cause of this decline is driven by a rapid decline in earnings. The use of debt can be seen from the ratio of liabilities to stockholders' equity. The ratio has declined over the time period and has declined below the industry average. Thus, the level of debt relative to the stockholders' equity has gradually improved over the five years. The number of times interest charges were earned has been falling below the industry average for several years. This is the result of low profitability combined with high interest costs. The number of times interest is earned has fallen to a dangerously low level in 2016.**

Prob. 14-1B (MAN)

1.

MACKLIN INC.				
Comparative Income Statement				
For the Years Ended December 31, 2016 and 2015				
	2016	2015	Increase (Decrease)	
			Amount	Percent
Sales	\$910,000	\$700,000	\$210,000	30.0%
Cost of goods sold	441,000	350,000	91,000	26.0%
Gross profit	\$469,000	\$350,000	\$119,000	34.0%
Selling expenses	139,150	115,000	24,150	21.0%
Administrative expenses	99,450	85,000	14,450	17.0%
Total operating expenses	\$238,600	\$200,000	\$ 38,600	19.3%
Income from operations	\$230,400	\$150,000	\$ 80,400	53.6%
Other income	65,000	50,000	15,000	30.0%
Income before income tax	\$295,400	\$200,000	\$ 95,400	47.7%
Income tax expense	65,000	50,000	15,000	30.0%
Net income	\$230,400	\$150,000	\$ 80,400	53.6%

2. The profitability has significantly improved from 2015 to 2016. Sales have increased by 30% over the 2015 base year. However, the cost of goods sold, selling expenses, and administrative expenses grew at a slower rate. Increasing sales combined with costs that increase at a slower rate results in strong earnings growth. In this case, net income grew 53.6% over the base year.

Prob. 14–2B (MAN)

1.

FIELDER INDUSTRIES INC.				
Comparative Income Statement				
For the Years Ended December 31, 2016 and 2015				
	2016		2015	
	Amount	Percent	Amount	Percent
Sales	\$1,300,000	100.0%	\$1,180,000	100.0%
Cost of goods sold	682,500	52.5%	613,600	52.0%
Gross profit	\$ 617,500	47.5%	\$ 566,400	48.0%
Selling expenses	260,000	20.0%	188,800	16.0%
Administrative expenses	169,000	13.0%	177,000	15.0%
Total operating expenses	\$ 429,000	33.0%	\$ 365,800	31.0%
Income from operations	\$ 188,500	14.5%	\$ 200,600	17.0%
Other income	78,000	6.0%	70,800	6.0%
Income before income tax	\$ 266,500	20.5%	\$ 271,400	23.0%
Income tax expense	117,000	9.0%	106,200	9.0%
Net income	\$ 149,500	11.5%	\$ 165,200	14.0%

2. The net income as a percent of sales has declined. All the costs and expenses, other than selling expenses, have maintained their approximate cost as a percent of sales relationship between 2015 and 2016. Selling expenses as a percent of sales, however, have grown from 16.0% to 20.0% of sales. Apparently, the new advertising campaign has not been successful. The increased expense has not produced sufficient sales to maintain relative profitability. Thus, selling expenses as a percent of sales have increased.

Prob. 14–3B (MAN)

1. a. **Working Capital = Current Assets – Current Liabilities**

$$\$3,200,000 - \$2,000,000 = \$1,200,000$$

b. **Current Ratio = $\frac{\text{Current Assets}}{\text{Current Liabilities}}$**

$$\frac{\$3,200,000}{\$2,000,000} = 1.6$$

c. **Quick Ratio = $\frac{\text{Quick Assets}}{\text{Current Liabilities}}$**

$$\frac{\$800,000 + \$550,000 + \$850,000}{\$2,000,000} = 1.1$$

2.

Transaction	Working Capital	Current Ratio	Quick Ratio	Supporting Data		
				Current Assets	Quick Assets	Current Liabilities
a.	\$1,200,000	1.6	1.1	\$3,200,000	\$2,200,000	\$2,000,000
b.	1,200,000	1.7	1.1	2,912,500	1,912,500	1,712,500
c.	1,200,000	1.5	0.9	3,600,000	2,200,000	2,400,000
d.	1,200,000	1.6	1.1	3,075,000	2,075,000	1,875,000
e.	875,000	1.4	0.9	3,200,000	2,200,000	2,325,000
f.	1,200,000	1.6	1.1	3,200,000	2,200,000	2,000,000
g.	2,200,000	2.1	1.6	4,200,000	3,200,000	2,000,000
h.	1,200,000	1.6	1.1	3,200,000	2,200,000	2,000,000
i.	3,200,000	2.6	2.1	5,200,000	4,200,000	2,000,000
j.	1,200,000	1.6	1.0	3,200,000	2,000,000	2,000,000

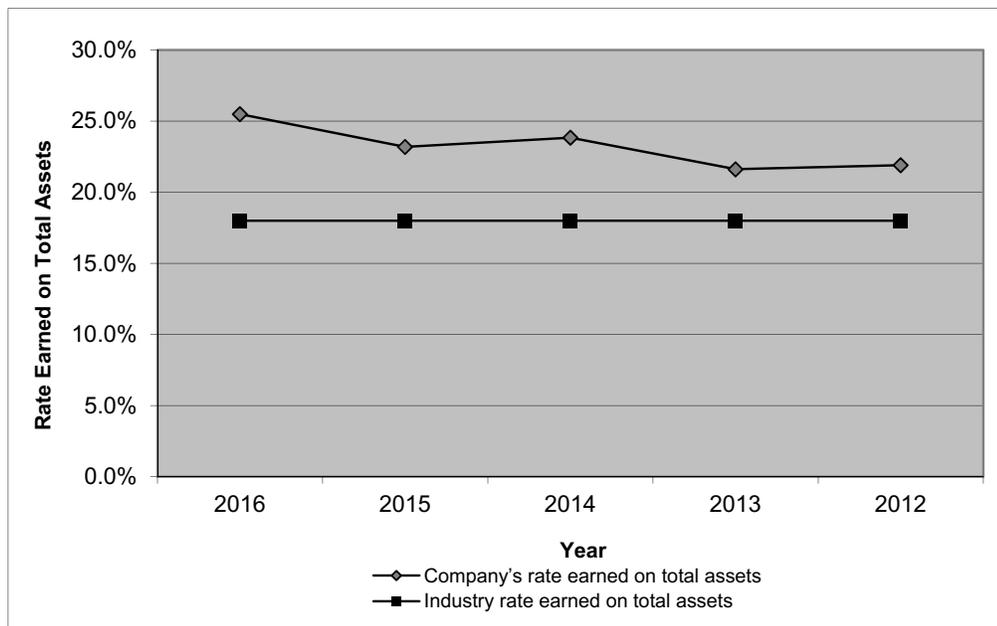
Prob. 14-4B (MAN)

1. Working Capital: $\$3,690,000 - \$900,000 = \$2,790,000$

Ratio	Numerator	Denominator	Calculated Value
2. Current ratio	\$3,690,000	\$900,000	4.1
3. Quick ratio	\$2,250,000	\$900,000	2.5
4. Accounts receivable turnover	\$10,000,000	$(\$740,000 + \$510,000) \div 2$	16.0
5. Number of days' sales in receivables	$(\$740,000 + \$510,000) \div 2$	$\$10,000,000 \div 365$	22.8
6. Inventory turnover	\$5,350,000	$(\$1,190,000 + \$950,000) \div 2$	5.0
7. Number of days' sales in inventory	$(\$1,190,000 + \$950,000) \div 2$	$\$5,350,000 \div 365$	73.0
8. Ratio of fixed assets to long-term liabilities	\$3,740,000	\$1,700,000	2.2
9. Ratio of liabilities to stockholders' equity	\$2,600,000	\$7,180,000	0.4
10. Number of times interest charges are earned	$\$1,130,000 + \$170,000$	\$170,000	7.6
11. Number of times preferred dividends are earned	\$900,000	\$45,000	20.0
12. Ratio of sales to assets	10,000,000	$(\$7,430,000 + \$6,455,000) \div 2$	1.4
13. Rate earned on total assets	$\$900,000 + \$170,000$	$(\$9,780,000 + \$8,755,000) \div 2$	11.5%
14. Rate earned on stockholders' equity	\$900,000	$(\$7,180,000 + \$6,375,000) \div 2$	13.3%
15. Rate earned on common stockholders' equity	$\$900,000 - \$45,000$	$(\$6,680,000 + \$5,875,000) \div 2$	13.6%
16. Earnings per share on common stock	$\$900,000 - \$45,000$	100,000	\$8.55
17. Price-earnings ratio	119.70	8.55	14.0
18. Dividends per share of common stock	\$50,000	100,000	\$0.50
19. Dividend yield	\$0.50	\$119.70	0.4%

Prob. 14-5B (MAN)

1. a.



$$\text{Rate Earned on Total Assets} = \frac{\text{Net Income} + \text{Interest Expense}}{\text{Average Total Assets}}$$

$$2016: \frac{\$6,623,780}{\$25,988,665} = 25.5\%$$

$$2013: \frac{\$2,458,000}{\$11,370,240} = 21.6\%$$

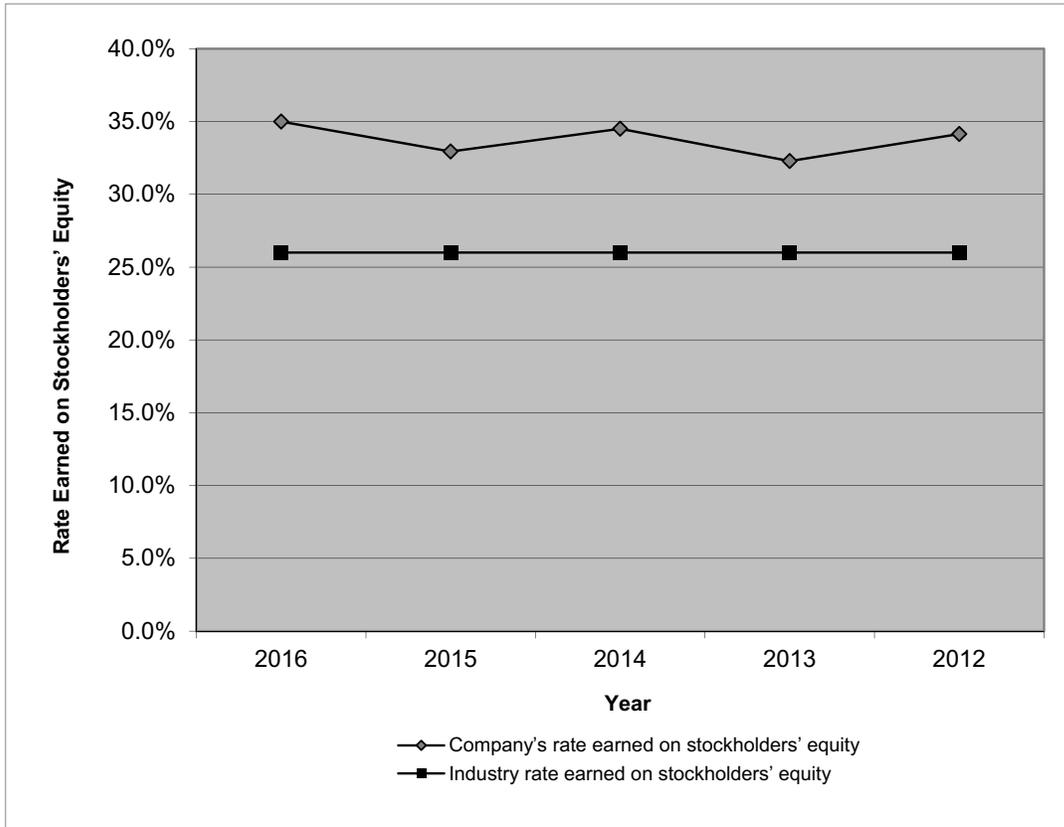
$$2015: \frac{\$4,606,056}{\$19,859,586} = 23.2\%$$

$$2012: \frac{\$1,900,000}{\$8,676,000} = 21.9\%$$

$$2014: \frac{\$3,540,600}{\$14,854,406} = 23.8\%$$

Prob. 14–5B (MAN) (Continued)

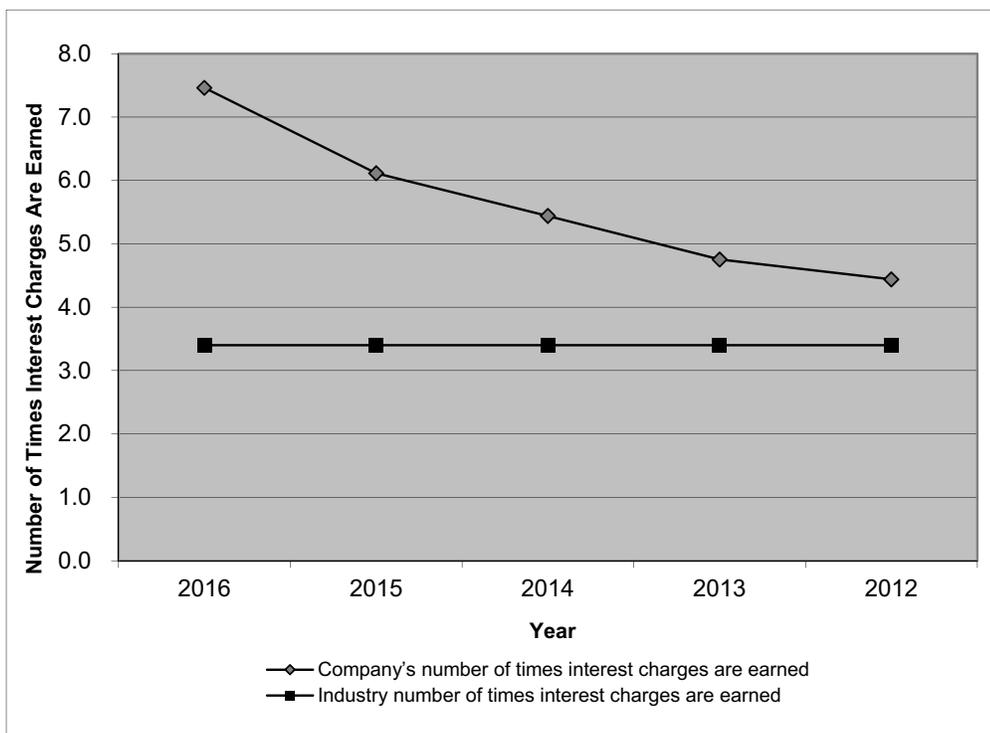
1. b.



Rate Earned on Stockholders' Equity	=	Net Income Average Total Stockholders' Equity
<p>2016: $\frac{\\$5,571,720}{\\$15,920,340} = 35.0\%$</p> <p>2015: $\frac{\\$3,714,480}{\\$11,277,240} = 32.9\%$</p> <p>2014: $\frac{\\$2,772,000}{\\$8,034,000} = 34.5\%$</p>		<p>2013: $\frac{\\$1,848,000}{\\$5,724,000} = 32.3\%$</p> <p>2012: $\frac{\\$1,400,000}{\\$4,100,000} = 34.1\%$</p>

Prob. 14-5B (MAN) (Continued)

1. c.

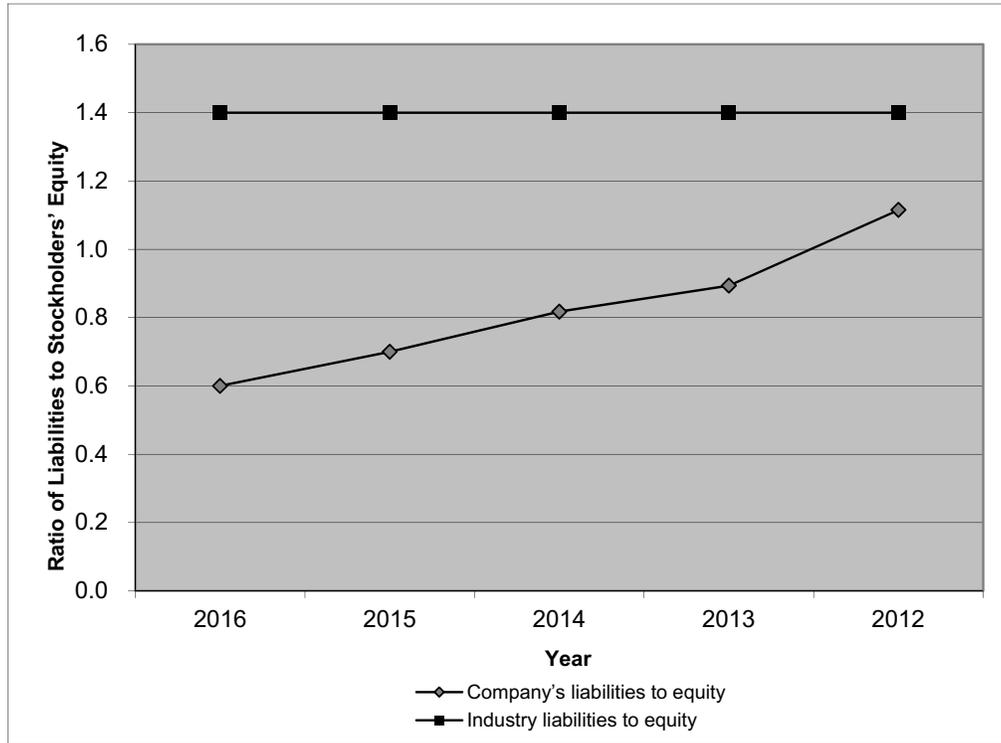


$$\text{Number of Times Interest Charges Are Earned} = \frac{\text{Net Income} + \text{Income Tax Expense} + \text{Interest Expense}}{\text{Interest Expense}}$$

2016:	$\frac{\$7,849,352}{\$1,052,060} = 7.5$	2013:	$\frac{\$2,899,600}{\$610,000} = 4.8$
2015:	$\frac{\$5,451,278}{\$891,576} = 6.1$	2012:	$\frac{\$2,220,000}{\$500,000} = 4.4$
2014:	$\frac{\$4,180,920}{\$768,600} = 5.4$		

Prob. 14–5B (MAN) (Continued)

1. d.



$$\text{Ratio of Liabilities to Stockholders' Equity} = \frac{\text{Total Liabilities}}{\text{Total Stockholders' Equity}}$$

$$2016: \frac{\$10,672,291}{\$18,706,200} = 0.6$$

$$2013: \frac{\$5,940,480}{\$6,648,000} = 0.9$$

$$2015: \frac{\$9,464,359}{\$13,134,480} = 0.7$$

$$2012: \frac{\$5,352,000}{\$4,800,000} = 1.1$$

$$2014: \frac{\$7,700,333}{\$9,420,000} = 0.8$$

Note: Total liabilities are determined by subtracting stockholders' equity (ending balance) from the total assets (ending balance).

Prob. 14–5B (MAN) (Concluded)

- 2. Both the rate earned on total assets and the rate earned on stockholders' equity are above the industry average for all five years. The rate earned on total assets is actually improving gradually. The rate earned on stockholders' equity exceeds the rate earned on total assets, providing evidence of the positive use of leverage. The company is clearly growing earnings as fast as the asset and equity base. In addition, the ratio of liabilities to stockholders' equity indicates that the proportion of debt to stockholders' equity has been declining over the period. The firm is adding to debt at a slower rate than the assets are growing from earnings. The number of times interest charges were earned is improving during this time period. Again, the firm is increasing earnings faster than the increase in interest charges. Overall, these ratios indicate excellent financial performance coupled with appropriate use of debt (leverage).**

NIKE, INC., PROBLEM

	Fiscal 2012	Fiscal 2011
1. a. Total current assets.....	\$13,626.0	\$11,845.0
Total current liabilities.....	<u>3,926.0</u>	<u>3,882.0</u>
Working capital.....	<u>\$ 9,700.0</u>	<u>\$ 7,963.0</u>
b. Total current assets.....	\$13,626.0	\$11,845.0
÷ Total current liabilities.....	<u>3,926.0</u>	<u>3,882.0</u>
Current ratio.....	<u>3.5</u>	<u>3.1</u>
c. Cash.....	\$ 3,337.0	\$ 2,317.0
Short-term investments.....	2,628.0	1,440.0
Accounts receivable.....	<u>3,117.0</u>	<u>3,132.0</u>
Total quick assets.....	\$ 9,082.0	\$ 6,889.0
÷ Total current liabilities.....	<u>3,926.0</u>	<u>3,882.0</u>
Quick ratio.....	<u>2.3</u>	<u>1.8</u>
d. Sales.....	<u>\$25,313.0</u>	<u>\$23,331.0</u>
Accounts receivable (net):		
Beginning of year.....	\$ 3,132.0	\$ 3,138.0
End of year.....	<u>3,117.0</u>	<u>3,132.0</u>
Total.....	\$ 6,249.0	\$ 6,270.0
Average (Total ÷ 2).....	<u>3,124.5</u>	<u>3,135.0</u>
Accounts receivable turnover (Sales ÷ Average accounts receivable).....	<u>8.1</u>	<u>7.4</u>
e. Accounts receivable (average):		
Sales.....	\$25,313.0	\$23,331.0
Average daily sales (Sales ÷ 365).....	<u>69.4</u>	<u>63.9</u>
Number of days' sales in receivables.....	<u>45.0</u>	<u>49.0</u>
f. Cost of goods sold.....	<u>\$14,279.0</u>	<u>\$13,183.0</u>
Inventories:		
Beginning of year.....	\$ 3,222.0	\$ 2,715.0
End of year.....	<u>3,434.0</u>	<u>3,222.0</u>
Total.....	\$ 6,656.0	\$ 5,937.0
Average (Total ÷ 2).....	<u>3,328.0</u>	<u>2,968.5</u>
Inventory turnover (Cost of goods sold ÷ Average inventory).....	<u>4.3</u>	<u>4.4</u>

NIKE, INC., PROBLEM (Continued)

	Fiscal 2012	Fiscal 2011
g. Inventory (average).....	\$ 3,328.0	\$ 2,968.5
Cost of goods sold.....	14,279.0	13,183.0
Average daily cost of goods sold.....	<u>39.1</u>	<u>36.1</u>
Number of days' sales in inventory (Average inventory ÷ Average daily cost of goods sold).....	<u>85.1</u>	<u>82.2</u>
h. Total liabilities.....	\$ 6,428.0	\$ 5,084.0
÷ Total stockholders' equity.....	<u>11,156.0</u>	<u>10,381.0</u>
Ratio of liabilities to stockholders' equity.....	<u>0.6</u>	<u>0.5</u>
i. Sales.....	<u>\$25,313.0</u>	<u>\$23,331.0</u>
Total assets (excluding long-term investments):		
Beginning of year.....	\$15,465.0	\$14,998.0
End of year.....	<u>17,584.0</u>	<u>15,465.0</u>
Total.....	\$33,049.0	\$30,463.0
Average total assets.....	<u>16,524.5</u>	<u>15,231.5</u>
Ratio of sales to assets.....	<u>1.5</u>	<u>1.5</u>
j. Net income.....	\$ 2,485.0	\$ 2,223.0
Plus interest expense*.....	<u>23.0</u>	<u>31.0</u>
Total.....	<u>\$ 2,508.0</u>	<u>\$ 2,254.0</u>
Total assets:		
Beginning of year.....	\$15,465.0	\$14,998.0
End of year.....	<u>17,584.0</u>	<u>15,465.0</u>
Total.....	\$33,049.0	\$30,463.0
Average total assets.....	<u>16,524.5</u>	<u>15,231.5</u>
Rate earned on total assets [(Net income + Interest expense) ÷ Average total assets].....	<u>15.2%</u>	<u>14.8%</u>
*See Nike Note 6.		
k. Net income.....	<u>\$ 2,485.0</u>	<u>\$ 2,223.0</u>
Stockholders' equity:		
Beginning of year.....	\$10,381.0	\$ 9,843.0
End of year.....	<u>11,156.0</u>	<u>10,381.0</u>
Total.....	\$21,537.0	\$20,224.0
Average common stockholders' equity.....	<u>10,768.5</u>	<u>10,112.0</u>
Rate earned on common stockholders' equity.....	<u>23.1%</u>	<u>22.0%</u>
l. Market price per share of common stock.....	\$61.66	\$53.10
Earnings per share on common stock.....	<u>2.77</u>	<u>2.42</u>
Price-earnings ratio.....	<u>22.3</u>	<u>21.9</u>

NIKE, INC., PROBLEM (Concluded)

	<u>Fiscal 2012</u>	<u>Fiscal 2011</u>
m. Net income.....	\$ 2,485.0	\$ 2,223.0
Sales.....	<u>25,313.0</u>	<u>23,331.0</u>
Net income to sales.....	<u>\$ 9.8%</u>	<u>\$ 9.5%</u>

2. Before reaching definitive conclusions, each measure should be compared with past years, industry averages, and similar firms in the industry.
- a. The working capital increased significantly between 2011 and 2012.
 - b. and c. The current and quick ratios both increased significantly during 2012.
 - d. and e. The accounts receivable turnover and the number of days' sales in receivables indicate an increase in the efficiency of collecting accounts receivable. The accounts receivable turnover increased from 7.4 to 8.1. The number of days' sales in receivables decreased slightly from 49.0 to 45.0. Thus, it takes the company less than two months to collect its accounts receivable from credit sales. These numbers should be compared to their competitors, industry averages, and Nike's credit policy to draw definitive conclusions.
 - f. and g. The results of these two analyses show a very slight decrease in inventory turnover and an increase in the number of days' sales in inventory. Both trends are small. Inventory management is critical to Nike, so this indicates a favorable trend.
 - h. The margin of protection to creditors remained decreased slightly. Overall, Nike provides sound protection to its creditors.
 - i. These analyses indicate that the effectiveness in the use of assets to generate revenues was very similar in both years.
 - j. The rate earned on total assets increased during 2012. This increase was due to Nike's strong earnings performance in 2012 relative to 2011. Overall, rates earned on assets that exceed 10% are usually considered good performance.
 - k. The rate earned on common stockholders' equity increased. This increase was due to Nike's strong earnings performance in 2012 relative to 2011.
 - l. The price-earnings ratio increased somewhat from 2011 to 2012. This increase was driven by an increase in Nike's earnings per share (from \$2.42 in fiscal 2011 to \$2.77 in fiscal 2012) combined with a sizable increase in stock price during the same period.
 - m. The percent of net income to sales improved during 2012 as Nike's growth in earnings outpaced its growth in sales.

CASES & PROJECTS**CP 14–1 (MAN)**

This position does not allow the shareholders to take advantage of leverage. As a result, the return on shareholders' equity cannot be improved by using debt. In contrast, a low or no debt load does provide the company great flexibility in the case of a national calamity. However, the "no debt" position only makes sense within the "national calamity" scenario. Within normal business operations, most companies can assume some debt without much loss of flexibility or control. Freeman Industries is competing against companies that will not be so inclined to avoid debt. As a result, they will likely be able to grow faster than Freeman Industries. The Freeman Industries management should consider the risk of not being able to keep up with the competition because of their conservative financing policies.

CP 14–2 (MAN)

Josh is concerned about the inventory and accounts receivable levels because he must determine their value. Inventory that cannot be sold (or sold at a large discount) or accounts receivable that cannot be collected must be written down to reflect their reduced value. Josh has conducted the ratio analysis and interviewed Aaron to help make this determination. The inventory and accounts receivable levels have grown alarmingly. Aaron's response to Josh is not reassuring. The inventory represents obsolete technology that is left over after the holiday season. The accounts receivable have apparently grown from loosening the credit standards. Josh may need to insist on write-downs of the inventory and accounts receivable balances to reflect their net realizable values. Aaron is correct in pointing out that the current ratio has probably improved. Thus, although Aaron calls this "good," it is only such if the current assets in the numerator are fairly valued. Under these circumstances, the current ratio is probably overstated because the inventory and accounts receivable balances are inflated relative to their net realizable values.

CP 14–3 (MAN)

DELL INC. AND APPLE INC.		
Common-Sized Statements		
	Dell Inc.	Apple Inc.
Sales	100.0%	100.0%
Cost of sales	78.6%	56.1%
Gross profit	21.4%	43.9%
Operating expenses:		
Selling, general, and administrative	14.2%	6.4%
Research and development	1.9%	2.2%
Total operating expenses	16.1%	8.6% *
Income from operations	5.3%	35.3%

* Rounded to the nearest tenth of a percent.

The common-sized analysis indicates that Dell and Apple are very different computer companies. Dell's income from operations was 5.3% of sales, while Apple's was 35.3% of sales. There is a 30 percentage point difference between the two companies. What explains this difference? The gross profit for Dell was 21.4% of sales, which is fairly narrow. Apple, in contrast, had a gross profit of 43.9% of sales, which is more than 20% better than Dell's. This suggests that Apple is able to charge higher prices than Dell for its products (assuming that they are both equally efficient in making products). Apple's selling, general, and administrative expenses were at about 6.4% of sales, while Dell's are 14.2% of sales. Apple has larger research expenses as a percent of sales. It attempts to sell a unique array of products to a wide audience. This requires significant research and development. Dell's R&D was 1.9% of sales, while Apple's was 2.2% of sales. Essentially, Dell focuses its R&D effort on the final assembly of computers. Dell relies on its suppliers to develop innovation in the components and operating system software (Microsoft). Apple, on the other hand, must constantly spend R&D on computers, peripherals, and its own operating system software. This is because Apple chooses not to follow the industry standards and thus must pave its own way on both hardware and software. The higher gross profit as a percentage of sales for Apple carries through to its income from operations, generating a significantly higher operating income as a percentage of sales compared to Dell.

CP 14–4 (MAN)

$$\text{a.} \quad \text{Rate Earned on Total Assets} = \frac{\text{Net Income} + \text{Interest Expense}}{\text{Average Total Assets}}$$

$$\text{Year 3: } \frac{\$3,064.7 + \$782.8}{\$52,237} = 7.4\%$$

$$\text{Year 2: } \frac{\$2,799.9 + \$759.4}{\$45,737} = 7.8\%$$

$$\text{Year 1: } \frac{\$1,865.0 + \$811.4}{\$42,200} = 6.3\%$$

$$\text{b.} \quad \text{Rate Earned on Total Stockholders' Equity} = \frac{\text{Net Income}}{\text{Average Total Stockholders' Equity}}$$

$$\text{Year 3: } \frac{\$3,064.7}{\$6,821} = 44.9\%$$

$$\text{Year 2: } \frac{\$2,799.9}{\$6,545} = 42.8\%$$

$$\text{Year 1: } \frac{\$1,865.0}{\$5,555} = 33.6\%$$

$$\text{c.} \quad \text{Earnings per Share} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Shares of Common Stock Outstanding}}$$

$$\text{Year 3: } \frac{\$3,064.7 - \$0}{397} = \$7.72$$

$$\text{Year 2: } \frac{\$2,799.9 - \$0}{417} = \$6.71$$

$$\text{Year 1: } \frac{\$1,865.0 - \$0}{424} = \$4.40$$

CP 14-4 (MAN) (Continued)

$$d. \quad \text{Dividend Yield} = \frac{\text{Dividend per Share of Common Stock}}{\text{Market Price per Share of Common Stock}}$$

$$\text{Year 3: } \frac{\$1.79}{\$79.27} = 2.3\%$$

$$\text{Year 2: } \frac{\$1.52}{\$80.48} = 1.9\%$$

$$\text{Year 1: } \frac{\$1.16}{\$61.18} = 1.9\%$$

$$e. \quad \text{Price-Earnings Ratio} = \frac{\text{Market Price per Share of Common Stock}}{\text{Earnings per Share}}$$

$$\text{Year 3: } \frac{\$79.27}{\$7.72} = 10.3$$

$$\text{Year 2: } \frac{\$80.48}{\$6.71} = 12.0$$

$$\text{Year 1: } \frac{\$61.18}{\$4.40} = 13.9$$

$$2. \quad \text{Ratio of Average Liabilities to Average Stockholders' Equity} = \frac{\text{Average Liabilities}}{\text{Average Stockholders' Equity}}$$

$$\text{Year 3: } \frac{\$52,237 - \$6,821}{\$6,821} = 6.7$$

$$\text{Year 2: } \frac{\$45,737 - \$6,545}{\$6,545} = 6.0$$

$$\text{Year 1: } \frac{\$42,200 - \$5,555}{\$5,555} = 6.6$$

CP 14–4 (MAN) (Concluded)

- 3. Deere & Co.'s profitability, as measured by earnings per share, has improved significantly during the three-year period presented. The rates earned on total assets and total stockholders' equity have also improved significantly during this period. This is most likely due to the significant improvement in the overall economy, as well as in the construction industry, which improved during Year 2. The rebound in these metrics during the period can be attributed to improved capital equipment spending and to a jump in commodity prices that fueled increases in the sales of farm equipment. The dividend yield increased significantly in Year 3 due to a large increase in the cash dividend. The price-earnings ratio has deteriorated during this three year period as the share price has increased at a faster pace than earnings.**

CP 14–5 (MAN)

$$1. \quad a. \quad \text{Rate Earned on Total Assets} = \frac{\text{Net Income} + \text{Interest Expense}}{\text{Average Total Assets}}$$

$$\text{Marriott: } \frac{\$458 + \$180}{\$8,458} = 7.5\%$$

$$\text{Hyatt: } \frac{\$66 + \$54}{\$7,199} = 1.7\%$$

$$b. \quad \text{Rate Earned on Stockholders' Equity} = \frac{\text{Net Income}}{\text{Average Total Stockholders' Equity}}$$

$$\text{Marriott: } \frac{\$458}{\$1,364} = 33.6\%$$

$$\text{Hyatt: } \frac{\$66}{\$5,067} = 1.3\%$$

$$c. \quad \text{Number of Times Interest Charges Are Earned} = \frac{\text{Income Before Income Tax} + \text{Interest Expense}}{\text{Interest Expense}}$$

$$\text{Marriott: } \frac{\$551 + \$180}{\$180} = 4.1$$

$$\text{Hyatt: } \frac{\$103 + \$54}{\$54} = 2.9$$

$$d. \quad \text{Ratio of Liabilities to Stockholders' Equity} = \frac{\text{Total Liabilities}}{\text{Total Stockholders' Equity}}$$

$$\text{Marriott: } \frac{\$7,398}{\$1,585} = 4.7$$

$$\text{Hyatt: } \frac{\$2,125}{\$5,118} = 0.4$$

Summary Table:

	Marriott	Hyatt
Rate earned on total assets	7.5%	1.7%
Rate earned on stockholders' equity	33.6%	1.3%
Number of times interest charges are earned	4.1	2.9
Ratio of liabilities to stockholders' equity	4.7	0.4

CP 14–5 (MAN) (Concluded)

- 2. Marriott has a higher rate earned on total assets (7.5% vs. 1.7%), and a higher rate on stockholders' equity (33.6% vs. 1.3%), compared to Hyatt. Hyatt's weaker performance relative to Marriott appears to be due to its weak earnings relative to its debt level. Hyatt has less leverage than Marriott. This is confirmed by the the ratio of liabilities to stockholders' equity, which shows the relative debt held by Marriott is 4.7 times stockholders' equity, compared to 0.4 time for Hyatt. The number of times interest charges are earned shows that Marriott covers its interest charges 4.1 times. The comparable number for Hyatt is 2.9, which is marginally sufficient. Hyatt is not covering the interest expense on its debt as well as Marriott, which is negatively affecting the rate earned on total assets and stockholders' equity. In summary, Hyatt's weak earnings and low debt levels are affecting the company's ability to earn returns for stockholders.**

