CFIN 5th edition Besley Solutions Manual

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Chapter 2 Solutions

2-1 Publically-traded companies are required to provide adequate financial information to their shareholders. Information generally is provided through financial reports that a company periodically produces, which include a balance sheet, an income statement, a statement of cash flows, and a statement of retained earnings. In addition, the reports published by a company contain discussions of the firm's operations, both present and forecasted.

2-2 (a) The balance sheet shows, at a particular point in time, the amount the firm has invested in assets and how much of those investments are financed with loans (liabilities) and how much are financed with equity (stock). (b) The income statement shows the revenues (sales) that the firm generated during a particular period and the expenses that were incurred during that same period, whether those expense were incurred as the result of normal operations or as the result of how the firm is financed. (c) The statement of cash flows shows how the firm generated cash (inflows) and how the firm used cash (outflows) during a particular accounting period. If the firm uses more cash than it generates through normal operations, it is deficit spending, and deficit spending must be financed with external funds (either stocks or debt).

2-3 The most important aspect of ratio analysis is the judgment used when interpreting the results to reach conclusions concerning a firm's current financial position and the direction in which the firm is headed in the future. The analyst should be aware of, and include in the interpretation, the fact that: (1) large firms with many different divisions are difficult to categorize in a single industry; (2) financial statements are reported at historical costs; (3) seasonal factors can distort the ratios; (4) some firms try to "window dress" their financial statements to look good; (5) firms use different accounting procedures to compute inventory values, depreciation, and so on; (6) there might not exist a single value that can be used for comparing firms' ratios (e.g., a current ratio of 2.0 might not be good for some firms); and (7) conclusions concerning the overall financial position of a firm should be based on a representative number of ratios, not a single ratio.

2-4 Shares issued = 100,000 Price per share = $7 Par value per share = $3

Common stock at par = $300,000 = $3 x 100,000

Paid-in capital = $400,000 = ($7 - $3) x 100,000 = $700,000 - $300,000

2-5 Net cash flow = Net income + Depreciation = $90,000 + $25,000 = $115,000

2-6 The income statement for HighTech Wireless with the information that is given in the problem:

Sales	?	
Operating expenses, excluding depreciation	$(500,000)	
Depreciation	(100,000)	
EBIT	?	
Interest	0	(HighTech has no debt)
Earnings before taxes (EBT)	?	
Taxes (40%)	?	
Net income (NI)	$240,000	

Starting with net income and working up the income statement to solve for sales, we have the following computations:

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1. NI = EBT(1 – 0.4)

   $$\text{Thus, EBT} = \frac{\text{Net income}}{1 - \text{Tax rate}} = \frac{\$240{,}000}{1 - 0.40} = \$400{,}000$$

   Taxes = $400,000 - $240,000 = $160,000

2. EBIT = EBT + Interest = $400,000 + 0 = $400,000

3. Sales = EBIT + Operating expenses, excluding depreciation + Depreciation

   = $400,000 + $500,000 + $100,000 = $1,000,000

   To show that this is the correct result, let's start with sales equal to $1,000,000 and compute the net income:

Sales	$1,000,000
Operating expenses, excluding depreciation	(500,000)
Depreciation	(100,000)
EBIT	400,000
Interest	0
Earnings before taxes (EBT)	400,000
Taxes (40%)	(160,000)
Net income	$240,000

Net cash flow = Net income + Depreciation = $240,000 + $100,000 = $340,000

2-7 a. $$\text{Current ratio} = 3.5 = \frac{\text{Current assets}}{\text{Current liabilities}} = \frac{\$73{,}500}{\text{Current liabilities}}$$

$$\text{Current liabilities} = \frac{\$73{,}500}{3.5} = \$21{,}000$$

b. $$\text{Quick ratio} = 3.0 = \frac{\text{Current assets - Inventory}}{\text{Current liabilities}} = \frac{\$73{,}500 - \text{Inventory}}{\$21{,}000}$$

Inventory = $73,500 – 3.0($21,000) = $10,500

2-8 a. $$\text{Total assets turnover} = \frac{\text{Sales}}{\text{Total assets}} = \frac{\text{Sales}}{\$150{,}000} = 2.0$$

Sales = 2.0($150,000) = $300,000

b. $$\text{Return on assets} = \frac{\text{Net income}}{\text{Total assets}} = \frac{\text{Net income}}{\$150{,}000} = 0.06$$

Net income = 0.06($150,000) = $9,000

$$\text{Net profit margin} = \frac{\text{Net income}}{\text{Sales}} = \frac{\$9{,}000}{\$300{,}000} = 0.03 = 3.0\%$$

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2-9 a. $\text{ROA} = \frac{\text{Net income}}{\text{Total assets}} = \frac{\text{Net income}}{\$300{,}000} = 0.05$

Net income = 0.05($300,000) = $15,000

b. $\text{Return on equity} = \frac{\text{Net income}}{\text{Common equity}} = \frac{\$15{,}000}{\$300{,}000 - \$200{,}000} = 0.15 = 15.0\%$

<u>Alternative solution:</u>

$$\text{Return on equity} = \frac{\text{Net income}}{\text{Common equity}} = \text{ROA} \times \frac{\text{Total assets}}{\text{Common equity}}$$

$$= 0.05 \times \frac{\$300{,}000}{\$300{,}000 - \$200{,}000} = 0.05 \times 3.0 = 0.15 = 15.0\%$$

2-10 a. Debt ratio = 40%

$$\begin{matrix}\text{Proportion of firm} \\ \text{financed with common stock}\end{matrix} = 1 - 0.40 = 0.6 = 60\% = \frac{\text{Common equity}}{\text{Total assets}} = \frac{\text{Common equity}}{\$750{,}000}$$

Common equity = $750,000(0.6) = $450,000

b. $$\text{ROA} = \frac{\text{Net income}}{\text{Total assets}} = \frac{\text{Sales}}{\text{Total assets}} \times \frac{\text{Net income}}{\text{Sales}}$$

$$0.06 = 3.0 \times \frac{\text{Net income}}{\text{Sales}}$$

$$\frac{\text{Net income}}{\text{Sales}} = \frac{0.06}{3.0} = 0.02 = 2.0\% = \text{Net profit margin}$$

<u>Alternative solution:</u>

$$\begin{matrix}\text{Total assets} \\ \text{turnover}\end{matrix} = \frac{\text{Sales}}{\text{Total assets}} = \frac{\text{Sales}}{\$750{,}000} = 3.0$$

Sales =3($750,000)=$2,250,000

$$\text{ROA} = \frac{\text{Net income}}{\text{Total assets}} = \frac{\text{Net income}}{\$750{,}000} = 0.06$$

Net income = 0.06($750,000) = $45,000

$$\begin{matrix}\text{Net profit} \\ \text{margin}\end{matrix} = \frac{\text{Net income}}{\text{Sales}} = \frac{\$45{,}000}{\$2{,}250{,}000} = 0.02 = 2.0\%$$

2-11 a. $\text{Total assets turnover} = \frac{\text{Sales}}{\text{Total assets}} = \frac{\text{Sales}}{\$10{,}000} = 2.5$

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Sales = 2.5($10,000) = $25,000

b. $\text{Return on assets} = \frac{\text{Net income}}{\text{Total assets}} = \frac{\text{Net income}}{\$10,000} = 0.04$

Net income = 0.04($10,000) = $400

$\text{Net profit margin} = \frac{\text{Net income}}{\text{Sales}} = \frac{\$400}{\$25,000} = 0.016 = 1.6\%$

<u>Alternative solution:</u>

$\text{Return on assets} = \frac{\text{Sales}}{\text{Total assets}} \times \frac{\text{Net income}}{\text{Sales}}$

$= 2.5 \times \frac{\text{Net income}}{\text{Sales}} = 0.04$

$\frac{\text{Net income}}{\text{Sales}} = \frac{0.04}{2.5} = 0.016 = 1.6\% = \text{Net profit margin}$

2-12 (1) $\text{Current ratio: } \frac{\text{Current assets}}{\text{Current liabilities}} = 5.0\times = \frac{\$340,000}{\text{Current liabilities}}$

Current liabilities = $340,000/5.0 = $68,000

(2) $\text{Quick ratio: } \frac{\text{Current assets-Inventories}}{\text{Current liabilities}} = 1.8\times = \frac{\$340,000 - \text{Inventories}}{\$68,000}$

Inventories = $340,000 – 1.8($68,000) = $217,600

(3) Current assets = (Cash & Equivalents) + Accounts receivable + Inventories

$340,000 = $43,000 + Accounts receivable + $217,600

Accounts receivable = $340,000 - $43,000 - $217,600 = $79,400

(4) $\text{Inventory turnover: } \frac{\text{Cost of goods sold}}{\text{Inventory}} = 7.0\times = \frac{\text{CGS}}{\$217,600}$

CGS = 7($217,600) = $1,523,200

(5) CGS = 0.80 (Sales), thus: $\text{Sales} = \frac{\$1,523,300}{0.80} = \$1,904,000$

(6) $\text{DSO} = \frac{\text{Accounts receivable}}{\text{Sales}/360} = \frac{\$79,400}{(\$1,904,000/360)} = 15 \text{ days}$

2-13 a. TIE = EBIT/INT, so find EBIT and INT

Interest = $200,000 x 0.06 = $12,000

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Net income = $540,000 x 0.04 = $21,600

Taxable income (EBT) = $21,600/(1 - T) = $21,600/(1 – 0.4) = $36,000

EBIT = $36,000 + $12,000 = $48,000

TIE = $48,000/$12,000 = 4.0 x

b. For TIE to equal 6.0, EBIT = 6.0($12,000) = $72,000

When EBIT = $72,000, Net income = ($72,000 - $12,000)(1 – 0.40) = $36,000

Because NI = 0.04(Sales), Sales = $36,000/0.04 = $900,000

Check: When Sales = $900,000, NI = $900,000 x 0.04 = $36,000

EBT = $36,000/(1 – 0.40) = $60,000

EBIT = $60,000 + $12,000 = $72,000

TIE = $72,000/$12,000 = 6.0

2-14 We are given: Common equity = $35,000,000 Common shares outstanding = 7,000,000

Market price per share = $8 Net income = $14,000,000

a. EPS = $14,000,000/7,000,000 = $2

P/E ratio = $8/$2 = 4.0

b. Book value per share = $35,000,000/7,000,000 = $5

M/B ratio = $8/$5 = 1.6

2-15 We are given: ROE = 15% TA turnover = Sales/Total assets = 2.0x

Debt Ratio = 60%

a. From DuPont equation: ROE = ROA x Equity multiplier

0.15 = ROA x (Total assets/Common equity)

Recognize that Total assets/Common equity is simply the inverse of the proportion of the firm that is financed with equity. The proportion of the firm that is financed with equity equals 1 – Debt ratio. Thus,

$$0.15 = \text{ROA} \times \left(\frac{1}{1 - \text{Debt ratio}} \right)$$

$$0.15 = \text{ROA} \times \left(\frac{1}{1 - 0.6} \right)$$

ROA = 0.15/2.5 = 0.06 = 6.0%

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b. ROA = (Net profit margin) x (Total assets turnover)

0.06 = Net profit margin x 2.0

Net profit margin = 0.06/2.0 = 0.03 = 3.0%

<u>Alternative solution:</u>

TA turnover = Sales/Total assets = 2.0x, thus Sales = 2.0(Total assets)

ROE = (Net income)/(Common equity) = (Net income)/[(1 – 0.6)(Total assets) = 0.15, thus,

Net income = 0.15(0.4)(Total assets) = 0.06(Total assets)

$$\text{PM} = \frac{\text{Net income}}{\text{Sales}} = \frac{0.06(\text{Total assets})}{2.0(\text{Total assets})} = \frac{0.06}{2.0} = 0.03 = 3.0\%$$

2-16 We are given: ROA = 8% Total assets = $440,000

Debt Ratio = 20%

a. $\text{ROA} = \frac{\text{Net income}}{\text{Total assets}}$ $0.08 = \frac{\text{Net income}}{\$440{,}000}$

Net income = 0.08($440,000) = $35,200

b. From DuPont equation: ROE = ROA x Equity multiplier

$$\text{Equity multiplier} = \frac{\text{Total assets}}{\text{Common equity}} = \frac{1}{1-\text{Debt ratio}} = \frac{1}{1-0.20} = 1.25$$

Thus, ROE = 0.08 x 1.25 = 0.10 = 10.0%

<u>Alternative solution:</u>

Common equity = $440,000(1 – 0.2) = $352,000

$$\text{ROE} = \frac{\text{Net income}}{\text{Common equity}} = \frac{\$35{,}200}{\$352{,}000} = 0.10 = 10.0\%$$

2-17 We are given: ROA = 4% Current assets = $260,000

Net income = $140,000 Long-term debt = $1,755,000

% assets financed with equity = 35%

(1) $\text{ROA} = \frac{\text{Net income}}{\text{Total assets}} = \frac{\$140{,}000}{\text{Total assets}} = 0.04$; Total assets = $140,000/0.04 = $3,500,000

(2) Total liabilities = (Total assets)(Debt ratio) = $3,500,000(1 - 0.35) = $2,275,000

(3) Current liabilities = Total liabilities – Long-term debt = $2,275,000 - $1,755,000 = $520,000

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(4) $\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}} = \frac{\$260,000}{\$520,000} = 0.5$

2-18 We are given: ROA = 3% ROE = 5% Total assets = $100,000

a. $\text{ROA} = \frac{\text{Net income}}{\text{Total assets}} = \frac{\text{Net income}}{\$100,000} = 0.03$; Net income = $100,000(0.03) = $3,000

b. $\text{ROE} = \frac{\text{Net income}}{\text{Common equity}} = \frac{\$3,000}{\text{Common eqiuty}} = 0.05$; CE =$3,000/0.05 = $60,000

$\text{Debt ratio} = \frac{\text{Total liabilities}}{\text{Total assets}} = \frac{\$100,000 - \$60,000}{\$100,000} = 0.40 = 40\%$

2-19 We are given: % assets financed with equity = 60% Current ratio = 5.0

Total assets turnover = 4.0 Current assets = $150,000

Sales = $1,800,000

(1) $\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}} = \frac{\$150,000}{\text{Current liabilities}} = 5.0$

Current liabilities = $150,000/5 = $30,000

(2) $\text{Total assets turnover} = \frac{\text{Sales}}{\text{Total assets}} = \frac{\$1,800,000}{\text{Total assets}} = 4.0$

Total assets = $1,800,000/4.0 = $450,000

(3) Total liabilities = $450,000(1 – 0.60) = $180,000

(4) Long-term liabilities = $180,000 - $30,000 = $150,000

2-20 We are given: P/E ratio = 15.0 Price per share = $30

Fixed assets turnover = 8.0 Current ratio = 5.0

Current liabilities = $300,000 Net profit margin = 0.04

Shares of common = 60,000

(1) $\text{P/E ratio} = \frac{\text{Price per share}}{\text{EPS}} = \frac{\$30}{\text{EPS}} = 15.0$; EPS = $30/15 = $2

Net income = 60,000($2) = $120,000

(2) $\text{Net profit margin} = \frac{\text{Net income}}{\text{Sales}} = \frac{\$120,000}{\text{Sales}} = 0.04$; Sales = $120,000/0.04 = $3,000,000

(3) $\frac{\text{Fixed assets}}{\text{turnover}} = \frac{\text{Sales}}{\text{Net fixed assets}} = \frac{\$3,000,000}{\text{Fixed assets}} = 8.0$; Fixed assets = $3,000,000/8 = $375,000

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(4) $\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}} = \frac{\text{CA}}{\$300{,}000} = 5.0$; Current assets = $300,000(5) = $1,500,000

(5) Total assets = Fixed assets + Current assets = $375,000 + $1,500,000 = $1,875,000

a. $\text{ROA} = \frac{\text{Net income}}{\text{Total assets}} = \frac{\$120{,}000}{\$1{,}875{,}000} = 0.064 = 6.4\%$

b. $\text{Total assets turnover} = \frac{\text{Sales}}{\text{Total assets}} = \frac{\$3{,}000{,}000}{\$1{,}875{,}000} = 1.6$

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ETHICAL DILEMMA

Hocus-Pocus—Look, An Increase in Sales!

Ethical dilemma:

Dynamic Energy Wares (DEW) has decided to change the manner in which it distributes its products to large companies. The change in the distribution system comes at a time when DEW's profits are declining. The declining profits might not be the sole reason for the change, but it appears to be the primary impetus for the decision. It also appears that the new policy requiring DEW's distributors to increase inventory levels before the end of the fiscal year will *artificially* inflate DEW's sales for the current year. However, DEW's new policy does not require the distributors to pay for any increased inventory until next year (six months), and any unsold inventory can be returned after nine months. So, if the demand for DEW's products actually is decreasing, the impact will appear on next year's financial statements. If the financial manager actually intends to artificially inflate DEW's profits this year, she must realize that such actions eventually will "catch up" with her.

Discussion questions:

- *What is the ethical dilemma?*

  Discussion about this question can be fueled by asking some additional questions: Is it unethical for DEW to change its distribution system if the reason is to artificially inflate profits? Would it be unethical if the decision was made for the purposes of eliminating inefficiencies in the distribution process?

- *Should DEW change its distribution system?*

  Most would agree that DEW should not change its distribution system if the intent is simply to artificially inflate earnings in the current period. In fact, empirical studies indicate that such actions are useless if the purpose is to make the company look good to investors, because investors as a whole generally recognize such tactics for what they really are—"smoke screens." On the other hand, if the purpose for the change is to increase inventory efficiency, then it probably is a wise decision. For example, the change should decrease the cost of holding (carrying) inventory because the levels of inventory held by DEW will decrease. If such actions do not adversely affect demand for its products, they should be carried out.

- *What should DEW do?*

  It appears that DEW needs some changes because profits have been declining during the past year. A quick, temporary "fix" is not an appropriate solution—it just delays the inevitable. DEW needs to come up with a solution that will stabilize or improve earnings in the long run. The fact that senior management has decided to form a task force to examine and recommend ways to improve its market share is a step in the right direction. Such action indicates that DEW wants to find a long-run solution to its declining profits.

  Discuss some additional steps (actions) DEW can take to improve its financial position and to remain competitive.

- *Would you go to the distributors' meeting? What should you tell the distributors?*

  If there is no penalty for declining to attend the distributors' meeting, most students would tell you they would prefer to stay home. But, ask them what they would do if their boss, the financial manager, said they had to attend the meeting or lose their well-paying job. Now, you will find that some of the students change their minds.

  Redirect the discussion by asking the students what strategy they would follow if they actually did attend the distributors' meeting. Would they try to mislead the distributors if they believed DEW's decision to change the

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distribution system was made solely for the purpose of artificially increasing profits? What tact would be taken if they believed the decision ultimately would improve inventory efficiency for both DEW and the distributors? How would distributors concerns be handled? The answers to these questions will be varied. But, you probably will find the discussion has an underlying theme—while many believe it is part of the business world, most students will express discomfort with the prospect of having to overtly mislead others.

References:

There have been many reports of firms that have followed a strategy similar to that described in this chapter's ethical dilemma. A couple of classic examples occurred in 1994—one involved Bausch & Lomb, Inc., which is a well-known eyewear company; the other involved PerSeptive Biosystems, which produces instruments used in biotechnology analysis.

In the last quarter of 1993, Bausch & Lomb instituted a change in its distribution system that helped reduce inventories significantly and allowed the company to post a $10 million gain for the quarter. Midway through 1994, however, Bausch & Lomb estimated its distributors had excess inventory equal to $75 million. During the year, the company had to repurchase much of this excess inventory because it could not be sold by the distributors. Because of the poor performance of Bausch & Lomb in 1994, the CEO's performance bonus was cut to zero. Additional information concerning Bausch & Lomb's decision to change its distribution system can be found in the following articles:

"Bausch & Lomb: Clouded Vision," *Financial World*, May 23, 1995, p. 16+.

"Bad Math at Bausch & Lomb?," *Business Week*, December 19, 1994, p. 108+.

"Bausch & Lomb's Myopia," *Forbes*, December 5, 1994, p. 14+.

It was reported that PerSeptive would offer its diagnostic equipment, some of which cost in excess of $50,000, to prospective customers on a trial basis, requiring payment at some later date only if the equipment was found to be desirable. At the time, PerSeptive's management stated the strategy was to increase renewable sales by allowing the market to experience its product firsthand before requiring a purchase commitment. Even though the trial offers were not technically considered sales, in some instances, PerSeptive recorded them as sales and corresponding receivables. For the quarter ending September 30, 1994, PerSeptive posted nearly a $21 million loss because it wrote off a large amount of inventory and had to reduce accounts receivable significantly. Its "free trial" offer did not generate the renewable sales that it hoped. For more information about PerSeptive and this situation, the following articles might be helpful:

"PerSeptive Restates Its Results for Much of Past 2 Fiscal Years," *The Wall Street Journal*, December 28, 1994.

"Biotech Company Is Questioned About 'Try It Out' Sales Strategy," *The Wall Street Journal*, November 8, 1994, p. B1+.

"Enterprise: Tech Concerns Fudge Figures to Buoy Stocks," *The Wall Street Journal*, May 19, 1994, p. B1+.

As you know, there are quite a few examples of "misjudgments" in the applications of accounting practices that have been reported in recent times, including the famous Enron situation. Recent articles that relate these misjudgments include the following:

"Accounting Abracadabra: Cooking the Books Proves Common Trick of the Trade," *USA Today*, August 11, 1998, p. 1B.

"More Second-Guessing: Markets Need Better Disclosure of Earnings Management," *Barron's*, August 24, 1998, p. 47.

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"SEC Probes Telxon's Accounting Practices, Unusual Securities Trading," Dow Jones Business News, February 22, 1999.

"Rite Aid Restates Year Net Downward, Reversing Some Accounting Maneuvers," *The Wall Street Journal*, June 2, 1999, p. A3.

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Chapter 2

Ethical Dilemma

Hocus-Pocus—Look, An Increase in Sales!

Dynamic Energy Wares (DEW) manufactures and distributes products that are used to save energy and to help reduce and reverse the harmful environmental effects of atmospheric pollutants. DEW relies on a relatively complex distribution system to get the products to its customers. Large companies, which account for nearly 30% of the firm's total sales, purchase directly from DEW. Smaller companies and retailers that sell to individuals are required to make their purchases from one of the 50 independent distributors that are contractually obligated to exclusively sell DEW's products.

DEW'S accountants have just finished the firm's financial statements for the third quarter of the fiscal year, which ended 3 weeks ago. The results are terrible. Profits are down 30% from this time last year, when a downturn in sales began. Profits are depressed primarily because DEW continues to lose market share to a competitor that entered the field nearly 2 years ago.

Senior management has decided it needs to take action to boost sales in the fourth quarter so that year-end profits will be "more acceptable." Starting immediately, DEW will (1) eliminate all direct sales, which means that large companies must purchase products from DEW's distributors, just as the smaller companies and retailers do; (2) require distributors to maintain certain minimum inventory levels, which are much higher than previous levels; and (3) form a task force to study and propose ways that the firm can recapture its lost market share.

The financial manager, who is your boss, has asked you to attend a hastily called meeting of DEW's distributors to announce the implementation of these operational changes. At the meeting, the distributors will be informed that they must increase inventory to the required minimum level before the end of DEW's current fiscal year or face losing the distributorship. According to your boss, the reason for this requirement is to ensure that distributors can meet the increased demand they will face when the large companies are no longer permitted to purchase directly from DEW. The sales forecast you have been developing over the past few months, however, indicates that distributors' sales are expected to decline by almost 10% during the next year. As a consequence, the added inventories might be extremely burdensome to the distributors. When you approached your boss to discuss this potential problem, she said, "Tell the distributors not to worry! We won't require payment for six months, and any additional inventory that remains unsold after nine months can be returned. But they must take delivery of the inventory within the next two months."

It appears that the actions implemented by DEW will produce favorable year-end sales results for the current fiscal year. Do you agree with the decisions made by DEW's senior

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management? Will you be comfortable announcing the changes to DEW's distributors? How would you respond to a distributor who says, "DEW doesn't care about us. The company just wants to look good no matter who gets hurt—that's unethical"? What will you say to your boss? Will you attend the distributors' meeting?

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CFIN5 - CHAPTER 2

Integrative Problem

Donna Jamison was recently hired as a financial analyst by Computron Industries, a manufacturer of electronic components. Her first task was to conduct a financial analysis of the firm covering the last two years. To begin, she gathered the following financial statements and other data.

Balance Sheets	**2015**	**2016**
Assets		
Cash	$ 52,000	$ 57,600
Accounts receivable	402,000	351,200
Inventories	836,000	715,200
Total current assets	$1,290,000	$1,124,000
Gross fixed assets	527,000	491,000
Less accumulated depreciation	166,200	146,200
Net fixed assets	$ 360,800	$ 344,800
Total assets	$1,650,800	$1,468,800
Liabilities and Equity		
Accounts payable	$ 175,200	$ 145,600
Notes payable	225,000	200,000
Accruals	140,000	136,000
Total current liabilities	$ 540,200	$ 481,600
Long-term debt	424,612	323,432
Common stock (100,000 shares)	460,000	460,000
Retained earnings	225,988	203,768
Total equity	$ 685,988	$ 663,768
Total liabilities and equity	$1,650,800	$1,468,800

(*continued*)

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Income Statements	2016	2015
Sales	$3,850,000	$3,432,000
Cost of goods sold	(3,250,000)	(2,864,000)
Other expenses	(430,300)	(340,000)
Depreciation	(20,000)	(18,900)
Total operating costs	$3,700,300	$3,222,900
EBIT	$ 149,700	$ 209,100
Interest expense	(76,000)	(62,500)
EBT	$ 73,700	$ 146,600
Taxes (40%)	(29,480)	(58,640)
Net income	$ 44,220	$ 87,960
EPS	$0.442	$0.880

Statement of Cash Flows (2016)		
Operating Activities		
Net income	$ 44,220	
Other additions (sources o f cash)		
Depreciation	20,000	
Increase in accounts payable	29,600	
Increase in accruals	4,000	
Subtractions (uses of cash)		
Increases in accounts receivable	(50,800)	
Increase in inventories	(120,800)	
Net cash flow from operations		$(73,780)
Long-Term Investing Activities		
Investment in fixed assets		$(36,000)
Financing Activities		
Increase in notes payable	$ 25,000	
Increase in long-term debt	101,180	
Payment of cash dividends	(22,000)	
Net cash flow from financing		$104,180
Net reduction in cash account		$(5,600)
Cash at beginning of year		57,600
Cash at end of year		$ 52,000

(*continued*)

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Other Data	2016	2015
December 31 stock price	$6.00	$8.50
Number of shares	100,000	100,000
Dividends per share	$ 0.22	$0.22
Lease payments	$40,000	$40,000

Industry average data for 2016:

Ratio	Industry Average
Current	2.7x
Quick	1.0x
Inventory turnover	6.0x
Days sales outstanding (DSO)	32.0 days
Fixed assets turnover	10.7x
Total assets turnover	2.6x
Debt ratio	50.0%
TIE	2.5x
Fixed charge coverage	2.1x
Net profit margin	3.5%
ROA	9.1 %
ROE	18.2%
Price/earnings	14.2x
Market/book	1.4x

Assume that you are Donna Jamison's assistant and that she has asked you to help her prepare a report that evaluates the company's financial condition. Answer the following questions:

a. What can you conclude about the company's financial condition from its statement of cash flows?

b. What is the purpose of financial ratio analysis, and what are the five major categories of ratios?

c. What are Computron's current and quick ratios? What do they tell you about the company's liquidity position?

d. What is Computron's inventory turnover, day's sales outstanding, fixed assets turnover and total assets turnover ratios? How does the firm's utilization of assets stack up against that of the industry?

e. What are the firm's debt, times-interest-earned, and fixed charge coverage ratios? How does Computron compare to the industry with respect to financial leverage? What conclusions can you draw from these ratios?

f. Calculate and discuss the firm's profitability ratios—that is, its net profit margin, return on assets (ROA),

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and return on equity (ROE).

g. Calculate Computron's market value ratios—that is, its price/earnings ratio and its market/book ratio. What do these ratios tell you about investors' opinions of the company?

h. Use the DuPont equation to provide a summary and overview of Computron's financial condition. What are the firm's major strengths and weaknesses?

i. Use the following simplified 2016 balance sheet to show, in general terms, how an improvement in one of the ratios—say, the DSO—would affect the stock price. For example, if the company could improve its collection procedures and thereby lower the DSO from 38.1 days to 27.8 days, how would that change "ripple through" the financial statements (shown in thousands below) and influence the stock price?

Accounts receivable	$ 402	Debt	$ 965
Other current assets	888		
Net fixed assets	361	Equity	686
Total assets	$1,651	Total liabilities and equity	$1,651

j. Although financial statement analysis can provide useful information about a company's operations and its financial condition, this type of analysis does have some potential problems and limitations, and it must be used with care and judgment. What are some problems and limitations?

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CFIN5 - CHAPTER 2

INTEGRATIVE PROBLEM SOLUTIONS

a. Begin by reviewing briefly what balance sheets and income statements are. Then give an overview of the statement of cash flows. Explain that some data (net income, depreciation, and dividends) come from the income statement, while the other items reflect differences between balance sheet accounts and thus show changes in those accounts between the two dates.

The cash flow statement highlights some important aspects of Computron's financial condition. First, note that the firm's net operating cash flow is -$73,780, so its operations are draining cash despite the positive net income reported on the income statement. Second, because of its negative cash flow from operations, Computron had to borrow a total of $126,180 in long- and short-term debt to cover its operating cash outlays, to pay for fixed asset additions, and to pay dividends. Even after all this borrowing, Computron's cash account still fell by $5,600 during 2016.

b. Financial ratios are used to get an idea about the future financial condition of a firm by determining how well the company is being operated and where it needs improving. The ratio categories, and their purposes, are as follows:

1. Liquidity: Can the company make required payments in the short run (defined as the next year)?
2. Asset management: Are the investments in assets about right in view of sales levels?
3. Debt management (financing mix): Does the company have about the right amount of debt, or is it over leveraged?
4. Profitability: Are costs under good control as reflected in the profit margin, ROE, and ROE?
5. Market values: Do investors like what they see as reflected in the P/E and M/B ratios?

c. Computron has $540,200 in obligations that must be satisfied within the coming year. Will it have trouble meeting its required payments? A full liquidity analysis requires a cash budget, but these two ratios provide quick, easy-to-use measures of liquidity:

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}} = \frac{\$1{,}290{,}000}{\$540{,}200} = 2.39\times$$

$$\text{Quick ratio} = \frac{\text{Current assets - Inventories}}{\text{Current liabilities}} = \frac{\$1{,}290{,}000 - \$836{,}000}{\$540{,}200} = 0.84\times$$

	2016	2015	Industry
Current ratio	2.4x	2.3x	2.7x
Quick ratio	0.8x	0.8x	1.0x

Computron's current and quick ratios have both held steady from 2015 to 2016, but they are slightly below the industry average. With a 2016 current ratio of 2.4, Computron could liquidate assets at only 1/2.4 = 0.42 = 42% of book value and still pay off current creditors in full. In general, inventories are the least liquid of a firm's current assets, and they are the assets on which losses are most likely to occur in the event of a forced sale. Computron's quick ratio of 0.8 indicates that even if receivables can be collected in full, the firm would still need to raise some cash from the sale of inventories to meet its current claims.

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d. $$\text{Inventory Turnover} = \frac{\text{Cost of goods sold}}{\text{Inventories}} = \frac{\$3,250,000}{\$836,000} = 3.9\times$$

	2016	2015	Industry
Inventory turnover	3.9x	4.0x	5.8x

As a rough approximation, each item of Computron's inventories was sold and then restocked, or "turned over," 3.9 times during 2016. This compares poorly with the industry average of 6.0 times, and the downward trend from 2015 is also worrisome. This analysis raises the question of whether Computron is holding excess inventories (relative to its sales level), and also whether any of its inventories is old and obsolete, hence worth less than its stated value. A problem arises in calculating and analyzing inventory turnover. Sales occur throughout the year, but the inventory figure is for one point in time. If a firm's sales are highly seasonal, or are experiencing a strong trend, it would be preferable to use an average inventory amount. An average monthly figure would be best, but (beginning of year + end of year)/2 is better than a point value because it at least adjusts for sales trends. For Computron, 2016 average inventories = ($715,200 + $836,000)/2 = $775,600, so average inventory turnover for 2016 = $3,250,000/$775,600 = 4.2x.

$$\text{DSO} = \frac{\text{Accounts receivable}}{\left[\frac{\text{Sales}}{360}\right]} = \frac{\$402,000}{\left[\frac{\$3,850,000}{360}\right]} = 37.6 \text{ days}$$

	2016	2015	Industry
DSO	37.6 days	36.8 days	32.0 days

The days sales outstanding (DSO) represents the average length of time that the firm must wait after making a sale before it receives cash. Computron's DSO is above the industry average and is trending higher, so it looks bad.

The DSO can also be compared with the firm's credit terms. To illustrate, if Computron's sales terms called for payment within 30 days, then a 37.6-day DSO would indicate that some customers are taking well in excess of the 30-day limit, because some presumably are paying on time, by the 30th day. Note that, as with inventories, an average figure for receivables would be better than the end-of-year amount.

$$\text{Fixed assets turnover} = \frac{\text{Sales}}{\text{Net fixed assets}} = \frac{\$3,850,000}{\$360,800} = 10.67\times$$

$$\text{Total assets turnover} = \frac{\text{Sales}}{\text{Total assets}} = \frac{\$3,850,000}{\$1,650,800} = 2.33\times$$

	2016	2015	INDUSTRY
Fixed assets turnover	10.7x	10.0x	10.7x
Total assets turnover	2.3x	2.3x	2.6x

Computron's fixed assets turnover ratio has improved from 2015 to 2016 to reach the industry average, but its total assets turnover ratio has remained relatively constant at a level just below the industry average. Thus, the company is utilizing its fixed assets at the industry average level, but its total assets turnover is below average. As indicated earlier, Computron might have excess inventories and receivables, and this would

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lower the total assets turnover relative to the fixed assets turnover. (Note again that average values of fixed and total assets would provide a better indication of the assets actually used to generate sales for the year.)

e. $$\text{Debt ratio} = \frac{\text{Total debt}}{\text{Total assets}} = \frac{\$540,200 + \$424,600}{\$1,650,800} = 58.4\%$$

$$\text{TIE} = \frac{\text{EBIT}}{\text{Interest expense}} = \frac{\$149,700}{\$76,000} = 1.97\times$$

$$\begin{matrix}\text{Fixed charge}\\ \text{coverage}\end{matrix} = \text{FCC} = \frac{\text{EBIT} + \text{Lease payment}}{\text{Interest expense} + \text{Lease payments} + \dfrac{\text{Sinking fund payment}}{(1 - T)}}$$

$$= \frac{\$149,700 + \$40,00}{\$76,000 + \$40,000} = 1.6\times$$

	2016	2015	Industry
Debt ratio	58.4%	54.8%	50.0%
TIE	2.0x	3.3x	2.5x
FCC	1.6x	2.4x	2.1x

All three measures reflect the extent of debt usage, but they focus on different aspects. Computron's debt ratio is above the industry average, and the trend is up. Creditors have supplied over one-half the firm's total financing. Computron probably would find it difficult to borrow additional funds at a reasonable cost without first raising more equity capital. Note that another leverage ratio, the debt-to-equity ratio, is also used in practice. Computron's debt-to-equity ratio for 2016 is 1.41, indicating that creditors have contributed $1.41 for each dollar of equity capital.

The tie ratio focuses on the firm's ability to cover its interest payments. In some situations, this is a better measure of debt usage than the debt ratio. For example, a firm might show a high debt ratio, but if its assets are old and largely depreciated, hence shown on the balance sheet at a low value even though the assets are really quite valuable and produce high income and cash flows, then the debt ratio might be overstating the impact of the debt on the firm's riskiness. In Computron's case, however, the 2016 tie is below the industry average and falling, and this, like the debt ratio, indicates high and possibly excessive use of debt.

The fixed charge coverage (FCC) ratio is similar to the tie ratio, but it is more inclusive in that it recognizes that long-term lease contracts also represent fixed, contractual payments. Computron's 2016 FCC ratio is also below the industry average, and it is falling. Again, this points out that Computron uses substantially more fixed charge financing than the average firm in the industry, so it probably would have trouble obtaining additional debt or lease financing. Note also that there are many variations of the coverage ratios, depending on the purpose of the analysis.

f. $$\text{Profit margin} = \frac{\text{Net income}}{\text{Sales}} = \frac{\$44,220}{\$3,850,000} = 1.15\%$$

	2016	2015	Industry
Profit margin	1.1%	2.6%	3.5%

Computron's profit margin is low and falling. This indicates that its sales prices are relatively low, that its costs are relatively high, or both. Note that because we are primarily concerned with the profitability to common

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stockholders, net income available to common stockholders after preferred dividends have been paid is used to calculate profit margin.

$$\text{ROA} = \frac{\text{Net income}}{\text{Total assets}} = \frac{\$44{,}220}{\$1{,}650{,}800} = 2.68\%$$

$$\text{ROE} = \frac{\text{Net income}}{\text{Common equity}} = \frac{\$44{,}220}{\$685{,}988} = 6.44\%$$

	2016	2015	Industry
ROA	2.7%	6.0%	9.1%
ROE	6.4	13.3	18.2

Computron's ROA and ROE are substantially below the industry average, and falling. These are "bottom line" ratios, and because they are poor, one would anticipate that the company's common stock has not been doing very well.

g. $$\text{Price eanrings (P/E) ratio} = \frac{\text{Price per share}}{\text{Earnings per share}} = \frac{\$6.00}{\$0.442} = 13.57\times$$

$$\text{Market/book (M/B) ratio} = \frac{\text{Markert price per share}}{\text{Book value per share}} = \frac{\$6.00}{\$6.86} = 0.87\times$$

	2016	2015	Industry
P/E	13.6x	9.7x	14.2x
M/B	0.9x	1.3x	1.4x

The P/E ratio shows how much investors are willing to pay per dollar of reported profits. At the end of 2016, Computron's stock sold for $6.00 per share; its reported earnings were $44,220/100,000 = $0.44 per share; and the result was a P/E ratio of $6.00/$0.44 = 13.6x. Note that the firm's P/E ratio actually improved from 2015 to 2016, almost reaching the industry average. However, this was not caused by an increase in stock price—the price fell by almost 30%, from $8.50 to $6.00. Rather, the P/E ratio rose because of the 2016 earnings decline—earnings fell by almost 50% from the 2015 level. With earnings normalized (averaged over several years), Computron's P/E ratio would be well below the industry average, indicating that investors view Computron as being riskier and/or as having poorer growth prospects than the average firm in the industry.

The M/B ratio gives another indication of how investors regard the company. Good companies with consistently high rates of return on equity sell at higher multiples of book value than those with low returns. In 2016, Computron had a book value (of equity) per share of $685,988/100,000 = $6.86 and a stock price of $6.00, for an M/B ratio of $6.00/$6.86 = 0.9x. This is well below the 1.4x industry average, which is not surprising given Computron's poor ROE.

h. The DuPont equation provides an overview of (1) a firm's profitability as measured by ROA and ROE, (2) its expense control as measured by the profit margin, and (3) its assets utilization as measured by the total assets turnover, combining these items in the equation shows how the different factors interact to determine ROA and ROE. The data for Computron and the industry are given below.

DuPont	Profit margin	Total assets turnover

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Equation:	(profit/sales)	x	(Sales/TA)	=	ROA
2016:	1.15%	x	2.33	=	2.7%
2015:	2.56	x	2.34	=	6.0
Industry:	3.50	x	2.6	=	9.1

We see that Computron's expense control as reflected in the profit margin is both poor and trending down, and that its total assets utilization is somewhat below average but holding steady. These measures combine to produce an ROA that is very low and falling.

i. Sales per day amount to $3,850,000/360 = $10,694. Accounts receivable are now $402,000, or 37.6 days' sales. If A/R can be reduced to 27.6 days without affecting sales, then the balance sheet item A/R would be $10,694 x 27.6 = $295,154, down $106,846 from the current level. That $106,846 could be used (1) to reduce debt, which would lower interest charges and thus increase profits, (2) to buy back stock, which would lower shares outstanding and thus raise EPS; or (3) to invest in productive assets, which presumably would raise net income. In any event, EPS, hence DPS, should increase.

The change also might improve the risk picture as reflected in the debt ratio (if the $106,846 were used to reduce debt), and it would almost certainly improve the coverage ratios. This would lower the firm's perceived riskiness. All of this would improve the stock price. (Note, however, that reducing accounts receivable by 10 days of sales is not a cost-free action.)

j. Some of the problems and limitations of financial statement analysis are discussed below.

(1) Many large firms operate a number of different divisions in quite different industries, and in such cases it is difficult to develop a meaningful set of industry averages for comparative purposes. This tends to make ratio analysis more useful for small, narrowly-focused firms than for large, multi-divisional ones.

(2) Most firms want to be better than average, so merely attaining average performance is not necessarily good. To achieve high-level performance, it is preferable to target on the industry leaders' ratios.

(3) Inflation distorts firms' balance sheets. Further, because inflation affects both depreciation charges and inventory costs, profits also are affected. Thus, a ratio analysis for one firm over time, or a comparative analysis of firms of different ages, must be interpreted with care and judgment.

(4) Seasonal factors can also distort ratio analysis. For example, the inventory turnover ratio for a food processor will be radically different if the balance sheet figure used for inventories is the one just before versus the one just after the canning season. This problem can be minimized by using monthly averages for inventories when calculating ratios such as turnover.

(5) Firms can employ "window dressing" techniques to make their financial statements look better to credit analysts. To illustrate, a Chicago builder borrowed on a two-year basis on December 29, 2015, held the proceeds of the loan as cash for a few days, and then paid off the loan ahead of time on January 6, 2016. This improved his current and quick ratios, and made his year-end 2015 balance sheet look good. However, the improvement was strictly temporary; a week later the balance sheet was back at the old level.

(6) Different operating and accounting practices can distort comparisons. As noted earlier, inventory valuation and depreciation methods can affect the financial statements and thus distort comparisons among firms that use different accounting procedures. Also, if one firm leases a substantial amount of its productive equipment, then it might show relatively few assets in comparison to its sales, because leased

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assets often do not appear on the balance sheet. At the same time, the lease liability might not be shown as a debt. Thus, leasing can artificially improve both the debt and turnover ratios.

(7) It is difficult to generalize about whether a particular ratio is “good” or “bad.” For example, a high current ratio might indicate a strong liquidity position, which is good, or excessive cash, which is bad, because excess cash in the bank is a non-earning asset. Similarly, a high fixed assets turnover ratio can occur either because a firm uses its assets efficiently or because it is undercapitalized and simply cannot afford to buy enough assets.

(8) A firm might have some ratios that look “good” and others that look “bad,” making it difficult to tell whether the company is, on balance, in a strong or a weak position. However, statistical procedures can be used to analyze the net effects of a set of ratios. Many banks and other lending organizations use these procedures to analyze firms' financial ratios and, on the basis of their analyses, classify companies according to their probability of getting into financial distress.

Conclusion: In this chapter, we looked at financial statements from a historical perspective, to see how well the company has been run. Our real interest, though, is in the future. In the next chapter, we go on to forecast financial statements to get an idea of where the firm will be going in the future.

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Spreadsheet Problem Solution

Chapter 2

a. Following are the data and the ratios for Cary:

INPUT DATA:		
Cash	$	72,000
A/R		439,000
Inventories		894,000
Land and bldg		238,000
Machinery		132,000
Other F.A.		61,000
Accts & Notes Pay.	$	432,000
Accruals		170,000
Long-term debt		404,290
Common stock		575,000
Retained earnings		254,710
Total assets	$	1,836,000
Total liabilities & equity	$	1,836,000
RE last year		146,302
Income statement		
Sales	$	4,290,000
Cost of G.S.		3,580,000
Adm. & sales exp.		236,320
Depreciation		159,000
Misc. expenses		134,000
Net income	$	108,408
P/E ratio		5.0
No. of shares		23,000
Cash dividend	$	0.95

KEY OUTPUT:	Cary	Industry
Quick	0.85	1.00
Current	2.33	2.70
Inv. turn.	4.00	5.80
DSO (days)	36.84	32.00
FA turnover	9.95	13.00
TA turnover	2.34	2.60
ROA	5.90%	9.10%
ROE	13.07%	18.20%
TD/TA	54.81%	50.00%
PM	2.53%	3.50%
EPS	$4.71	n.a.
Stock Price	$23.57	n.a.
P/E ratio	5.00	6.00
M/B	0.65	n.a.

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Here are Cary's base-case ratios and other data as compared to the industry:

	Cary	Industry	Comment
Quick	0.85x	1.0x	Weak
Current	2.33x	2.7x	Weak
Inventory turnover	4.0x	5.8x	Poor
Days sales outstanding	36.8 days	32.0 days	Poor
Fixed assets turnover	10.0x	13.0x	Poor
Total assets turnover	2.3x	2.6x	Poor
Return on assets (ROA)	5.9%	9.1%	Bad
Return on equity (ROE)	13.1%	18.2%	Bad
Debt ratio	54.8%	50.0%	High
Profit margin on sales	2.5%	3.5%	Bad
EPS	$4.71	n.a.	--
Stock Price	$23.57	n.a.	--
P/E ratio	5.0x	6.0x	Poor
M/B ratio	0.65	n.a.	--

Cary appears to be poorly managed—all of its ratios are worse than the industry averages, and the result is low earnings, a low P/E, a low stock price, and a low M/B ratio. The company needs to do something to improve.

b. The revised data and ratios are shown below:

INPUT DATA:

Cash	$	314,000
A/R		439,000
Inventories		700,000
Land and bldg		238,000
Machinery		132,000
Other F.A.		61,000
Accts & Notes Pay.	$	432,000
Accruals		170,000
Long-term debt		404,290
Common stock		575,000
Retained earnings		302,710

KEY OUTPUT:

	Cary	Industry
Quick	1.25	1.00
Current	2.41	2.70
Inv. turn.	5.00	5.80
DSO (days)	36.84	32.00
FA turnover	9.95	13.00
TA turnover	2.28	2.60
ROA	8.30%	9.10%
ROE	17.82%	18.20%
TD/TA	53.41%	50.00%
PM	3.65%	3.50%
EPS	$6.80	n.a.
Stock Price	$34.00	n.a.
P/E ratio	5.00	6.00

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Total assets	$ 1,884,000	M/B	0.89	n.a.
Total liabilities & equity	$ 1,884,000			
RE last year	146,302			
Income statement				
Sales	$ 4,290,000			
Cost of G.S.	3,500,000			
Adm. & sales exp.	236,320			
Depreciation	159,000			
Misc. expenses	134,000			
Net income	$ 156,408			
P/E ratio	5.0			
No. of shares	23,000			
Cash dividend	$ 0.95			

Cary's liquidity position has improved. In addition, ROA and ROE are better than in the previous scenario, and the profit margin now is higher than the industry average. Although the stock price has increased more than $10 per share, there is room for more improvements.

c. The revised data and ratios are shown below:

INPUT DATA:		KEY OUTPUT:		
			Cary	Industry
Cash	$ 84,527	Quick	1.21	1.00
A/R	395,000	Current	2.99	2.70
Inventories	700,000	Inv. turn.	4.93	5.80
Land and bldg	238,000	DSO (days)	33.15	32.00
Machinery	132,000	FA turnover	8.25	13.00
Other F.A.	150,000	TA turnover	2.52	2.60
		ROA	10.53%	9.10%
Accts & Notes Pay.	$ 275,000	ROE	19.88%	18.20%
Accruals	120,000	TD/TA	47.03%	50.00%
Long-term debt	404,290	PM	4.17%	3.50%
Common stock	575,000	EPS	$7.78	n.a.
Retained earnings	325,237	Stock Price	$46.68	n.a.
		P/E ratio	6.00	6.00
Total assets	$ 1,699,527	M/B	1.19	n.a.
Total liabilities & equity	$ 1,699,527			

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RE last year	146,302
Income statement	
Sales	$ 4,290,000
Cost of G.S.	3,450,000
Adm. & sales exp.	248,775
Depreciation	159,000
Misc. expenses	134,000
Net income	$ 178,935
P/E ratio	6.0
No. of shares	23,000
Cash dividend	$ 0.95

Under these new conditions, Cary Corporation looks much better. Its turnover ratios are still low, but its ROA and ROE are above the industry average, its estimated P/E ratio is better, and its stock price is anticipated to double. There still is room for improvement, but the company is in much better shape.

d. The financial statements and ratios for the scenario in which the cost of goods sold decreases by an additional $125,000 are shown next. As you can see, the profit ratios are quite high and the stock price has risen to $66.24.

INPUT DATA:

Cash	$ 159,527
A/R	395,000
Inventories	700,000
Land and bldg	238,000
Machinery	132,000
Other F.A.	150,000
Accts & Notes Pay.	$ 275,000
Accruals	120,000
Long-term debt	404,290
Common stock	575,000
Retained earnings	400,237
Total assets	$ 1,774,527
Total liabilities & equity	$ 1,774,527

KEY OUTPUT:

	Cary	Industry
Quick	1.40	1.00
Current	3.18	2.70
Inv. turn.	4.75	5.80
DSO (days)	33.15	32.00
FA turnover	8.25	13.00
TA turnover	2.42	2.60
ROA	14.31%	9.10%
ROE	26.04%	18.20%
TD/TA	45.04%	50.00%
PM	5.92%	3.50%
EPS	$11.04	n.a.
Stock Price	$66.24	n.a.
P/E ratio	6.00	6.00
M/B	1.56	n.a.

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RE last year	146,302

Income statement	
Sales	$ 4,290,000
Cost of G.S.	3,325,000
Adm. & sales exp.	248,775
Depreciation	159,000
Misc. expenses	134,000
Net income	$ 253,935
P/E ratio	6.0
No. of shares	23,000
Cash dividend	$ 0.95

e. The financial statements and ratios for the scenario in which the cost of goods sold increases by $125,000 over the revised estimate are shown next. As you can see, profits would decline sharply. The ROE would drop to 12.6 percent, EPS would fall to $4.52, the stock price would drop to $27.11, and the M/B ratio would be only 0.76.

INPUT DATA:

Cash	$ 9,527
A/R	395,000
Inventories	700,000
Land and bldg	238,000
Machinery	132,000
Other F.A.	150,000
Accts & Notes Pay.	$ 275,000
Accruals	120,000
Long-term debt	404,290
Common stock	575,000
Retained earnings	250,237
Total assets	$ 1,624,527
Total liabilities & equity	$ 1,624,527

KEY OUTPUT:

	Cary	Industry
Quick	1.02	1.00
Current	2.80	2.70
Inv. turn.	5.11	5.80
DSO (days)	33.15	32.00
FA turnover	8.25	13.00
TA turnover	2.64	2.60
ROA	6.40%	9.10%
ROE	12.59%	18.20%
TD/TA	49.20%	50.00%
PM	2.42%	3.50%
EPS	$4.52	n.a.
Stock Price	$27.11	n.a.
P/E ratio	6.00	6.00
M/B	0.76	n.a.

RE last year	146,302

Income statement

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Sales	$ 4,290,000
Cost of G.S.	3,575,000
Adm. & sales exp.	248,775
Depreciation	159,000
Misc. expenses	134,000
Net income	$ 103,935
P/E ratio	6.0
No. of shares	23,000
Cash dividend	$ 0.95

f. Computer models allow us to analyze quickly the impact of operating and financial decisions on the firm's overall performance. A firm can analyze its financial ratios under different scenarios to see what might happen if a decision, such as the purchase of a new asset, did not produce the expected results. This gives the managers some idea about what might happen under the best and worst cases and helps them to make better decisions.

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Chapter 2 Spreadsheet Problem

Financial Statement Analysis

The problem requires you to use File C02 on the computer problem spreadsheet.

Cary Corporation's forecasted financial statements for next year follow, along with industry average ratios.

a. Compare Cary's forecasted ratios with the industry average data, and comment briefly on Cary's projected strengths and weaknesses.

Cary Corporation: Forecasted Balance Sheet as of December 31

Cash	$ 72,000	Accounts and notes payable	$ 432,000
Accounts receivable	439,000	Accruals	170,000
Inventories	894,000	Total current liabilities	$ 602,000
Total current assets	$1,405,000	Long-term debt	404,290
Land and building	238,000	Common stock	575,000
Machinery	132,000	Retained earnings	254,710
Other fixed assets	61,000		
Total assets	$1,836,000	Total liabilities and equity	$1,836,000

Cary Corporation: Forecasted Income Statement

Sales	$4,290,000
Cost of goods sold	(3,580,000)
Gross operating profit	$ 710,000
General administrative and selling expenses	(236,320)
Depreciation	(159,000)
Miscellaneous	(134,000)

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Earnings before taxes (EBT)	$ 180,680
Taxes (40%)	(72,272)
Net income	$ 108,408
Number of shares outstanding	23,000
Per-Share Data	
EPS	$ 4.71
Cash dividends per share	$ 0.95
P/E ratio	5.0×
Market price (average)	$23.57

Industry Financial Ratios[a]

Quick ratio	1.0×
Current ratio	2.7
Inventory turnover[b]	5.8×
Days sales outstanding	32 days
Fixed assets turnover[b]	13.0×
Total assets turnover[b]	2.6×
Return on assets	9.1%
Return on equity	18.2%
Debt ratio	50.0%
Profit margin on sales	3.5%
P/E ratio	6.0×

[a]Industry average ratios have been constant for the past four years.

[b]Based on year-end balance sheet figures.

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b. What do you think would happen to Cary's ratios if the company initiated cost-cutting measures that allowed it to hold lower levels of inventory and substantially decrease the cost of goods sold? To answer this question, suppose inventories drop to $700,000 and the inventory turnover is 5.0 (HINT: In this case, cost of goods sold will change.).

c. Suppose Cary Corporation is considering installing a new computer system that would provide tighter control of inventories, accounts receivable, and accounts payable. If the new system is installed, the following data are projected (rather than the data given earlier) for the indicated balance sheet and income statement accounts:

Accounts receivable	$ 395,000
Inventories	$ 700,000
Other fixed assets	$ 150,000
Accounts and notes payable	$ 275,000
Accruals	$ 120,000
Cost of goods sold	$3,450,000
Administrative and selling expenses	$ 248,775
P/E ratio	6.0×

How do these changes affect the projected ratios and the comparison with the industry averages? (Note that any changes to the income statement will change the amount of retained earnings; therefore, the model is set up to calculate next year's retained earnings as this year's retained earnings plus net income minus dividends paid. The model also adjusts the cash balance so that the balance sheet balances.)

d. If the new computer system were even more efficient than Cary's management had estimated and thus caused the cost of goods sold to decrease by $125,000 from the projections in part (c), what effect would it have on the company's financial position?

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e. If the new computer system were less efficient than Cary's management had estimated and caused the cost of goods sold to increase by $125,000 from the projections in part (a), what effect would it have on the company's financial position?

f. Change, one by one, the other items in part (c) to see how each change affects the ratio analysis. Then think about and write a paragraph describing how computer models such as this one can be used to help make better decisions about the purchase of such items as a new computer system.

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Chapter 2 Spreadsheet Problem Solutions (C02)

Ratio Analysis

1. There are a number of instructions with which you should be familiar to use these computerized models. These instructions appear in a separate worksheet labeled INSTRUCTIONS. If you have not already done so, you should read these instructions now. To read these instructions, click on theworksheet labeled INSTRUCTIONS.

2. We have entered the some data for you. All that is required of you is to enter the new dat and analyze the resulting ratios.

3. A graph that shows selected ratios for Cary vs. the industry average will be displayed if you click the worsheet labeled GRAPH at the bottom of this spreadsheet. To return to this worksheet, click on the worksheet labeled C02 at the bottom of the GRAPH worksheet.

4. First, page down and look over the model to see what's there. Then, begin by putting Row 23 of the worksheet at the top of the screen. Now, enter the appropriate data.

INPUT DATA:

Balance Sheet	
Cash	$ 72,000
A/R	439,000
Inventories	894,000
Total current assets	1,405,000
Land and bldg	238,000
Machinery	132,000
Other F.A.	61,000
Total assets	$ 1,836,000
Accts & Notes Pay.	$ 432,000
Accruals	170,000
Total current liabilities	602,000
Long-term debt	404,290
Common stock	575,000
Retained earnings (RE)	254,710
Total liab. & equity	$ 1,836,000
RE last year	146,302
Income Statement	
Sales	$ 4,290,000
Cost of G.S.	3,580,000
Gross operating profit	710,000

KEY OUTPUT:

	Cary	Industry
Quick	0.85	1.00
Current	2.33	2.70
Inv. turn.	4.00	5.80
DSO	36.84	32.00
FA turnover	9.95	13.00
TA turnover	2.34	2.60
ROA	5.90%	9.10%
ROE	13.07%	18.20%
TD/TA	54.81%	50.00%
PM	2.53%	3.50%
EPS	$4.71	n.a.
Stock Price	$23.57	n.a.
P/E ratio	5.0	6.0
M/B	0.65	n.a.
Tax rate	40%	

Adm. & sales exp.		236,320	C02
Depreciation		159,000	
Misc. expenses		134,000	
Earnings before taxes		180,680	
Taxes (40%)		72,272	
Net income	$	108,408	
P/E ratio		5.0	
No. of shares		23,000	
Cash dividend	$	0.95	

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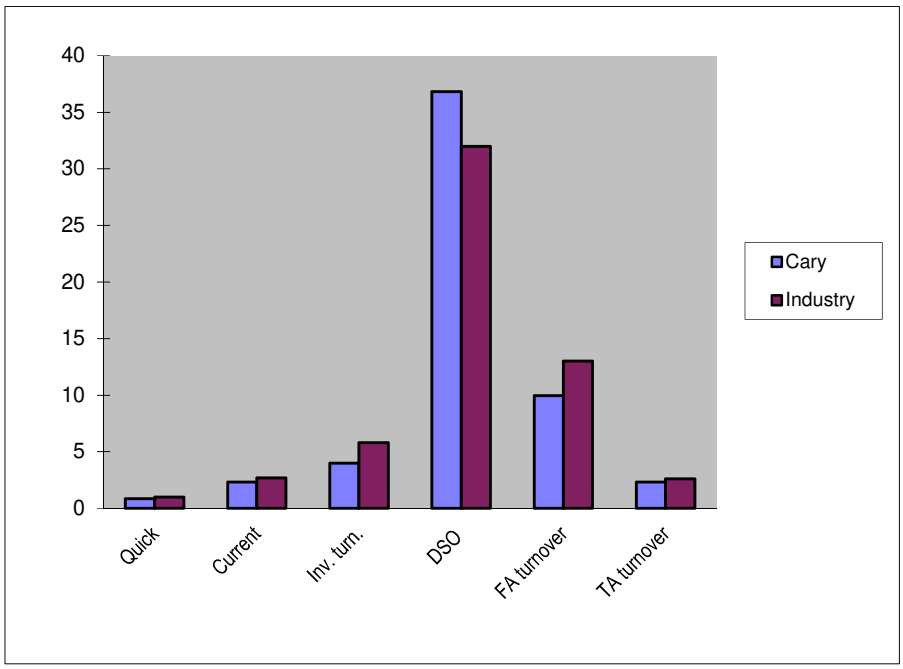
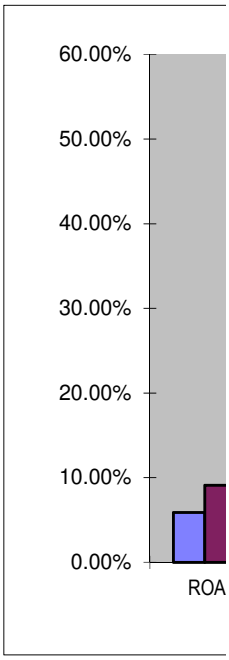
GRAPH





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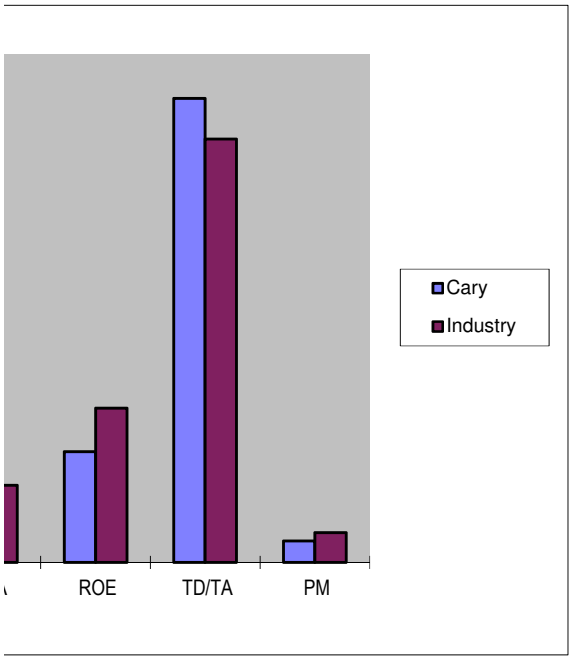
GRAPH



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GENERAL INSTRUCTIONS FOR COMPUTERIZED PROBLEM SOLUTIONS

We have already entered the base case data for each model in this file, and the models have performed the analysis for preceding parts of the problem. You will need to enter the data for each of the remaining parts of the problem--we indicate in each problem the parts that should be done using the spreadsheet. However, there are several points worth noting before you go into a model:

1. The input data are entered in specified cells in the INPUT DATA section. When you change an input item, the model automatically recalculates the values of appropriate output data items, unless you are told otherwise. If the values do not change automatically, press the F9 key to recompute the values.

2. The key output data are displayed to the right of the INPUT DATA section or immediately below it. This placement permits you to change an input and instantly see how that change affects the output of the model. This is extremely useful in sensitivity analysis.

3. Input data items that you can change are distinguished from the ones you should not change. The items that you can change are highlighted in color (blue) whereas the other items are printed in black.

4. All percentages must be entered as decimals. Dollars and other numbers must be entered without dollar signs or commas.

5. Instructions and comments concerning specific models accompany each model. Graphs associated with the model are included in another worksheet that can be accessed by clicking on the worksheet labeled GRAPH at the bottom of the spreadsheet.

CFIN5

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CFIN5 - CHAPTER 2

PRACTICE PROBLEMS SOLUTIONS

P2-1 Billingsworth paid $2 in dividends and retained $2 per share. Because total retained earnings rose by $12 million, there must be 6 million shares outstanding. With a book value of $40 per share, total common equity must be $40(6 million) = $240 million. Because Billingsworth has $120 million of debt, its debt ratio must be 33.3 percent:

$$\text{Debt ratio} = \frac{\text{Debt}}{\text{Assest}} = \frac{\text{Debt}}{\text{Debt} + \text{Equity}} = \frac{\$120\text{ million}}{\$120\text{ million} + \$240\text{ million}}$$
$$= 0.333 = 33.3\%$$

P2-2 **(1)** Operating cash flow = Net income + Depreciation = $120,000 + $25,000 = $145,000

(2) Free cash flow = Operating cash flow – Investments = $145,000 - $150,000 = -$5,000

(3) EVA = NOI(1 – Tax rate) - [(Invested capital) x (After-tax cost of capital as a percent)]

= $120,000(1 – 0.40) – [$500,000(0.12)]

= $72,000 - $60,000 = $12,000

P2-3 **a.** In answering questions such as this, always begin by writing down the relevant definitional equations, then start filling in numbers. Note that the extra zeros indicating millions have been deleted in the calculations below. The results are not rounded until the final answer.

(1)

$$\text{DSO} = \frac{\text{Accounts receivable}}{\left(\text{Sales}/360\right)}$$
$$40 = \frac{\text{Accounts receivable}}{\left(\$1{,}000/360\right)}$$

A/R = 40($2.778) = $111.1 million

$$\text{Quick ratio} = \frac{\text{Current assets - Inventories}}{\text{Current liabilities}} = \frac{\text{Cash \& securities} + \text{A/R}}{\text{Current liabilities}} = 2.0$$

(2)

$$2.0 = \frac{\$100 + \$111.1}{\text{Current liabilities}}$$

Current liabilities = ($100 + 111.1)/2 = $105.55

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(3) $$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}} = \frac{\text{CA}}{\$105.55} = 3.0$$

Current assets = 3.0($105.55) = $316.65

(4) Total assets = Current assets + Fixed assets = $316.7 + $283.5 = $600.2 million.

(5) $$\text{Quick ratio} = \frac{\text{Current assets - Inventories}}{\text{Current liabilities}} = \frac{\text{Cash \& securities} + \text{A/R}}{\text{Current liabilities}} = 2.0$$

$$2.0 = \frac{\$100 + \$111.1}{\text{Current liabilities}}$$

(6) ROA = Profit margin x Total assets turnover

$$= \frac{\text{Net income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total assets}} = \frac{\$50}{\$1{,}000} \times \frac{\$1{,}000}{\$600.1}$$

$$= 0.05 \times 1.667 = 0.0833 = 8.33\%$$

(7) Total assets = Total claims = $600.1 million

Current liabilities + Long-term debt + Equity = $600.1 million

$105.6 + Long-term debt + $416.7 = $600.1 million

Long-term debt = $600.1 – $105.6 – $416.7 = $ 77.8 million

b. Kaiser's average sales per day were $1,000/360 = $2.778 million. Its DSO was 40, so A/R = 40($2.778) = $111.1 million. Its new DSO of 30 would result in A/R = 30($2.778) = $83.3 million. The reduction in receivables would be $111.1 – $83.3 = $27.8 million, which would equal the amount of cash generated.

(1) New equity = Old equity – Stock bought back

= $416.7 – $27.8 = $388.9 million.

Thus,

$$\text{New ROE} = \frac{\text{Net income}}{\text{New equity}} = \frac{\$50}{\$388.9}$$

= 12.86% (versus old ROE of 12.0%)

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(2) $$\text{New ROA} = \frac{\text{Net income}}{\text{Total assets - Reduction in A/R}} = \frac{\$50}{\$600.1 - \$27.8}$$

= 8.74% (versus old ROS of 8.33%)

(3) The old debt is the same as the new debt:

Debt = Total claims – Equity

= \$600.1 – \$416.7 = \$183.4 million.

Old total assets = \$600.1 million

New total assets = Old total assets – Reduction in A/R

= \$600.1 – \$27.8

= \$572.3 million.

Therefore,

$$\frac{\text{Debt}}{\text{Old total assets}} = \frac{\$183.4}{\$600.1} = 0.306 = 30.6\%$$

while

$$\frac{\text{New debt}}{\text{New total assets}} = \frac{\$183.4}{\$572.3} = 0.32 = 32.0\%$$

P2-4 a. Currently, ROE is ROE_1 = \$15,000/\$200,000 = 7.5%

The current ratio will be set such that 2.5 = CA/CL. CL is \$50,000 = \$30,000 + \$20,000, and it will not change, so we can solve to find the new level of current assets: CA = 2.5(CL) = 2.5(\$50,000) = \$125,000. This is the level of current assets that will produce a current ratio of 2.5x.

At present, current assets amount to \$210,000, so they can be reduced by \$210,000 – \$125,000 = \$85,000.

If the \$85,000 generated is used to retire common equity, then the new common equity balance will be \$200,000 – \$85,000 = \$115,000.

Assuming that net income is unchanged, the new ROE will be ROE_2 = \$15,000/\$115,000 = 13.04%. Therefore, ROE will increase by 13.04% – 7.50% = 5.54%.

b. (1) Doubling the dollar amounts would not affect the answer; the ROE increase would still be 5.54%.

(2) Current assets would increase by \$25,000, which would mean a new ROE of \$15,000/\$140,000 = 10.71%, which would mean a difference of 10.71% – 7.50% = 3.21%.

(3) If the company had 10,000 shares outstanding, then its EPS would be \$15,000/10,000 = \$1.50. The stock has a book value of \$200,000/10,000 = \$20, so the shares retired would be \$85,000/\$20 = 4,250, leaving 10,000 – 4,250 = 5,750 shares. The new EPS

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would be $15,000/5,750 = $2.6087, so the increase in EPS would be $2.6087 – $1.50 = $1.1087, which is a 73.91% increase, the same as the increase in ROE.

(4) If the stock was selling for twice book value, or 2 x $20 = $40, then only half as many shares could be retired ($85,000/$40 = 2,125), so the remaining shares would be 10,000 – 2,125 = 7,875, and the new EPS would be $15,000/7,875 = $1.9048, for an increase of $1.9048 – $1.5000 = $0.4048.

P2-5 a. Sources and Uses of Funds Analysis:

Lloyd Lumber Company
Balance Sheet
($ millions)

	Jan. 1	Dec. 31	Source	Use
Cash	$ 7	$ 15		$ 8
Marketable securities	0	11		11
Net receivables	30	22	$ 8	
Inventories	53	75		22
Total current assets	$ 90	$123		
Gross fixed assets	$ 75	$125		50
Less: depreciation	25	35	10*	
Net fixed assets	$ 50	$ 90		
Total assets	$140	$213		
Accounts payable	$ 18	$ 15		3
Notes payable	3	15	12	
Other current liabilities	15	7		8
Long-term debt	8	24	16	
Common stock	29	57	28	
Retained earnings	67	95	28	
Total liabilities and equity	$140	$213	$102	$102

*Depreciation is not a source of cash, but it affects cash in the form of taxes on the income statement

b.

Lloyd Lumber Company
Statement of Cash Flows
($ millions)

Operating Activities:		
Net income	$ 33	
Other additions (sources of cash):		
Depreciation	$ 10	
Decrease in accounts receivable	8	
Subtractions (uses of cash):		
Increase in inventories	($22)	
Decrease in accounts payable	(3)	
Decrease in other current liabilities	(8)	
Net cash flow from operations		$ 18
Long-term Investing Activities:		
Acquisition of fixed assets		($ 50)
Financing Activities:		

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Increase in notes payable	$ 12	
Sale of long-term debt	16	
Sale of common stock	28	
Payment of dividends	(5)	
Net cash flow from financing		$ 51
Net increase in cash and marketable securities		$ 19
Cash and marketable securities at beginning of year		7
Cash and marketable securities at end of year		$ 26

c. Investments were made in plant and inventories. Funds were also utilized to reduce accounts payable and other current liabilities and to increase the cash and marketable securities accounts. Most funds were obtained by increasing long-term debt, selling common stock, and retaining earnings. The remainder was obtained from increasing notes payable and reducing receivables. A quick check of the ratios shows that the company's credit has not deteriorated—the current and quick ratios have increased, and the debt ratio has gone down slightly. Ratio analysis and the sources and uses statement both indicate a healthy situation.

P2-6 a. Dollars are in millions.

	Income Statement		Cash Flows		
Sales revenues		$12.0		$12.0	
Costs, except depreciation	(9.0)*		(9.0)		
Depreciation	(1.5)		--		
Total operating costs		(10.5)		(9.0)	(Cash costs)
Net operating income (NOI)		$ 1.5		$ 3.0	(Pre-tax CF)
Taxes (40%)		(0.6)		(0.6)	(Cash taxes)
Operating income after taxes		$ 0.9			
Add back depreciation		1.5			
Cash flow from operations		$ 2.4		$ 2.4	

*Costs, except depreciation = 0.75 x $12.0 = $9.0

Net income = (NOI – Interest)(1 – T) = ($1.5 - $1.0)(0.6) = $0.3

b. Depreciation doubles.

	Income Statement		Cash Flows		
Sales revenues		$12.0		$12.0	
Costs, except depreciation	(9.0)		(9.0)		
Depreciation	(3.0)		---		
Total operating costs		(12.0)		(9.0)	(Cash costs)
Net operating income (NOI)		$ 0.0		$ 3.0	(Pre-tax CF)
Taxes (40%)		(0.0)		(0.0)	(Cash taxes)
Operating income after taxes		$ 0.0			
Add back depreciation		3.0			
Cash flow from operations		$ 3.0		$ 3.0	

Net income = (NOI – Interest)(1 – T) = ($0.0 - $1.0)(0.6) = –$0.6

c. Depreciation halves.

	Income Statement		Cash Flows	
Sales revenues		$12.00		$12.00
Costs, except depreciation	(9.00)		(9.00)	
Depreciation	(0.75)		---	

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Total operating costs	(9.75)	(9.00)	(Cash costs)
Net operating income (NOI)	$ 2.25	$ 3.00	(Pre-tax CF)
Taxes (40%)	(0.90)	(0.90)	(Cash taxes)
Operating income after taxes	$ 1.35		
Add back depreciation	0.75		
Cash flow from operations	$ 2.10	$ 2.10	

Net income = (NOI – Interest)(1 – T) = ($2.25 - $1.0)(0.6) = $0.75

d. The after-tax cash flows are greater if Congress increases the allowance for depreciation, so you should prefer greater depreciation.

P2-7 a. Dollar amounts are in millions.

	Unilate	Industry Average	Comment
$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}} = \frac{\$400}{\$105}$	3.81x	3.9x	Near average
$\text{Days sales outstanding} = \frac{\text{Accounts receivable}}{\text{Sales}/360} = \frac{\$160}{\left[\frac{\$1,435}{360}\right]}$	40.14 days	33.5 days	Poor
$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Inventories}} = \frac{\$1,176.7}{\$200}$	5.88x	7.2x	Poor
$\text{Fixed assets turnover} = \frac{\text{Sales}}{\text{Fixed assets}} = \frac{\$1,435}{\$350}$	4.10x	4.1x	Average
$\text{Debt ratio} = \frac{\text{Total debt}}{\text{Total assets}} = \frac{\$360}{\$750}$	48.0%	43.0%	Poor
$\text{Net profit margin} = \frac{\text{Net income}}{\text{Sales}} = \frac{\$59}{\$1,435}$	4.11x	4.6x	Marginal
$\text{Return on assets} = \frac{\text{Net income}}{\text{Total assets}} = \frac{\$59}{\$750}$	7.87%	9.9%	Poor

b. The ratios do not show any particular strengths. However, Unilate does have a low inventory turnover, higher than normal days sales outstanding, and poor return on assets. According to its ratios, it appears Unilate has liquidity problems.

c.

Ratio	2016	2015	Trend
Current ratio	3.6 x	3.8 x	Worse
Days sales outstanding	43.2 days	40.1 days	Worse
Inventory turnover	4.6 x	5.9 x	Worse
Fixed assets turnover	3.9 x	4.1 x	Worse
Debt ratio	50.9%	48.0%	Worse
Profit margin on sales	3.6%	4.1%	Worse
Return on assets	6.4%	7.9%	Worse

This comparison shows that Unilate's financial position worsened from 2015 to 2016.

d. It would be helpful to know the future plans Unilate has with respect to improving its current financial position, introducing new products, liquidating unprofitable investments,

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and so on. Perhaps the fixed assets turnover ratio and return on assets figures are low because the firm has expanded its product distribution, and this process has a large cost "up front" with significant payoffs beginning in two or three years.

P2-8 a.

	Campsey	Industry Average
$\frac{\text{Current assets}}{\text{Current liabilities}} = \frac{\$655{,}000}{\$330{,}000}$	1.98x	2.0x
$\frac{\text{Accounts receivable}}{\text{Sales / 360}} = \frac{\$336{,}000}{\$4{,}465.28}$	75.2 days	35.0 days
$\frac{\text{Cost of goods sold}}{\text{Inventories}} = \frac{\$1{,}353{,}000}{\$241{,}500}$	5.60x	5.6x
$\frac{\text{Sales}}{\text{Total assets}} = \frac{\$1{,}607{,}500}{\$947{,}500}$	1.70x	3.0x
$\frac{\text{Net income}}{\text{Sales}} = \frac{\$27{,}300}{\$1{,}607{,}500}$	1.7%	1.2%
$\frac{\text{Net income}}{\text{Total assets}} = \frac{\$27{,}300}{\$947{,}500}$	2.9%	3.6%
$\frac{\text{Net income}}{\text{Common equity}} = \frac{\$27{,}300}{\$361{,}000}$	7.6%	9.0%
$\frac{\text{Total debt}}{\text{Total assets}} = \frac{\$586{,}500}{\$947{,}500}$	61.9%	60.0%

b. For Campsey, ROA = PM x TA turnover = 1.7% x 1.7 = 2.9%.

For the industry, ROA = 1.2% x 3.0 = 3.6%.

c. Campsey's days sales outstanding is more than twice as long as the industry average, indicating that the firm should tighten credit or enforce a more stringent collection policy. The total assets turnover ratio is well below the industry average so sales should be increased, assets decreased, or both. While Campsey's profit margin is higher than the industry average, its other profitability ratios are low compared to the industry—net income should be higher given the amount of equity and assets. However, the company seems to be in an average liquidity position and financial leverage is similar to others in the industry.

d. If Campsey experienced supernormal growth during the year, ratios based on this year will be distorted and a comparison between them and industry averages will have little meaning. Potential investors who look only at this year's ratios will be misled, and a return to normal conditions next year could hurt the firm's stock price.

P2-9 (1) Total liabilities and equity = Total assets = $300,000.

(2) Debt = (0.50)(Total assets) = (0.50)($300,000) = $150,000.

(3) Accounts payable = Debt – Long-term debt = $150,000 – $60,000 = $90,000.

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(4) Common stock = Total liabilities and equity – Debt – Retained earnings
= $300,000 - $150,000 - $97,500 = $52,500

(5) Sales = 1.5 x Total assets = 1.5 x $300,000 = $450,000

(6) Cost of goods sold = Sales(1 - 0.25) = $450,000(.75) = $337,500

(7) Inventory = (CGS)/5 = $337,500/5 = $67,500.

(8) Accounts receivable = (Sales/360)(DSO) = ($450,000/360)(36) = $45,000.

(9) (Cash + Accounts receivable)/(Accounts payable) = 0.80x
Cash + Accounts receivable = (0.80)(Accts payable)
Cash + $45,000 = (0.80)($90,000)
Cash = $72,000 – $45,000 = $27,000.

(10) Fixed assets = Total assets – (Cash + Accts Rec. + Inventories)
= $300,000 – ($27,000 + $45,000 + $67,500) = $160,500.

P2-10 a.

	Finnerty Furniture	Industry Average
$\frac{\text{Current assets}}{\text{Current liabilities}} = \frac{\$303}{\$111}$	2.73x	2.0x
$\text{Debt ratio} = \frac{\text{Debt}}{\text{Total assets}} = \frac{\$135}{\$450}$	30.00%	30.0%
$\text{Times interest earned} = \frac{\text{EBIT}}{\text{Interest}} = \frac{\$49.5}{\$4.5}$	11.00x	7.0x
$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Inventories}} = \frac{\$660}{\$159}$	4.15x	8.5x
$\text{DSO} = \frac{\text{Accounts receivable}}{\text{Sales}/360} = \frac{\$66}{(\$795/360)}$	29.89 days	24.0 days
$\text{Fixed assets turnover} = \frac{\text{Sales}}{\text{Fixed assets}} = \frac{\$795}{\$147}$	5.41x	6.0 x
$\text{Total assets turnover} = \frac{\text{Sales}}{\text{Total assets}} = \frac{\$795}{\$450}$	1.77x	3.0 x
$\text{Net profit margin} = \frac{\text{Net income}}{\text{Sales}} = \frac{\$27}{\$795}$	3.40%	3.0%
$\text{Return on total assets} = \frac{\text{Net income}}{\text{Total assets}} = \frac{\$27}{\$450}$	6.00%	9.0%
$\text{Return on equity} = \frac{\text{Net income}}{\text{Total equity}} = \frac{\$27}{\$315}$	8.57%	12.9%

b. ROA = Profit margin x Total assets turnover

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$$= \frac{\text{Net income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total assets}}$$

$$= \frac{\$27}{\$795} \times \frac{\$795}{\$450}$$

$$= 3.4\% \times 1.77 = 6.0\%$$

	Finnerty	Industry	Comment
Profit margin	3.4%	3.0%	Good
Total assets turnover	1.8x	3.0 x	Poor
Return on total assets	6.0%	9.0%	Poor

c. Analysis of the DuPont equation and the set of ratios shows that the turnover ratio of sales to assets is quite low. Either sales should be increased at the present level of assets, or the current level of assets should be decreased to be more in line with current sales. Thus, the problem appears to be in the balance sheet accounts.

d. The comparison of inventory turnover ratios shows that other firms in the industry seem to be getting along with about half as much inventory per unit of sales as Finnerty. If Finnerty's inventory could be reduced this would generate funds that could be used to retire debt, thus reducing interest charges and improving profits, and strengthening the debt position. There might also be some excess investment in fixed assets, perhaps indicative of excess capacity, as shown by a slightly lower than average fixed assets turnover ratio. However, this is not nearly as clear-cut as the over-investment in inventory.

e. If Finnerty had a sharp seasonal sales pattern, or if it grew rapidly during the year, many ratios might be distorted. Ratios involving cash, receivables, inventories, and current liabilities, as well as those based on sales, profits, and common equity, could be biased. It is possible to correct for such problems by using average rather than end-of-period figures.

P2-11 a. Here are Cary's base case ratios and other data as compared to the industry ($ thousands, except per share values):

	Cary	Industry	Comment
$\text{Quick ratio} = \frac{\text{CA - Inventory}}{\text{Current liabilities}} = \frac{\$1,405 - \$894}{\$602}$	0.8x	1.0x	Weak
$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}} = \frac{\$1,405}{\$602}$	2.3x	2.7x	Weak
$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Inventories}} = \frac{\$3,580}{\$894}$	4.0x	5.8x	Poor
$\text{DSO} = \frac{\text{Accounts receivable}}{\text{Sales}/360} = \frac{\$439}{(\$4,290/360)}$	36.8 days	32.0 days	Poor
$\text{Fixed assets turnover} = \frac{\text{Sales}}{\text{Fixed assets}} = \frac{\$4,290}{\$238 + \$132 + \$61}$	10.0x	13.0x	Poor
$\text{Total assets turnover} = \frac{\text{Sales}}{\text{Total assets}} = \frac{\$4,290}{\$1,836}$	2.3x	2.6x	Poor
$\text{Return on total assets} = \frac{\text{Net income}}{\text{Total assets}} = \frac{\$108.408}{\$1,836}$	5.9%	9.1%	Bad

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$\text{Return on equity} = \frac{\text{Net income}}{\text{Total equity}} = \frac{\$108.408}{\$575 + \$254.710}$	13.1%	18.2%	Bad
$\text{Debt ratio} = \frac{\text{Debt}}{\text{Total assets}} = \frac{\$602 + 404.29}{\$1,836}$	54.8%	50.0%	High
$\text{Net profit margin} = \frac{\text{Net income}}{\text{Sales}} = \frac{\$108.408}{\$4,290}$	2.5%	3.5%	Bad
EPS	$4.71	n.a.	--
Stock Price	$23.57	n.a.	--
P/E ratio	5.0x	6.0x	Poor
$\text{M/B ratio} = \frac{\text{Market value per share}}{\text{Book value per share}} = \frac{\$23.57}{(\$575 + \$254.71)/23}$	0.65	n.a.	--

Cary appears to be poorly managed—all of its ratios are worse than the industry averages, and the result is low earnings, a low P/E, a low stock price, and a low M/B ratio. The company needs to do something to improve.

b. A decrease in the inventory level would improve the inventory turnover, total assets turnover, and ROA, all of which are too low. It would have some impact on the current ratio, but it is difficult to say precisely how that ratio would be affected. If the lower inventory level allowed Cary to reduce its current liabilities, then the current ratio would improve. The lower cost of goods sold would improve all of the profitability ratios and, if dividends were not increased, would lower the debt ratio through increased retained earnings. All of this should lead to a higher market/book ratio and a higher stock price.

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CFIN5 - CHAPTER 2
PRACTICE PROBLEMS

P2-1 K. Billingsworth & Company had earnings per share of $4 last year, and it paid a $2 dividend. Total retained earnings increased by $12 million during the year, and book value per share at year-end was $40. Billingsworth has no preferred stock, and no new common stock was issued during the year. If the company's year-end debt (which equals its total liabilities) was $120 million, what was its year-end debt/assets ratio?

P2-2 Refreshing Pool Corporation reported net operating income equal to $120,000 this year. Examination of the company's balance sheet and income statement shows that the tax rate was 40 percent, the depreciation expense was $25,000, $150,000 was invested in assets during the year, and invested capital equals $500,000. The firm's if average after-tax cost of funds is 12 percent. What was the firm's (1) operating cash flow, (2) free cash flow, and (3) economic value added (EVA)?

P2-3 The following data apply to A.L. Kaiser & Company ($ million):

Cash and equivalents	$100.00
Fixed assets	$283.50
Sales	$1,000.00
Net income	$50.00
Quick ratio	2.0x
Current ratio	3.0x
DSO	40.0 days
ROE	12.0%

Kaiser has no preferred stock—only common equity, current liabilities, and long-term debt.

a. Find Kaiser's (1) accounts receivable (A/R), (2) current liabilities, (3) current assets, (4) total assets, (5) ROA, (6) common equity, and (7) long-term debt.

b. In part (a), you should have found Kaiser's accounts receivable (A/R) to be $109.6 million. If Kaiser could reduce its DSO from 40 days to 30 days while holding other things constant, how much cash would it generate? If this cash were used to buy back common stock (at book value) and thereby reduce the amount of common equity, how would this action affect the company's (1) ROE, (2) ROA, and (3) total debt/total assets ratio?

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P2-4 Earth's Best Company has sales of $200,000, a net income of $15,000, and the following balance sheet:

Cash	$ 10,000	Accounts payable	$ 30,000
Receivables	50,000	Other current liabilities	20,000
Inventories	150,000	Long-term debt	50,000
Net fixed assets	90,000	Common equity	200,000
Total assets	$300,000	Total liabilities and equity	$300,000

a. The company's new owner thinks that inventories are excessive and can be lowered to the point where the current ratio is equal to the industry average, 2.5x, without affecting either sales or net income. If inventories are sold off and not replaced so as to reduce the current ratio to 2.5x, if the funds generated are used to reduce common equity (stock can be repurchased at book value), and if no other changes occur, by how much will the return on equity (ROE) change?

b. Now suppose we wanted to take this problem and modify it for use on an exam—that is, to create a new problem that you have not seen to test your knowledge of this type of problem. How would your answer change if we made the following changes: (1) We doubled all of the dollar amounts? (2) We stated that the target current ratio was 3.0x? (3) We said that the company had 10,000 shares of stock outstanding, and we asked how much the change in part (a) would increase earnings per share (EPS)? (4) What would your answer to (3) be if we changed the original problem to state that the stock was selling for twice book value, so common equity would not be reduced on a dollar-for-dollar basis?

P2-5 The consolidated balance sheets for Lloyd Lumber Company at the beginning and end of the year follow. The company bought $50 million worth of fixed assets. The charge for depreciation during the year was $10 million. Net income was $33 million, and the company paid out $5 million in dividends.

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a. Fill in the amount of the source or use in the appropriate column.

Lloyd Lumber Company: Balance Sheets at Beginning and End of the year ($ million)

	Jan. 1	Dec. 31	Change Source	Change Use
Cash	$ 7	$ 5	_____	_____
Marketable securities	0	11	_____	_____
Net receivables	30	22	_____	_____
Inventories	53	75	_____	_____
Total current assets	$ 90	$ 23		
Gross fixed assets	75	125	_____	_____
Less: Accumulated depreciation	(25)	(235)		
Net fixed assets	$ 50	$ 90		
Total assets	$140	$213		
Accounts payable	$18	$ 15	_____	_____
Notes payable	3	15	_____	_____
Other current liabilities	15	7	_____	_____
Long-term debt	8	24	_____	_____
Common stock	29	57	_____	_____
Retained earnings	67	95		
Total liabilities and equity	$140	$213		

Note: Total sources must equal total uses.

b. Prepare a statement of cash flows.

c. Briefly summarize your findings.

P2-6 Montejo Corporation expects sales to be $12 million. Operating costs other than depreciation are expected to be 75 percent of sales, and depreciation is expected to be $1.5 million during the next year. All sales revenues will be collected in cash, and costs other than depreciation must be paid during the year. Montejo's interest expense is expected to be $1 million, and it is taxed at a 40 percent rate.

a. Set up an income statement and a cash flow statement (use two columns on one page) for Montejo. What is the expected cash flow from operations?

b. Suppose Congress changed the tax laws so that Montejo's depreciation expenses doubled, but no other changes occurred. What would happen to the net income and cash flow from operations expected during the year?

c. Suppose that Congress, rather than increasing Montejo's depreciation, reduced it by 50 percent. How

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would the income and cash flows be affected?

d. If this company belonged to you, would you prefer that Congress increase or decrease the depreciation expense allowed your company? Explain why.

P2-7 Data for Unilate Textiles' 2015 financial statements are given in Tables 2.1 and 2.2 in the chapter.

a. Compute the 2015 values of the following ratios:

	2015 Values	
Ratio	Unilate	Industry
Current ratio	_____	3.9x
Days sales outstanding	_____	33.5 days
Inventory turnover	_____	7.2x
Fixed assets turnover	_____	4.1x
Debt ratio	_____	43.0%
Net profit margin	_____	4.6%
Return on assets	_____	9.9%

b. Briefly comment on Unilate's 2015 financial position. Can you see any obvious strengths or weaknesses?

c. Compare Unilate's 2015 ratios with its 2016 ratios, which are presented in Table 2.6. Comment on whether you believe Unilate's financial position improved or deteriorated during 2016.

d. What other information would be useful for projecting whether Unilate's financial position is expected to improve or deteriorate in the future?

P2-8 Data for Campsey Computer Company and its industry averages follow.

a. Calculate the indicated ratios for Campsey.

b. Construct the DuPont equation for both Campsey and the industry.

c. Outline Campsey's strengths and weaknesses as revealed by your analysis.

d. Suppose Campsey had doubled its sales as well as its inventories, accounts receivable, and common equity during the year. How would that information affect the validity of your ratio analysis? *(Hint:* Think about averages and the effects of rapid growth on ratios if averages are not used. No calculations are needed.)

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Campsey Computer Company: Balance Sheet as of December 31

Cash	$ 77,500	Accounts payable	$129,000
Receivables	336,000	Notes payable	84,000
Inventories	241,500	Other current liabilities	117,000
Total current assets	$655,000	Total current liabilities	$330,000
Net fixed assets	292,500	Long-term debt	256,500
		Common equity	361,000
Total assets	$947,500	Total liabilities and equity	$947,500

Campsey Computer Company: Income Statement for Year Ended December 31

Sales	$1,607,500
Cost of goods sold	(1,353,000)
Gross profit	$ 254,500
Fixed operating expenses except depreciation	(143,000)
Earnings before interest, taxes, depreciation, and amortization (EBITDA)	$ 111,500
Depreciation	(41,500)
Earnings before interest and taxes (EBIT)	$ 70,000
Interest	(24,500)
Earnings before taxes (EBT)	$ 45,500
Taxes (40%)	(18,200)
Net income	$ 27,300

Ratio	Campsey	Industry Average
Current ratio	_____	2.0x
Days sales outstanding	_____	35.0 days
Inventory turnover	_____	5.6x
Total assets turnover	_____	3.0x
Net profit margin	_____	1.2%
Return on assets (ROA)	_____	3.6%
Return on equity (ROE)	_____	9.0%
Debt ratio	_____	60.0%

P2-9 Complete the balance sheet and sales information in the table that follows for Isberg Industries using the following financial data:

Debt ratio: 50%

Quick ratio: 0.80x

Total assets turnover: 1.5x

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Days sales outstanding: 36.0 days

Gross profit margin on sales: (Sales – Cost of goods sold)/Sales = 25%

Inventory turnover ratio: 5.0x

Balance Sheet:

Cash	_____	Accounts payable	_____
Accounts receivable	_____	Long-term debt	$ 60,000
Inventories	_____	Common stock	_____
Fixed assets	_____	Retained earnings	$ 97,500
Total assets	$300,000	Total liabilities and equity	_____
Sales	_____	Cost of goods sold	_____

P2-10 The Finnerty Furniture Company, a manufacturer and wholesaler of high-quality home furnishings, has experienced low profitability in recent years. As a result, the board of directors has replaced the president of the firm with a new president, Elizabeth Brannigan, who has asked you to make an analysis of the firm's financial position using the DuPont chart. The most recent industry average ratios and Finnerty's financial statements are as follows:

Industry Average Ratios

Current ratio	2.0x	Fixed assets turnover	6.0x
Debt ratio	30.0%	Total assets turnover	3.0x
Times interest earned	7.0x	Profit margin on sales	3.0%
Inventory turnover	8.5x	Return on total assets	9.0%
Days sales outstanding	24.0 days	Return on common equity	12.9%

Finnerty Furniture Company: Balance Sheet as of December 31 ($ million)

Cash	$ 45	Accounts payables	$ 45
Marketable securities	33	Notes payable	45
Net receivables	66	Other current liabilities	21
Inventories	159	Total current liabilities	$111
Total current assets	$303	Long-term debt	24
		Total liabilities	$135
Gross fixed assets	225	Common stock	114
Less depreciation	(78)	Retained earnings	201
Net fixed assets	$147	Total stockholders' equity	$315
Total assets	$450	Total liabilities and equity	$450

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Finnerty Furniture Company: Income Statement for Year Ended December 31 ($ million)

Net sales	$795.0
Cost of goods sold	(660.0)
Gross profit	$135.0
Selling expenses	(73.5)
Depreciation expense	(12.0)
Earnings before interest and taxes (EBIT)	$ 49.5
Interest expense	(4.5)
Earnings before taxes (EBT)	$ 45.0
Taxes (40%)	(18.0)
Net income	$ 27.0

a. Calculate those ratios that you think would be useful in this analysis.

b. Construct a DuPont equation for Finnerty, and compare the company's ratios to the industry average ratios.

c. Do the balance sheet accounts or the income statement figures seem to be primarily responsible for the low profit?

d. Which specific accounts seem to be most out of line compared with those of other firms in the industry?

e. If Finnerty had a pronounced seasonal sales pattern, or if it grew rapidly during the year, how might that affect the validity of your ratio analysis? How might you correct for such potential problems?

P2-11 Cary Corporation's forecasted financial statements follow, along with industry average ratios.

a. Calculate Cary's forecasted ratios, compare them with the industry average data, and comment briefly on Cary's projected strengths and weaknesses.

b. What do you think would happen to Cary's ratios if the company initiated cost cutting measures that allowed it to hold lower levels of inventory and substantially decrease the cost of goods sold? No calculations are necessary. Think about which ratios would be affected by changes in these two accounts.

Cary Corporation: Forecasted Balance Sheet as of December 31

Cash	$ 72,000	Accounts and notes payable	$432,000
Accounts receivable	439,000	Accruals	170,000
Inventories	894,000	Total current assets	$602,000
Total current assets	$1,405,000	Long-term debt	404,290

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Land and building	238,000	Common stock	575,000
Machinery	132,000	Retained earnings	254,710
Other fixed assets	61,000		
Total assets	$1,836,000	Total liabilities and equity	$1,836,000

Cary Corporation Forecasted Income Statement

Sales	$4,290,000
Cost of goods sold	(3,580,000)
Gross operating profit	$ 710,000
General administrative and selling expenses	(236,320)
Depreciation	(159,000)
Miscellaneous	(134,000)
Earnings before taxes (EBT)	$ 180,680
Taxes (40%)	(72,272)
Net income	$ 108,408
Number of shares outstanding	23,000
Per-Share Data	
EPS	$ 4.71
Cash dividends per share	$ 0.95
P/E ratio	5.0x
Market price (average)	$23.57

Industry Financial Ratios

Quick ratio	1.0x
Current ratio	2.7x
Inventory turnover	5.8x
Days sales outstanding	32 days
Fixed assets turnover	13.0x
Total assets turnover	2.6x
Return on assets	9.1%
Return on equity	18.2%
Debt ratio	50.0%
Profit margin on sales	3.5%
P/E ratio	6.0x

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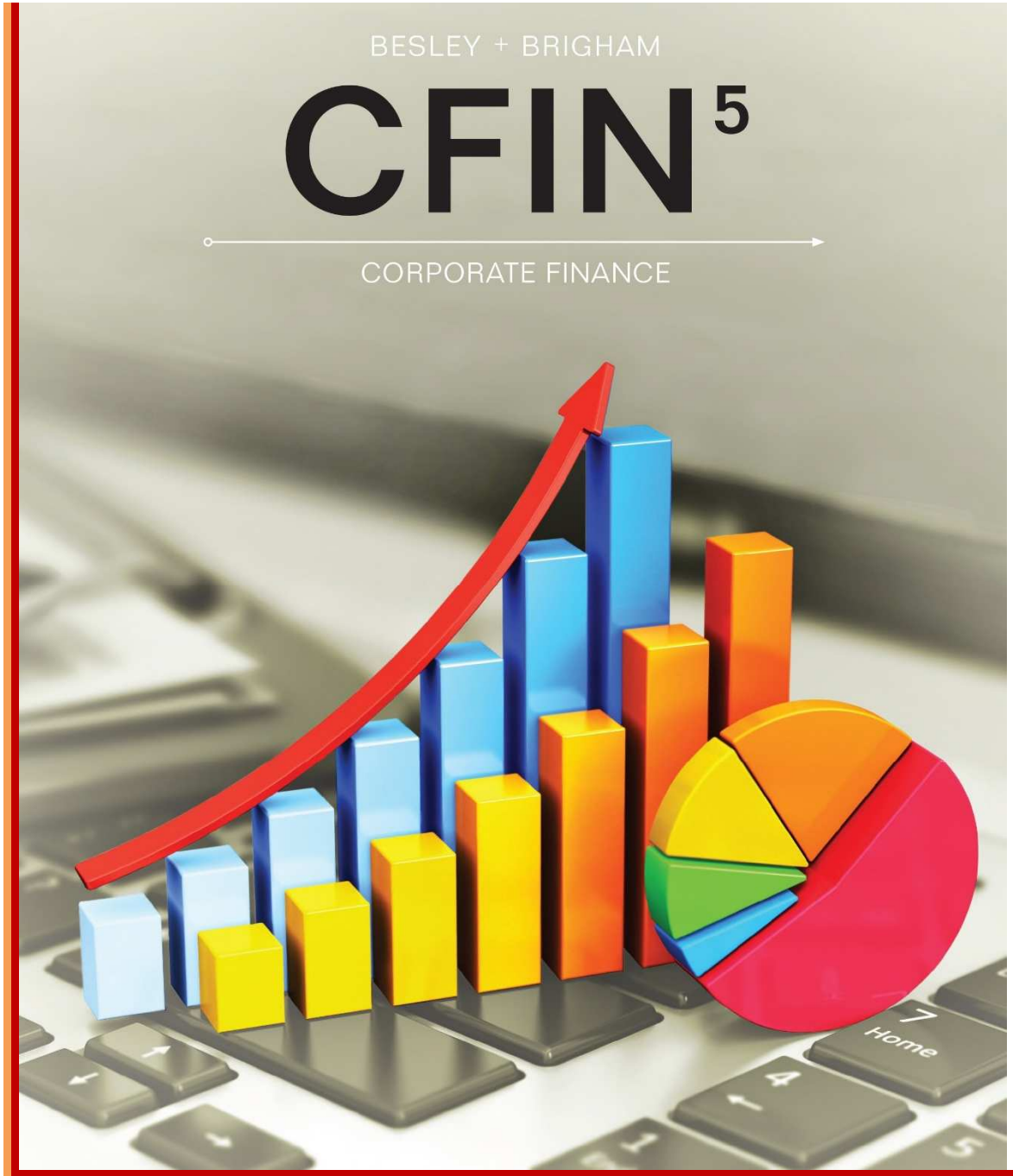

Chapter 2
Analysis of Financial Statements

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Learning Outcomes

LO.1 Describe the basic financial information that is produced by corporations and explain how the firm's stakeholders use such information.

LO.2 Describe the financial statements that corporations publish and the information that each statement provides.

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Learning Outcomes (cont.)

LO.3 Describe how ratio analysis should be conducted and why the results of such an analysis are important to both managers and investors.

LO.4 Discuss potential problems (caveats) associated with financial statement analysis.

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The Annual Report

- Discussion of Operations
  - Usually a letter from the chairman
- Financial Reporting
  - Basic financial statements

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Financial Statements

- The Balance Sheet
- The Income Statement
- Statement of Cash Flows
- Statement of Retained Earnings

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The Balance Sheet

- Represents a picture taken on a specific date that shows a firm's assets (investments) and how those assets are financed (debt or equity).

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The Balance Sheet (cont.)

- Cash and equivalents versus other assets
  - All assets are stated in dollars—only cash and equivalents represent money that can be spent
- Accounting alternatives—e.g., FIFO versus LIFO, accelerated depreciation versus straight-line depreciation

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The Balance Sheet (cont.)

- Breakdown of the common equity account
  - Common stock at par
  - Paid-in capital
  - Retained earnings

Combined into Common stock account if the stock has no par value.

- Book values often do not equal market values.
- The time dimension
  - A "snapshot" of the firm's financial position at a particular point in time; i.e., on a specific date

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Unilate Textiles

Dec. 31 Balance Sheets ($ millions)

	2016		2015	
	Amount	Percent of Total Assets	Amount	Percent of Total Assets
Assets				
Cash and equivalents	$ 15.0	1.8%	$ 40.0	5.4%
Accounts receivables	180.0	21.3	160.0	21.3
Inventory	270.0	32.0	200.0	26.7
Total current assets	$465.0	55.0%	$400.0	53.3%
Net plant and equipment	380.0	45.0	350.0	46.7
Total assets	$845.0	100.0%	$750.0	100.0%
Liabilities and Equity				
Accounts payable	$ 30.0	3.6%	$ 15.0	2.0%
Accruals	60.0	7.1	55.0	7.3
Notes payable	40.0	4.7	35.0	4.7
Total current liabilities	$130.0	15.4%	$105.0	14.0%
Long–term bonds	300.0	35.5	255.0	34.0
Total liabilities (debt)	$430.0	50.9%	$360.0	48.0%
Common stock (25 million shares)	130.0	15.4	130.0	17.3
Retained earnings	285.0	33.7	260.0	34.7
Total common equity	$415.0	49.1%	390.0	52.0
Total liabilities and equity	$845.0	100.0%	$750.0	100.0%

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Unilate Textiles: Balance Sheets

December 31
($ millions, except per share data)

	2016	2015
Additional information:		
Book value per share		
= (Common equity)/Shares	$16.60	$15.60
Market value per share (stock price)	$23.00	$25.00
Net working capital		
= Current assets – Current liabilities	$335.0	$295.0
Net worth		
= Total assets – Total liabilities	415.0	390.0
Breakdown of net plant and equipment account:		
Gross plant and equipment	$680.0	$600.0
Less: Accumulated depreciation	(300.0)	250.0
Net plant and equipment	$380.0	$350.0

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The Income Statement

- Presents the results of business operations during a specified period of time.
- Summarizes the revenues generated and the expenses incurred during a particular accounting period, such as one fiscal year.

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Unilate Textiles: Income Statements

Years Ending December 31 ($ millions)

	2016		2015	
	Amount	Percent of Total Sales	Amount	Percent of Total Sales
Net sales	$1,500.0	100.0%	$1,435.0	100.0%
Variable operating costs (82% of sales)	(1,230.0)	82.0	(1,176.7)	82.0
Gross profit	$ 270.0	18.0	$ 258.3	18.0
Fixed operating costs, less depreciation	(90.0)	6.0	(85.0)	5.9
Earnings before interest, taxes, deprec., and amortization (EBITDA)	$ 180.0	12.0	173.3	12.1
Depreciation	(50.0)	3.3	(40.0)	2.8
Net Operating income (NOI) = Earnings b/f interest and taxes (EBIT)	$ 130.0	8.8	133.3	9.3
Interest	(40.0)	2.7	(35.0)	2.4
Earnings before taxes (EBT)	$ 90.0	6.0	98.3	6.9
Taxes (40%)	(36.0)	2.4	(39.3)	2.7
Net income	$ 54.0	3.6	$ 59.0	4.1
Preferred dividends	0.0		0.0	
Earnings available to common stockholders (EAC)	$ 54.0		59.0	
Common dividends	(29.0)		(27.0)	
Addition to retained earnings	$ 25.0		32.0	

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Unilate Textiles: Income Statements

Years Ending December 31 ($)

	2016	2015
Per share data* (25,000,000 shares)*:		
Earnings per share = (Net income)/Shares	$2.16	$2.36
Dividends per share = (Common dividends)/Shares	$1.16	$1.08

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Statement of Cash Flows

- Reports the effect of the firm's activities—operating, investing, and financing—over some period on its cash position.
- Examines investment decisions (*uses* of cash) and financing decisions (*sources* of cash)

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Statement of Cash Flows

Simple rules to follow when constructing a statement of cash flows:

Sources of Cash	Uses of Cash
↑ Liability Account (e.g., borrow more)	↓ Liability Account (e.g., payoff loans)
↑ Equity Account (e.g., issue stock)	↓ Equity Account (e.g., pay a dividend)
↓ Asset Account (e.g., sell inventory)	↑ Asset Account (e.g., purchase equipment)

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Unilate Textiles: Cash Sources and Uses, 2016 ($ millions)

	Account Balances as of:		Change	
	12/31/16	12/31/15	Sources	Uses
Balance Sheet Effects (Adjustments)				
Cash and marketable securities	$ 15.0	$ 40.0	----	
Accounts receivable	180.0	160.0		$ 20.0
Inventory	200.0	270.0		70.0
Gross plant and equipment	680.0	600.0		80.0
Accounts payable	30.0	15.0	$15.0	
Accruals	60.0	55.0	5.0	
Notes payable	40.0	35.0	5.0	
Long-term bonds	300.0	255.0	45.0	
Common stock (11 million shares)	130.0	130.0		
Total balance sheet effects			$70.0	$170.0

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Unilate Textiles: Statement of Cash Flows
for the Period Ending December 31, 2016

	Cash Flows	Net Amounts
Cash Flows from Operating Activities		
Net income	$ 54.0	
Additions (adjustments) to net income		
Depreciation	50.0	
Increase in accounts payable	15.0	
Increase in accruals	5.0	
Subtractions (adjustments) from net income		
Increase in accounts receivable	(20.0)	
Increase in inventory	(70.0)	
Net cash flow from operations		$ 34.0
Cash Flows from Long-Term Investing Activities		
Acquisition of fixed assets		$ (80.0)
Cash Flows from Financing Activities		
Increase in notes payable	$ 5.0	
Increase in bonds	45.0	
Dividend payment	(29.0)	
Net cash flow from financing		$ 21.0
Net change in cash		$ (25.0)
Cash at the beginning of the year		40.0
Cash at the end of the year		$ 15.0

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Statement of Retained Earnings

- Changes in the common equity accounts between balance sheet dates.

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Unilate Textiles: Statement of Retained Earnings
for the Period Ending December 31, 2016

Balance of retained earnings, December 31, 2015	$260.0
Add: 2016 net income	54.0
Less: 2016 dividends paid to stockholders	(29.0)
Balance of retained earnings, December 31, 2016	$285.0

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Financial Statement (Ratio) Analysis

- Financial ratios are simply accounting numbers translated into relative values.
- Ratios are designed to show relationships between financial statement accounts within firms and between firms, no matter their sizes.

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The Purpose of Ratio Analysis

- Provides an idea of how well the company is doing.
- Standardizes numbers; facilitates comparisons.
- Used to highlight weaknesses and strengths.
- Provides an indication of the future financial health of the firm—***this is the primary purpose for conducting ratio analysis.***

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Five Major Categories of Ratios

- Liquidity: Is the firm able to meet its current obligations?
- Asset management: Is the firm effectively managing its assets (investments)?
- Debt management: Does the firm have the right mix of debt and equity (financing)? Can the firm "handle" more debt?

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Five Major Categories of Ratios (cont.)

- Profitability: How do the combined effects of liquidity, asset, and debt management affect profits?
- Market values: What do investors think about the firm's future financial prospects?

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Liquidity Ratios

- Current ratio
- Quick (Acid test) ratio

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Unilate's Current Ratio

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

$$= \frac{\$465.0}{\$130.0} = 3.6 \text{ times}$$

Industry average = 4.1 times

- Unilate's current ratio is below the industry average, which *suggests* it is not as liquid (able to pay its bills) as the average firm in its industry.

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Unilate's Quick (Acid Test) Ratio

$$\text{Quick Ratio} = \frac{\text{Current Assets- Inventories}}{\text{Current Liabilities}}$$

$$= \frac{\$465.0 - \$270.0}{\$130.0} = \frac{\$195.0}{\$130.0} = 1.5 \text{ times}$$

Industry average = 2.1 times

- Unilate's quick ratio is below the industry average, which *suggests* its lower-than-average liquidity might be the result of large amounts of inventory.

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Unilate's Liquidity Position—Conclusion

- Liquidity ratios indicates that Unilate's liquidity position is fairly poor.
- Suggests the firm might have difficulty in the future paying its bills from operations.

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Asset Management Ratios

- Inventory Turnover Ratio
- Days Sales Outstanding (DSO)
- Fixed Assets Turnover Ratio
- Total Assets Turnover Ratio

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Unilate's Inventory Turnover Ratio

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

$$= \frac{\$1{,}230.0}{\$270.0} = 4.6 \text{ times}$$

$$\text{Industry average} = 7.4 \text{ times}$$

- Unilate's inventory turnover ratio is below the industry average, which *suggests* it might be holding excess inventory compared to the average firm in the industry.

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Unilate's Days Sales Outstanding (DSO) Ratio

$$\text{DSO} = \frac{\text{Receivables}}{\text{Daily Sales}} = \frac{\text{Receivables}}{\left[\dfrac{\text{Annual Sales}}{360}\right]}$$

$$= \frac{\$180.0}{\left[\dfrac{\$1{,}500.0}{360}\right]} = \frac{\$180.0}{\$4.167} = 43.2 \text{ days}$$

Industry average = 32.1 days

- Unilate's DSO is higher than the industry average, which *suggests* it is not collecting its receivables as quickly as it should.

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Unilate's Fixed Assets (FA) Turnover Ratio

$$\text{Fixed assets turnover} = \frac{\text{Sales}}{\text{Net fixed assets}}$$

$$= \frac{\$1{,}500.0}{\$380.0} = 3.9 \text{ times}$$

$$\text{Industry Average} = 4.0 \text{ times}$$

- Unilate's FA turnover ratio is about the same as the industry average, which *suggests* it using its fixed assets about as efficiently as other firms in the industry.

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Unilate's Total Assets (TA) Turnover Ratio

$$\text{Total assets turnover} = \frac{\text{Sales}}{\text{Total assets}}$$

$$= \frac{\$1{,}500.0}{\$845.0} = 1.8 \text{ times}$$

$$\text{Industry Average} = 2.1 \text{ times}$$

- Unilate's TA turnover ratio is below the industry average, which *suggests* it is not using all of its assets as efficiently as other firms in the industry.

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Unilate's Asset Management Ratios—Conclusion

- Most asset turnover ratios are below the industry average, which means the age of the assets is longer than other firms in the industry.
- Unilate does not appear to be operating as efficiently as the average firm in its industry.

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Debt Management Ratios

- Debt Ratio
- Times-Interest-Earned Ratio
- Fixed Charge Coverage Ratio

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Unilate's Debt Ratio

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

$$= \frac{\$430.0}{\$845.0} = 0.509 = 50.9\%$$

$$\text{Industry Average} = 42.0\%$$

- Unilate's debt ratio is above the industry average, which *suggests* it is using more debt to finance its assets than the average firm in the industry.

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Unilate's Times-Interest-Earned (TIE) Ratio

$$\text{TIE} = \frac{\text{EBIT}}{\text{Interest charges}}$$

$$= \frac{\$130.0}{\$40.0} = 3.3 \text{ times}$$

Industry Average = 6.5 times

- Unilate's TIE ratio is well below the industry average, which *suggests* it is not as able to service its debt (i.e., pay interest) as the average firm in the industry.

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Unilate's Fixed Charge Coverage (FCC) Ratio

$$\text{FCC} = \frac{\text{EBIT} + \text{Lease payments}}{\begin{pmatrix}\text{Interest}\\ \text{charges}\end{pmatrix} + \begin{pmatrix}\text{Lease}\\ \text{payments}\end{pmatrix} + \left[\dfrac{\text{Sinking fund payment}}{1 - \text{Tax rate}}\right]}$$

$$= \frac{\$130.0 + \$10.0}{\$40.0 + \$10.0 + \left[\frac{\$8.0}{1-0.4}\right]} = \frac{\$140.0}{\$63.3} = 2.2 \text{ times}$$

Industry Average = 5.8 times

- Unilate's FCC ratio is well below the industry average, which *suggests* it is not as able to cover its fixed financing charges as the average frim in the industry.

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Unilate's Debt Position—Conclusion

- The debt ratio is higher than the industry, and the coverage ratios are lower than the industry.
- Unilate probably will find it difficult to borrow additional funds until its poor debt position is improved.

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Profitability Ratios

- Net Profit Margin
- Return on Total Assets (ROA)
- Return on Common Equity (ROE)

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Unilate's Profit Margin Ratio

$$\text{Profit margin} = \frac{\text{Net Profit}}{\text{Sales}}$$

$$= \frac{\$54.0}{\$1{,}500} = 0.036 = 3.6\%$$

$$\text{Industry Average} = 4.9\%$$

- Unilate's profit margin is below the industry average, which *suggests* it is not generating as much income per dollar of sales as the average firm in the industry.

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Unilate's Return on Total Assets (ROA)

$$\text{ROA} = \frac{\text{Net income}}{\text{Total assets}}$$

$$= \frac{\$54.0}{\$845.0} = 0.064 = 6.4\%$$

Industry Average = 10.3%

- Unilate's ROA is below the industry average, which *suggests* it is not generating the same return on its investment in assets as other firms in the industry.

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Unilate's Return on Common Equity (ROE)

$$\text{ROE} = \frac{\text{Net income}}{\text{Common equity}}$$

$$= \frac{\$54.0}{\$415.0} = 0.130 = 13.0\%$$

$$\text{Industry Average} = 17.7\%$$

- Unilate's ROE is below the industry average, which *suggests* it is not generating as much return for stockholders as other firms in the industry.

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Unilate's Profitability Position—Conclusion

- The operating results have suffered because of the poor liquidity position, poor asset management, and a poor debt position.

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Market Value Ratios

- Price/Earnings Ratio
- Market/Book Ratio

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Unilate's Price/Earnings (P/E) Ratio

$$\text{P/E Ratio} = \frac{\text{Price per share}}{\text{Earnings per share}}$$

$$= \frac{\$23.00}{\$2.16} = 10.6 \text{ times}$$

$$\text{Industry Average} = 15.0 \text{ times}$$

- Unilate's P/E ratio is below the industry average, which *suggests* that investors consider it to be a riskier investment than other firms in the industry.

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Unilate's Market/Book (M/B) Ratio

$$\text{Market/Book Ratio} = \frac{\text{Market price per share}}{\text{Book value per share}}$$

$$= \frac{\$23.00}{\$16.00} = 1.4 \text{ times}$$

Industry Average = 2.5 times

- Unilate's M/B ratio is below the industry average, which *suggests* that investors value its stock lower than other firms in the industry.

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Unilate's Market Value—Conclusion

- Investors are not excited about the future prospects of the company.

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Summary of Ratio Analysis: The DuPont Analysis—ROA

ROA = Net Profit Margin X Total Assets Turnover

$$= \frac{\text{Net Income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total Assets}}$$

$$= \frac{\$54.0}{\$1{,}500.0} \times \frac{\$1{,}500.0}{\$845.0}$$

$$= 3.6\% \times 1.775 = 6.4\%$$

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Summary of Ratio Analysis: The DuPont Analysis—ROE

$$\text{ROE} = \text{ROA} \times \text{Equity multiplier}$$

$$= \frac{\text{Net Income}}{\text{Total assets}} \times \frac{\text{Total assets}}{\text{Common equity}}$$

$$= \frac{\$54.0}{\$845.0} \times \frac{\$845.0}{\$415.0}$$

$$= 6.4\% \times 2.036 = 13.0\%$$

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Summary of Ratio Analysis: The DuPont Analysis—ROE (cont.)

$$\text{ROE} = (\text{Profit margin} \times \text{TA Turnover}) \times \text{Equity multiplier}$$

$$= \frac{\text{Net Income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total assets}} \times \frac{\text{Total assets}}{\text{Common equity}}$$

$$= \frac{\$54.0}{\$1{,}500.0} \times \frac{\$1{,}500.0}{\$845.0} \times \frac{\$845.0}{\$415.0}$$

$$= 3.6\% \times 1.775 \times 2.036$$

$$= 13.0\%$$

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DuPont Equation Provides Overview

- Firm's profitability (measured by ROA)
- Firm's expense control (measured by profit margin)
- Firm's asset utilization (measured by total assets turnover)

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Limitations (Caveats) of Financial Statement Analysis

- Comparison with industry averages is difficult if the firm operates many different divisions.
- The industry average might not be the "magical" number that every firm should try to achieve.
- Inflation distorts balance sheets.
- Seasonal factors can distort ratios.

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Limitations (Caveats) of Financial Statement Analysis

- "Window dressing" can make ratios look better than they really are.
- Different operating and accounting practices distort comparisons.
- Sometimes hard to tell whether a ratio is "good" or "bad."
- Difficult to tell whether company is, on balance, in strong or weak position.

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Financial Statement Analysis—Conclusion

- The most important, as well as the most difficult, ingredient of successful financial statement analysis is the judgment that is used to reach final conclusions about a firm's *future* financial position.

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