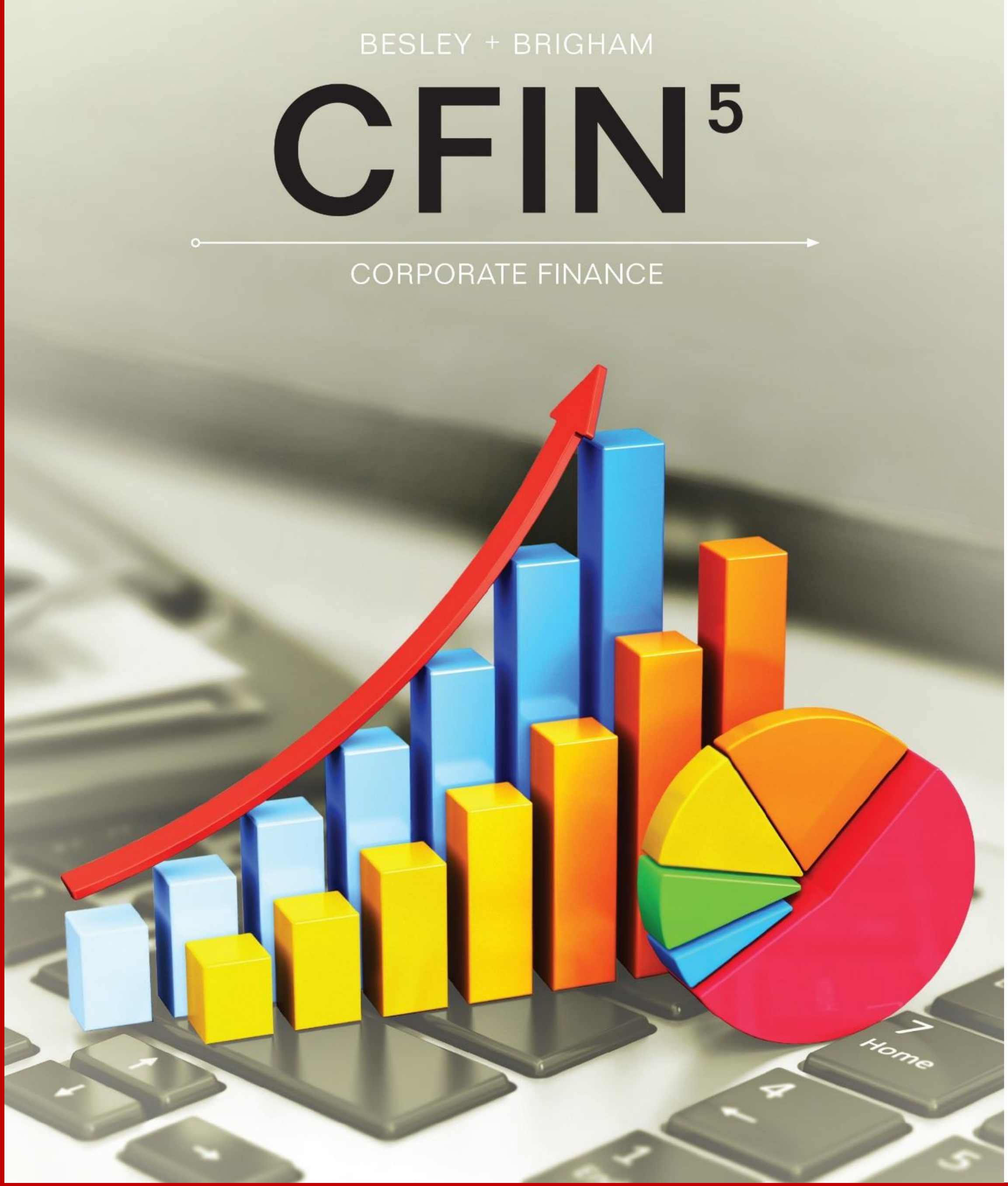

Chapter 2 Analysis of Financial Statements

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.

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.

The Annual Report

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

- IBM Annual Report

Financial Statements

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

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).

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

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

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%

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

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.

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	

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

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)
- In my opinion - the most important (and underutilized) financial statement

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)

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

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

Statement of Retained Earnings

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

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

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.

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.
- Analysis of trends and anomalies
- Provides an indication of the future financial health of the firm—***this is the primary purpose for conducting ratio analysis.***

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?

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?

Liquidity Ratios

- Current ratio
- Quick (Acid test) ratio

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.

Unilate's Quick (Acid Test) Ratio

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

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

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

- 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.

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.

Asset Management Ratios

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

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.

Unilate's Days Sales Outstanding (DSO) Ratio

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

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

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.

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.

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.

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.

Debt Management Ratios

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

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.

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

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

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

$$\text{Industry Average} = 6.5 \text{ times}$$

- 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.

Unilate's Fixed Charge Coverage (FCC) Ratio

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

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

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.

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.

Profitability Ratios

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

Unilate's Profit Margin Ratio

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

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

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.

Unilate's Return on Total Assets (ROA)

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

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

$$\text{Industry Average} = 10.3\%$$

- 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.

Unilate's Return on Common Equity (ROE)

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

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

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.

Unilate’s Profitability Position—Conclusion

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

Market Value Ratios

- Price/Earnings Ratio
- Market/Book Ratio

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.

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.

Unilate’s Market Value—Conclusion

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

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)

Summary of Ratio Analysis: The DuPont Analysis—ROA

ROA = Net Profit Margin X Total Assets Turnover

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

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

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

Summary of Ratio Analysis: The DuPont Analysis—ROE

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

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

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

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

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

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

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

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

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

$$= 13.0\%$$

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.

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.

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.