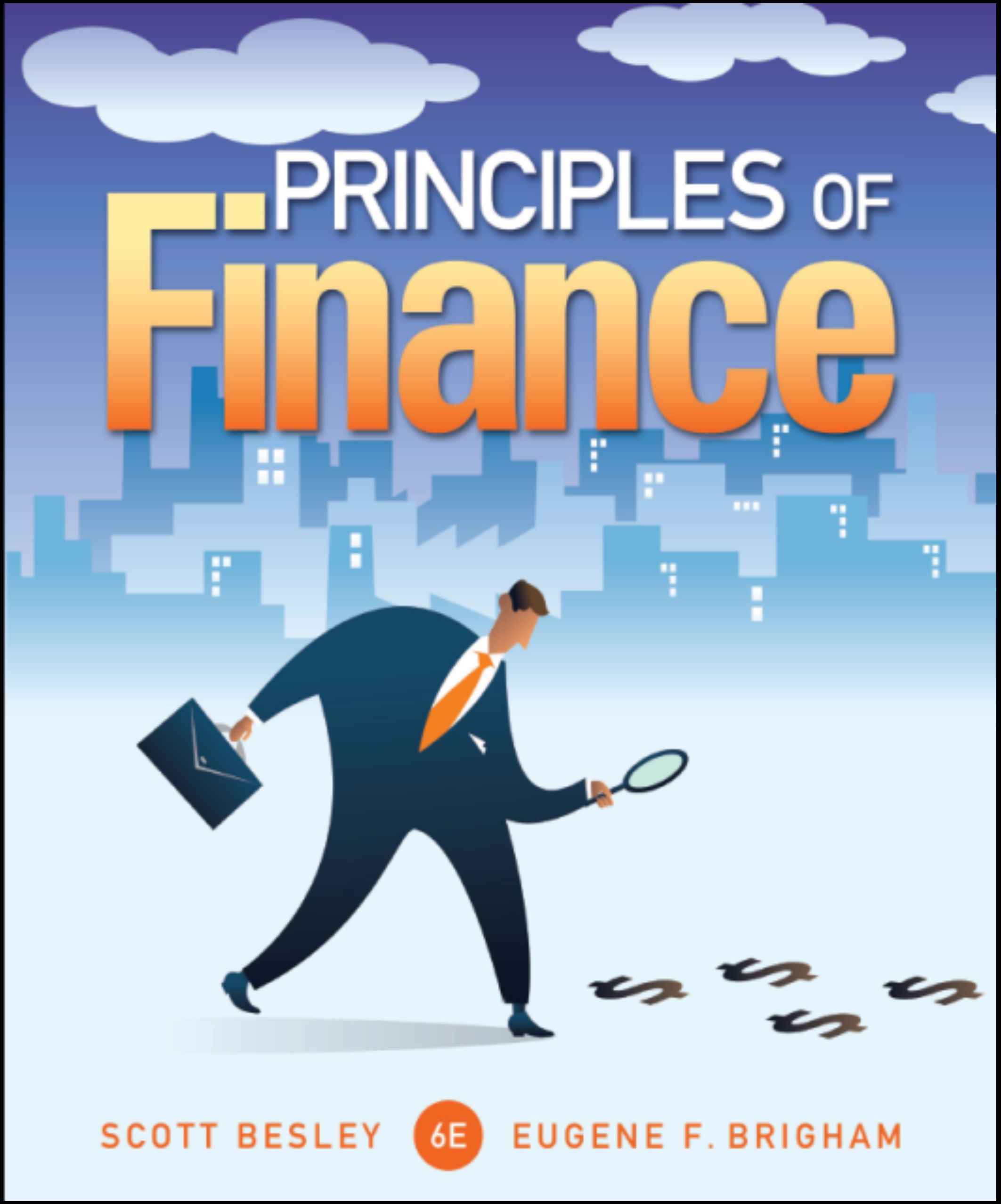


Chapter 7

Analysis of Financial Statements

Besley & Brigham

Chapter 7- Learning Objectives

- ✓ Describe the financial statements that corporations publish, and discuss the information each statement provides.
- ✓ Discuss how investors utilize financial statements.
- ✓ Describe ratio analysis and discuss why the results of such an analysis are important to both managers and investors.
- ✓ Describe some potential problems (caveats) that are associated with financial statement analysis.
- ✓ Explain the most important ingredient (factor) in financial statement analysis.

Financial Statements and Reports

- Annual Report
  - A report issued annually by a corporation to its stockholders
  - Management’s opinion of the past year’s operations and the firm’s future prospects

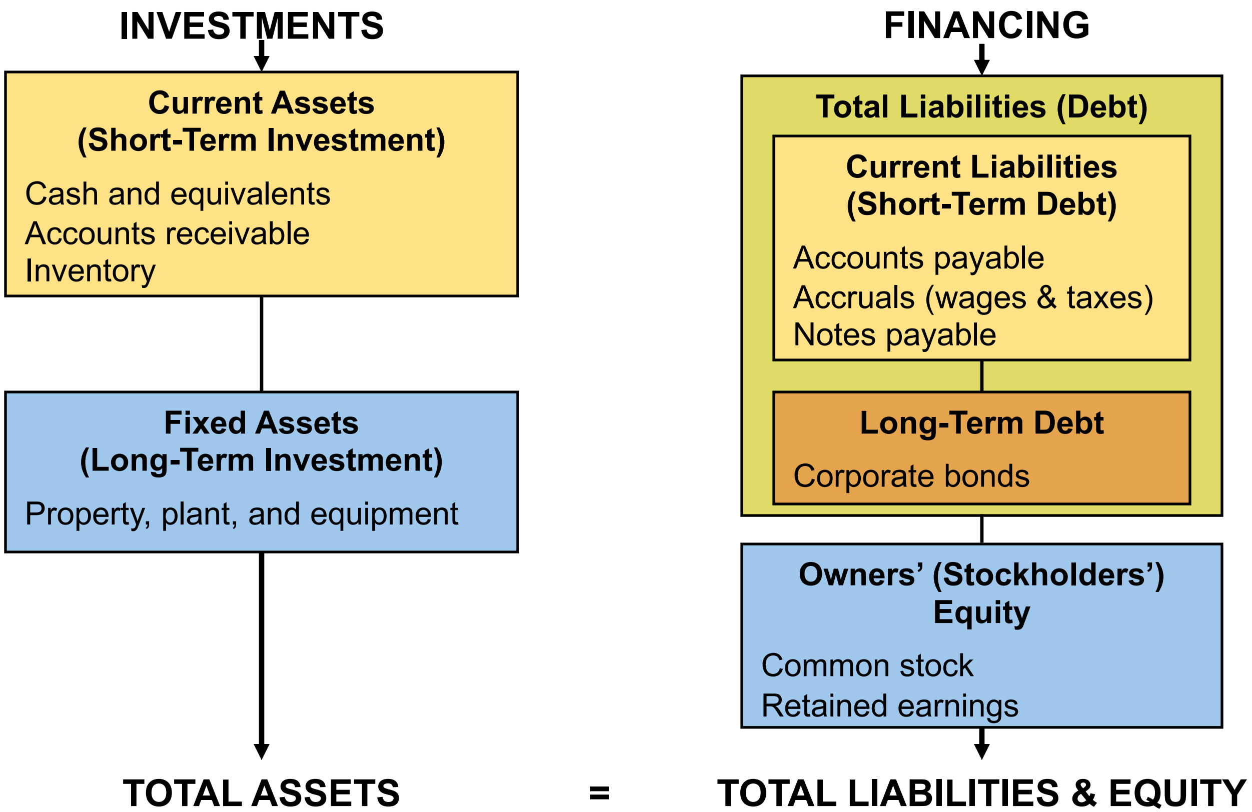
Financial Statements and Reports

- Annual Report
  - Basic financial statements
    - Balance sheet
    - Income statement
    - Statement of retained earnings
    - Statement of cash flows

Financial Statements and Reports

- ✓ Balance Sheet - A statement of the firm's financial position at a specific point in time

Balance Sheet Format



Financial Statements and Reports

- Balance Sheet - points worth noting
  1. Cash versus other assets
  2. Accounting alternatives
     - FIFO (first-in, first-out) or LIFO (last-in, first-out)
     - Accelerated or straight-line depreciation
  3. Breakdown of common equity account
     - Common stock
     - Paid-in capital
     - Retained earnings

Financial Statements and Reports

- Balance Sheet - points worth noting
  4. Book values versus market values
  5. The time dimension
     - Balance sheet is a snapshot of the firm's financial position at a specific point in time

Financial Statements and Reports

- Income Statement
  - A statement summarizing the firm’s revenues and expenses over an accounting period, generally a quarter or a year

Financial Statements and Reports

- Accounting income versus cash flow
  - Cash flows
    - The cash receipts and the cash disbursements, as opposed to the revenues and expenses reported for computation of net income, generated by a firm during some specified period
    - Accrual accounting

Financial Statements and Reports

- Accounting income versus cash flow
  - Accounting profit
    - A firm’s net income as reported on its income statement
  - Operating cash flows
    - Those cash flows that arise from normal operations
    - The difference between cash collections and cash expenses

Financial Statements and Reports

- Statement of cash flows
  - A statement reporting the impact of a firm’s operating, investing, and financing activities on cash flows over an accounting period

Financial Statements and Reports

- Statement of cash flows
  - Sources of cash
    - Increase in liability or equity account
    - Decrease in an asset account
  - Uses of cash
    - Decrease in a liability or equity account
    - Increase in an asset account

Argile Textiles:
Cash Sources & Uses 2015 (million $)

	Account Balance as of:		Change	
	12/31/15	12/31/14	Sources	Uses
Balance Sheet Changes				
Cash and marketable securities	$ 10.0	$ 20.0	$ 10.0	
Accounts receivable	90.0	80.0		$(10.0)
Inventory	135.0	101.0		(34.0)
Gross plant and equipment	345.0	300.0		(45.0)
Accounts payable	15.0	8.0	7.0	
Accruals	30.0	27.0	3.0	
Notes payable	20.0	18.0	2.0	
Long-term bonds	152.0	128.0	24.0	
Common stock (11 million shares)	65.0	65.0	---	---
Income Statement Information				
Net income	$ 27.0			
Add: depreciation	30.0			
Gross cash flow from operations	$ 57.0		57.0	
Dividend payment				(14.0)
Totals			$103.0	$103.0

Argile Textiles: Statement of Cash Flows (*for the period ending Dec. 31, 2015)*

Cash Flows from Operating Activities		
Net income	$ 27.0	
Additions (adjustments) to net income		
Depreciation[a]	30.0	
Increase in accounts payable	7.0	
Increase in accruals	3.0	
Subtractions (adjustments) from net income		
Increase in accounts receivable	(10.0)	
Increase in inventory	(34.0)	
Net cash flow from operations		$ 23.0
Cash Flows from Long-Term Investing Activities		
Acquisition of fixed assets		$(45.0)
Cash Flows from Financing Activities		
Increase in notes payable	$ 2.0	
Increase in long-term bonds	24.0	
Dividend payment	(14.0)	
Net cash flow from financing		$ 12.0
Net change in cash		$(10.0)
Cash at the beginning of the year		20.0
Cash at the end of the year		$ 10.0

Financial Statements and Reports

- Statement of Retained Earnings
  - A statement reporting changes in the firm' s retained earnings as a result of the income generated and retained during the year
  - The balance sheet figure for retained earnings is the sum of the earnings retained for each year the firm has been in business

Argile Textiles: Statement of Retained Earnings for the Year Ending December 31, 2015 ($ million)

Balance of retained earnings, December 31, 2014	$129.0
Add: 2015 net income	27.0
Less: 2015 dividends to stockholders	(14.0)
Balance of retained earnings, December 31, 2015	$142.0

How Do Investors Use Financial Statements?

- Working (Operating Capital)
  - Short-term financing
  - Short-term investing
  - Net working capital = Current assets less Current liabilities
- Operating Cash Flows
- Free Cash Flow
- Economic Value Added (EVA)

Net Operating Working Capital

$$\begin{pmatrix}\text{Net operating}\\ \text{working capital}\end{pmatrix} = \text{NOWC} = \begin{pmatrix}\text{Current assets}\\ \text{required for operations}\end{pmatrix} - \begin{pmatrix}\text{Non-interest-bearing}\\ \text{current liabilities}\end{pmatrix}$$

Operating Cash Flow

$$\begin{matrix}\text{Operating} \\ \text{cash flow}\end{matrix} = \left[\text{NOI}(1\text{-Tax rate})\right] + \left(\begin{matrix}\text{Depreciation and} \\ \text{amortization expense}\end{matrix}\right)$$

$$= \left(\begin{matrix}\text{Net operating} \\ \text{profit after taxes}\end{matrix}\right) + \left(\begin{matrix}\text{Depreciation and} \\ \text{amortization expense}\end{matrix}\right)$$

Free Cash Flow

$$\text{Free Cash Flow (FCF)} = \left(\begin{array}{c}\text{Operating}\\ \text{cash flow}\end{array}\right) - \text{Investments}$$

$$= \left(\begin{array}{c}\text{Operating}\\ \text{cash flow}\end{array}\right) - (\Delta\ \text{Fixed assets} + \ \text{NOWC})$$

Economic Value Added

$$\begin{gathered}\text{Economic value}\\ \text{added (EVA)}\end{gathered} = \text{NOI}(1 - \text{Tax rate}) - \left[\left(\begin{gathered}\text{Invested}\\ \text{capital}\end{gathered}\right) \times \left(\begin{gathered}\text{After-tax cost of}\\ \text{funds as a percent}\end{gathered}\right)\right]$$

Ratio Analysis

- ✓ Objective is to anticipate future financial conditions
- ✓ Starting point for planning future actions

Ratio Analysis—Liquidity Ratios

- ✓ Liquid Asset
  - ✓ An asset that can be easily converted into cash without significant loss of its original value
- ✓ Liquidity Ratios
  - ✓ Ratios that relate the firm's cash and other assets to its current liabilities
  - ✓ Indicate how well a firm can meet its current obligations

Ratio Analysis—Liquidity Ratios

- ✓ Current Ratio
  - ✓ Indicates the extent to which current liabilities are covered by assets expected to be converted into cash in the near future

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

Ratio Analysis—Liquidity Ratios

- Quick (acid test) Ratio
  - Deducts inventories from current assets and divides the remainder by current liabilities
  - A variation of the current ratio

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

Ratio Analysis—Asset Mgmt Ratios

- Asset Management Ratios
  - Ratios that measure how effectively a firm is managing its assets

Ratio Analysis—Asset Mgmt Ratios

✓ Inventory Turnover Ratio

$$= \frac{\text{Cost of goods sold}}{\text{Inventory}} = \frac{\text{Variable operating costs}}{\text{Inventory}}$$

Ratio Analysis—Asset Mgmt Ratios

✓ Days Sales Outstanding (DSO)

$$= \frac{\text{Receivables}}{\text{Average sales per day}} = \frac{\text{Receivables}}{\left[\dfrac{\text{Annual sales}}{360}\right]}$$

Ratio Analysis—Asset Mgmt Ratios

- ✓ Fixed Assets Turnover Ratio

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

Ratio Analysis—Asset Mgmt Ratios

- ✓ Total Assets Turnover Ratio

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

Ratio Analysis—Debt Mgmt Ratios

- ✓ Debt management ratios
  - ✓ Analyze the company’s use of debt
- ✓ Financial leverage
  - ✓ The use of debt financing

Ratio Analysis—Debt Mgmt Ratios

- ✓ Debt Ratio

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

Ratio Analysis—Debt Mgmt Ratios

✓ Times-Interest-Earned (TIE) Ratio

$$= \frac{\text{EBIT}}{\text{Interest Charges}}$$

Ratio Analysis—Debt Mgmt Ratios

- ✓ Fixed Charge Coverage Ratio

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

Ratio Analysis—Profitability Ratios

- ✓ Profitability Ratios
  - ✓ Ratios showing the effect of liquidity, asset management, and debt management on operating results

Ratio Analysis—Profitability Ratios

- ✓Net Profit Margin on Sales

$$= \frac{\text{Net profit}}{\text{Sales}}$$

Ratio Analysis—Profitability Ratios

✓ Return on Total Assets (ROA)

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

Ratio Analysis—Profitability Ratios

✓Return On Common Equity (ROE)

$$= \frac{\left(\begin{array}{c}\text{Net income available}\\ \text{to common stockholders}\end{array}\right)}{\text{Total assets}}$$

Ratio Analysis—Mkt Value Ratios

- ✓ Market Value Ratios
  - ✓ Ratios that relate the firm’s stock price to its earnings and book value per share

Ratio Analysis—Mkt Value Ratios

- ✓ Earnings Per Share (EPS)

$$= \frac{\text{Net income available to common stockholders}}{\text{Number of common shares outstanding}}$$

Ratio Analysis—Mkt Value Ratios

- ✓ Price/Earnings (P/E) Ratio

$$= \frac{\text{Market price per share}}{\text{Earnings per share}}$$

Ratio Analysis—Mkt Value Ratios

- ✓ Book Value Per Share

$$= \frac{\text{Common equity}}{\text{Number of common shares outstanding}}$$

Ratio Analysis—Mkt Value Ratios

- ✓ Market/Book (M/B) Ratio

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

Ratio Analysis

- Trend Analysis
  - An analysis of a firm's financial ratios over time
  - Used to determine whether a firm's financial position is improving or deteriorating

Ratio Analysis

- ✓ Summary of ratio analysis:
  The Du Pont Analysis
  - ✓ An analysis designed to show the relationships among return on investment, asset turnover, the profit margin, and leverage

Ratio Analysis

- ✓ Du Pont Equation

$$\text{ROA} = \text{Net profit margin} \times \text{Total assets turnover}$$

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

Ratio Analysis

- Comparative ratio analysis (benchmarking)
  - An analysis based on a comparison of a firm’s ratios with those of other firms in the same industry at a particular point in time

Uses and Limitations of Ratio Analysis

1. Large firms operate divisions in different industries
   - ✓ Difficult to develop meaningful industry averages
2. If the goal is to be better than average, industry averages are not the target
   - ✓ Focus on the industry leaders' ratios

Uses and Limitations of Ratio Analysis

3. Inflation distorts balance sheets
   - ✓ Depreciation and inventory costs affect income statements
   - ✓ Comparative analysis of firm over time
   - ✓ Comparing firms of different ages

Uses and Limitations of Ratio Analysis

4. Seasonal factors distort ratios
   - ✓ Use monthly averages as base for inventory and receivables instead of one particular month
5. Window dressing techniques
   - ✓ Make financial statements appear better than they actually are
   - ✓ Borrowing "long-term" to be repaid quickly distorts liquidity ratios

Uses and Limitations of Ratio Analysis

6. Different accounting practices
   - ✓ Distorts comparisons
   - ✓ Inventory valuation
   - ✓ Depreciation methods

Uses and Limitations of Ratio Analysis

7. Difficult to generalize about "good" or "bad" ratios
   - ✓ High current ratio can indicate strong liquidity or excessive cash
   - ✓ High fixed assets turnover can indicate efficient use or undercapitalized

Uses and Limitations of Ratio Analysis

8. Firm may have some "good" ratios and others that look "bad"
   - ✓ Difficult to tell whether overall the company is strong or weak
   - ✓ Statistical procedures can analyze the net effects of a set of ratios

The most important and most difficult part of effective ratio analysis is the judgment that must be used to reach conclusions about a firm's financial position.

Chapter Principles
Key Analysis of Financial Statements Concepts

- ✓ What financial statements do corporations publish, and what information does each provide?
  - ✓ Balance sheet - a snapshot of firm's assets and how they are financed
  - ✓ Income statement - revenues earned and expenses incurred are netted to compute the bottom line
  - ✓ Statement of cash flows - activities that generated funds and those that used funds
  - ✓ Statement of retained earnings - shows what caused changes in the firm's common equity

Chapter Principles
Key Analysis of Financial Statements Concepts

- How do investors utilize financial statements?
  - Help investors determine the financial position of the firm to help estimate cash flows the firm will generate in the future
- What is ratio analysis and why are the results important to both managers and investors?
  - Is used to evaluate the firm's current financial position and the direction this position is expected to take in the future
    - Investors form opinions about the safety of their investments
    - Managers plan actions that will correct the firm's weaknesses and take advantage of its strengths

Chapter Principles
Key Analysis of Financial Statements Concepts

- ✓ What are some potential problems associated with financial statement analysis?
  - ✓ Classifying a large conglomerate firm into an industry category or finding firms to compare
  - ✓ Inflation can distort numbers
  - ✓ Seasonal firms have wide swings in their operating accounts
  - ✓ Firms can use GAAP to manipulate financial numbers
  - ✓ Difficult to form conclusions when some ratios look good and others look bad.

Chapter Principles
Key Analysis of Financial Statements Concepts

- What is the most important ingredient in financial statement analysis?
  - Judgment must be used when interpreting financial ratios and therefore different analysts might reach different conclusions
  - Conclusions might not always be correct

