Chapter 2

Financial Statement and Ratio Analysis

LEARNING OBJECTIVES

L01	L02	L03
Know the Three Financial Statements Needed for Financial Analysis	Know the Goals of Financial Statement Analysis	Perform Financial Statement Analysis

Introduction

Earlier, we learned that the goal of the financial manager is to maximize shareholder wealth, which occurs when the firm's share price is maximized. In this chapter, we want to get more pragmatic. How does the financial manager know that he or she is moving the company in the right direction, and how do investors in the firm's shares evaluate the performance of the managers? The stakeholders look at the firm's financial statements for answers to these and other questions. Firm managers use accounting information to help them manage the firm. Investors and creditors use accounting information to evaluate the firm.

This chapter focuses on the interpretation and analysis of financial statements. To perform financial analysis, you will need to know how to use common-sized financial statements, financial ratios, and the Du Pont ratio method. In addition, you will learn market-based ratios that provide insight about what the market for shares and bonds believes about future prospects of the firm.

Financial analysis is the process of using financial information to assist in investment and financial decision making. Financial analysis helps managers with efficiency analysis and identification of problem areas within the firm. Also, it helps managers identify strengths on which the firm should build. Externally, financial analysis is useful for credit managers evaluating loan requests and investors considering security purchases.

LO1 The Financial Statements

Three financial statements are critical to financial statement analysis: the balance sheet, the income statement, and the statement of cash flows. We provide a brief overview of each statement and describe what information it contains.

1.1 The Balance Sheet

The **balance sheet** provides the details of the accounting identity.

$$Assets = Liabilities + Owners' \ equity$$

or

$$Investments = Investments \ paid \ for \ with \ debt + Investments \ paid \ for \ with \ equity$$

The balance sheet is a financial snapshot of the firm, usually prepared at the end of the fiscal year. That is, it provides information about the condition of the firm at one particular point in time. By reviewing a series of balance sheets from different years, the analyst can identify changes in the firm over time. Table 2.1 shows a sample balance sheet, and the video discusses its content.

Table 2.1 Sample Balance Sheet

Assets	Liabilities and Equity
Current Assets	**Current Liabilities**
Cash	Accounts payable
Marketable securities	Accrued expenses
Accounts receivable	Short-term notes
Inventories	
Total current assets	Total current liabilities
Fixed Assets	**Long-Term Liabilities**
Machinery and equipment	Long-term notes
Buildings	Mortgages
Land	
Total fixed assets	Total long-term liabilities
Other Assets	**Equity**
Investments	Preferred shares
Patents	Common shares
	Par value
	Paid in capital
	Retained earnings
Total other assets	Total equity
Total Assets	**Total Liabilities and Equity**

It is important to note that assets are owned only for the income they can produce for the firm. Liabilities and owners' equity provide the funds for the purchase of these assets.

1. Assets generate income (the left-hand side)
   The left-hand side of the balance sheet lists the firm's assets. The only reason for a firm to hold an asset is if it produces income. The assets of the firm produce the firm's income. There is no reason for a firm to hold an asset if it is not going to produce income.
2. Financing the assets (the right-hand side)
   For every dollar in assets the firm has, there will either be a dollar of liability or a dollar of equity on the right-hand side of the balance sheet. The right-hand side of the balance sheet shows how the firm is financing its assets. By adjusting the mix of debt and equity, the lowest cost of financing can be achieved.

In summary, the left-hand side of the balance sheet reports the assets that earn income and the right-hand side reports how these assets are financed.

1.2 The Income Statement

Unlike the balance sheet, which tells us the state of the firm *at one point in time*, the **income statement** tells us how the firm has performed *over a period of time*.

Income statements usually have two sections. The first section reports the results of operating activities or operating income. This includes sales minus operating expenses. Financing activities are reported in the second section, where interest expense, taxes, and preferred dividends are subtracted to arrive at net income. Table 2.2 provides a sample income statement, and the video discusses the content of the income statement.

Table 2.2 Sample Income Statement

Sales	
— Cost of goods sold	
Gross Profit	Operating Activities
— Selling expense	
— Administrative expense	
— Depreciation expense	
Earnings Before Interest and Taxes (EBIT)	
— Interest expense	
Earnings Before Taxes	Financing Activities
— Taxes	
Net Income Before Preferred Dividends	
— Preferred share dividends	
Net Income Available to Common Shareholders	

1.3 Statement of Cash Flows

Many students are not as comfortable with the **statement of cash flows** as they are with the income statement and balance sheet. It does, however, provide insight not readily available from the other statements. In finance, we are particularly concerned with cash flows rather than accounting earnings. Table 2.3 shows a sample statement of cash flows. The Explain It video explains the content of the statement of cash flows.

Table 2.3 Sample Statement of Cash Flows

Cash Flow from Operations
  Net profit after taxes
  + Depreciation
  + Decrease in accounts receivable
  + Decrease in inventories
  + Increase in accounts payable
  + Decrease in accruals
          Cash provided by operations
Cash Flow from Investments
  Increase in fixed assets
  Change in business ownership
          Cash provided by investment activities
Cash Flow from Financing Activities
  + Decrease in notes payable
  + Increase in long-term debt
  + Changes in shareholders' equity
  − Dividends paid
          Cash provided by financing activities
Net increase/decrease in cash and marketable securities

STOP

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LO2   The Goals of Financial Analysis

Exactly what can we hope to accomplish by analyzing the financial aspects of a firm? Financial analysis is a powerful tool to help drive investment and management decisions. However, we will *not* find many absolute answers. What we may find is a number of red flags that help focus our attention.

Outsiders will conduct financial analysis differently than managers, also referred to as *insiders*. Clearly, insiders have access to information unavailable to others in the market. This gives them an advantage when ratios raise questions. For example, suppose a firm discovers it has a falling profit margin. It has also found that its inventory is not selling as quickly as in the past. Insiders can order an analysis to determine which specific items are not moving well. Outsiders may only speculate about the quality of the inventory mix. However, both insiders and outsiders have a common goal of attempting to identify the strengths and weaknesses of the firm.

Identify Company Weaknesses

One goal of financial analysis is to identify problems that affect the firm. By identifying problems early, managers can make corrections to improve firm performance. Some problems may be hard to identify. A firm that seems to be earning profits but is constantly short of cash may turn to financial analysis to identify why this is occurring.

Investors are also interested in identifying companies with problems as early as possible. No one wants to stay on a sinking ship any longer than necessary. Analysts hope they can identify firms with problems before other investors so they can sell their shares before the price drops.

Identify Company Strengths

Another equally important purpose of financial analysis is to identify company strengths so those strengths can be enhanced and used to their greatest potential. For example, in the early 1970s, falling inventory turnover ratios and return on equity ratios told JCPenney that it was not able to compete successfully with high volume discount stores; however, it was able to sell good quality clothing. This discovery led to a major refocusing of the firm that involved discontinuing its automotive, appliance, and furniture departments and up-scaling its clothing lines. Because of these changes, it succeeded where many of its competitors failed.

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LO3 ▶ Financial Statement Analysis

In this section, we introduce and briefly discuss a number of the more common financial ratios. This is not an exhaustive list by any standard. There are many ratios that can be used. In fact, it is common for analysts to create specialized ratios to look at a factor peculiar to a firm or industry. For example, revenues and costs per kilometre flown are often computed for airlines.

The formulas presented here for each ratio may differ from those reported elsewhere. An effort has been made within this section to locate the most common definition for each formula, but for some there is simply no consensus among reporting agencies. This means that, when you compare ratios computed by different sources, you must be sure they are all computed in the same way.

Cross-Sectional Analysis

Most financial ratios mean little when viewed in isolation. For example, an inventory turn-over ratio tells us how many times per year the company's inventory is sold (we discuss this ratio later in the chapter). A value of 20 is not interesting until we learn that other firms in the industry have an inventory turnover ratio of 3. Similarly, gross profit margins, liquidity ratios, and activity ratios all vary substantially depending on the industry. Clearly, a grocery store will turn over its inventory more frequently than an auto dealer will.

Cross-sectional analysis is the comparison of one firm to other similar firms. A cross-section of an industry is used as a comparison for the firm's numbers. There are a variety of sources of cross-sectional information. Value Line, Risk Management Association, and Mergent all publish industry average ratio statistics. One way to identify a firm's industry is by its Standard Industrial Classification (SIC) code. SIC codes are four-digit codes given to firms by the government for statistical reporting purposes.

Many firms do not have any clear industry to use for comparison, such as conglomerates that do business in dozens of different industries. There are no good guidelines for picking comparison numbers for these types of firms. In other cases, the firm under study so dominates the industry that the industry ratios are simply mirroring that firm. Consider General Motors (GM). With so few firms in the auto manufacturing business, what happens to GM happens to the industry. ✳Tip

One solution to the problem of finding good comparison numbers is to create your own list of competitors. Compare the firm under analysis to the averages found from this list. Often, this approach yields far superior comparison numbers than can be found in the published reference materials. ✳Tip

Time-Series Analysis

Another equally important method of financial analysis is **time-series analysis**, which involves comparing the firm's current performance to prior periods. This method allows the analyst to identify trends, changes over time that are more or less consistent in one direction. Unless the firm has undergone some type of major restructuring, prior period numbers are a near perfect comparison against today's figures.

Both cross-sectional and time-series analyses are important. For this reason, analysts should use both. **✳Tip**

3.1 The Ratios

The ratios are presented in groups to facilitate understanding. We have grouped the ratios into five categories:

- Profitability ratios
- Liquidity ratios
- Activity ratios
- Financing ratios
- Market ratios

Different firms put different levels of emphasis on the categories. For example, service firms are very concerned with how rapidly they collect on accounts receivable, but such firms are not overly concerned with inventory usage, since inventory is usually a minor

cost factor. Manufacturing firms, however, must pay close attention to their inventory, whereas collections are often not a problem.

As you review this section, pay attention to what the ratio is intended to measure and whether it is generally better if the ratio is higher or lower. Also note the unit of measure and what change might improve the ratio.

3.2 Profitability Ratios

We begin our discussion of ratio analysis with the profitability ratios, since they are ultimately the most important. If a firm is generating acceptable profits, analysts tend to be more forgiving of deviations in other ratios. For example, low inventory turnover may be due to high prices. If this is a corporate strategy that produces high profits, investors are unlikely to complain. Conversely, if the profits are not there, low inventory turnover is viewed as a serious shortcoming. ***Tip**

Profitability ratios measure how effectively the firm uses its resources to generate income. The first three of the ratios reported here are probably the best known and most widely used of all financial ratios. Investors are happier the greater the profitability ratios grow.

Table 2.4 Profitability Ratios

Ratio Name	Equation Number	Equation	Example	
Return on Equity (ROE)	Eq. 2.1	$$\frac{Net\ income\ after\ tax}{Common\ shareholders'\ equity}$$	$ROE = \dfrac{\$1.2}{\$11} = 0.1091$	
Return on Assets (ROA)	Eq. 2.2	$$\frac{Net\ income\ after\ tax}{Total\ assets}$$	$ROA = \dfrac{\$1.2}{\$50} = 0.02$	
Gross Profit Margin	Eq. 2.3	$$\frac{Sales\ -\ Cost\ of\ goods\ sold}{Sales} = \frac{Gross\ profit}{Sales}$$	$Gross\ profit\ margin = \dfrac{\$9}{\$30} = 0.3$	
Operating Profit Margin	Eq. 2.4	$$\frac{Operating\ profits}{Sales}$$	$Operating\ profit\ margin = \dfrac{\$4}{\$30} = 0.13$	
Net Profit Margin	Eq. 2.5	$$\frac{Net\ income\ after\ tax}{Sales}$$	$Net\ profit\ margin = \dfrac{\$1.2}{\$30} = 0.04$	

Taken together, these profitability ratios give the analyst insight into the performance of the firm. For example, if the return on equity is not acceptable, you can review the various profit margin accounts to determine whether the problem lies with cost of goods sold, operating expenses, or financing cost. **⁕Tip**

It's Time to Do a Self-Test

1. You have reviewed the ratios for Bongo Corp. and find the ROE is lower than the industry. After further investigation, you determine that net profit margin is low despite normal gross and operating profit margins. What else might you look at to confirm the source of Bongo Corp.'s problem? <u>Answer</u>

2. Practise computing the Return on Equity. <u>Answer</u>

3. Practise computing the Return on Assets. <u>Answer</u>

4. Practise computing the Gross Profit Margin. <u>Answer</u>

5. Practise computing the Operating Profit Margin. <u>Answer</u>

6. Practise computing the Net Profit Margin. <u>Answer</u>

3.3 Liquidity Ratios

A liquid firm is a firm that can meet its various short-term debt and credit obligations. Those who extend credit to a firm are particularly concerned with the firm's liquidity. It is not unusual for a firm to show a profit on its income statement but still not have sufficient cash to pay creditors—that is, the firm has an unhealthy liquidity ratio. The following **liquidity ratios** point out problems of this nature.

Table 2.5 Liquidity Ratios

Ratio Name	Equation Number	Equation	Example	
Current Ratio	Eq. 2.6	$\dfrac{Current\ assets}{Current\ liabilities}$	$Current\ ratio = \dfrac{\$23.5}{\$16.5} = 1.42$	
Quick Ratio	Eq. 2.7	$\dfrac{Current\ assets - Inventory}{Current\ liabilities}$	$Quick\ ratio = \dfrac{\$23.5 - \$7.5}{\$16.5}$ $= 0.97$	

There is a great deal of disagreement among analysts as to how liquid a firm should be. It is not necessarily bad for a firm to have low current and quick ratios if the firm is able to meet its obligations. Consider which firm you would rather own, one that could make $100 of sales with only $5 of inventory or one that could make that same $100 of sales but requires only $1 of inventory. **✳Tip**

It's Time to Do a Self-Test

7. You are analyzing a firm and note its current ratio has increased from 2.1 to 2.5 over the past two years. Is this good news? Answer

8. Practise computing the Current Ratio. Answer

9. Practise computing the Quick Ratio. Answer

3.4 Activity Ratios

Activity ratios measure the efficiency with which assets are converted to sales or cash. Generally, greater activity is good. ✳**Tip** Activity ratios go hand-in-hand with the liquidity ratios. If inventory is not turning over, current assets are not converted to cash and the firm will have trouble paying its bills. If the liquidity ratios suggest problems, the analyst can review the activity ratios to see if they provide clues. ✳**Tip**

Table 2.6 Activity Ratios

Ratio Name	Equation Number	Equation	Example	
Inventory Turnover	Eq. 2.8	$$\dfrac{Cost\ of\ goods\ sold}{Inventory}$$	$Inventory\ turnover = \dfrac{\$21}{\$7.5} = 2.8$	
Accounts Receivables Turnover	Eq. 2.9	$$\dfrac{Sales}{Accounts\ receivable}$$	$Accounts\ receivable\ TO = \dfrac{\$30}{\$12} = 2.5$	
Total Asset Turnover	Eq. 2.10	$$\dfrac{Sales}{Total\ assets}$$	$Total\ asset\ turnover = \dfrac{\$30}{\$50} = 0.6$	
Average Collection Period	Eq. 2.11	$$\dfrac{Accounts\ receivable}{Daily\ credit\ sales}$$ **or** $$\dfrac{365\ days}{Receivables\ turnover}$$	$Average\ collection\ period = \dfrac{\$12}{\$30/365} = 146\ days$	

It's Time to Do a Self-Test

10. Practise computing the Accounts Receivable Turnover Ratio. [Answer]

11. Practise computing the Total Asset Turnover. [Answer]

12. Practise computing the Average Collection Period. [Answer]

3.5 Financing Ratios

Financing ratios measure how leveraged a firm is. For this reason, we alternatively call them financial leverage ratios or simply leverage ratios. We learn that firm risk is closely tied to the firm's leverage.

Table 2.7 Financing Ratios

Ratio Name	Equation number	Equation	Example	
Debt Ratio	**Eq. 2.12**	$$\dfrac{Total\ liabilities}{Total\ assets}$$	$Debt\ ratio = \dfrac{\$36.50}{\$50} = 0.73$	
Debt-Equity Ratio	**Eq. 2.13**	$$\dfrac{Total\ liabilities}{Common\ shareholders'\ equity}$$	$Debt\ equity\ ratio = \dfrac{\$36.50}{\$11} = 3.32$	
Times Interest Earned Ratio	**Eq. 2.14**	$$\dfrac{Earnings\ before\ interest\ and\ taxes\ (EBIT)}{Interest}$$	$TIE = \dfrac{\$4}{\$2} = 2$	

It's Time to Do a Self-Test

13. Practise computing the Debt Ratio. `Answer`

14. If current assets are $10, current liabilities are $12, long-term assets are $20, and long-term debt is $8, what is the debt-equity ratio? `Algebraic Answer` `Excel Answer` `Calculator Answer`

15. Practise computing the Times Interest Earned Ratio. `Answer`

3.6 Market Ratios

Market ratios are distinct from the other ratios in that they are based, at least in part, on information not contained in the firm's financial statements. The term *market* is used as a reference to the financial markets in which security prices are established. Market ratios are closely watched by those considering security purchases.

Table 2.8 Market Ratios

Ratio Name	Equation number	Equation	Example	
Earning per Share (EPS)	**Eq. 2.15**	$$\frac{Net\ income\ available\ to\ common\ shareholders}{Number\ of\ shares\ outstanding}$$	$$EPS = \frac{\$1.2 - \$0.2}{1} = \$1$$	
Price Earnings (PE)	**Eq. 2.16**	$$\frac{Market\ price\ of\ common\ shares}{Earnings\ per\ share}$$	$$PE = \frac{\$20}{\$1} = 20$$	
Market to Book	**Eq. 2.17**	$$\frac{Market\ value\ per\ share}{Book\ value\ per\ share}$$	$$Market\ to\ book = \frac{\$20}{\$13.5/1} = 1.48$$	

It's Time to Do a Self-Test

16. Practise computing the Earnings per Share. Answer

17. Practise computing the Price Earnings Ratio. Answer

18. Practise computing the Market to Book Ratio. Answer

3.7 Common-Sized Financial Statements

Financial statements themselves cannot be compared across an industry or across time because of scale differences. One way to standardize financial statements is to divide each line item by a constant. This standardized format is referred to as **common-sized financial statements**. In effect, this converts every entry into a ratio. Now, you can use them to make comparisons. Some of the ratios previously discussed are generated in this process, such as the debt ratio.

To prepare a common-sized balance sheet, divide all balance sheet line items by total assets. Similarly, a common-sized income statement is prepared by dividing each line item by sales. Thus, common-sized statements are just a specialized type of ratio analysis in which the denominator of every ratio is either total assets or total sales.

3.8 Du Pont Ratio Analysis

Du Pont ratio analysis provides an effective method for identifying firm problems and for using ratios. This method of analysis was developed at the Du Pont Corporation and is now frequently used by analysts. Its primary contribution is to help organize and give direction to our analysis. It provides a causal framework for ratio analysis and allows the analyst to draw concrete conclusions about the reasons for high or low profitability.

The big point about Du Pont analysis is that return on equity (ROE) results from a trade-off between margin, volume, and leverage. As noted at the beginning of the previous section, the most important ratio is the return on equity. The firm can change its ROE by adjusting any one of three components:

- It can have high turnover of its product.
- It can have large margins on each sale.
- It can be highly leveraged. ✳Tip

For example, Carmike Cinemas has a turnover ratio of nearly 200, whereas Freidman's Jewellers has a turnover ratio under 4. Clearly, Freidman's must earn more per sale than Carmike does. Similarly, a modest return on assets can result in a high ROE if the firm is highly leveraged. If a firm's ROE is declining or is below that of its competitors, we can review its turnover, margins, and leverage to see which appears to be the source of the problem. Once the scope of our analysis is narrowed, we can investigate why this problem exists.

The Du Pont analysis computes the ROE as the product of margin, turnover, and leverage:

$$ROE = Net\ profit\ margin \times Total\ asset\ turnover \times Equity\ multiplier \qquad \text{Eq. 2.18}$$

The equity multiplier, as shown below, is a measure of the firm's leverage. We can rewrite the Du Pont relationship using the ratio formulas as follows:

$$ROE = \frac{Net\ income}{Sales} \times \frac{Sales}{Total\ assets} \times \frac{1}{1 - \dfrac{Total\ debt}{Total\ assets}} \qquad \text{Eq. 2.19}$$

There is nothing mystical about this equation. **✷Tip** With a little algebra, it collapses to net income divided by equity, which is just the equation for the ROE. However, it is extremely useful as a tool to establish a beginning point for analysis. Whether the ROE is declining, or not as high as the firm's competitors, determines if the problems are with the margin, turn-over, or leverage of the firm. Note that high leverage may mask problems with margin and turnover.

Once you have located the problem, examine the inputs to the troublesome ratio for additional clues. For example, if total asset turnover is declining, is it because sales have dropped or because the firm has acquired additional assets? Figure 2.1 can be used to track the source of the problem through ratios.

Figure 2.1
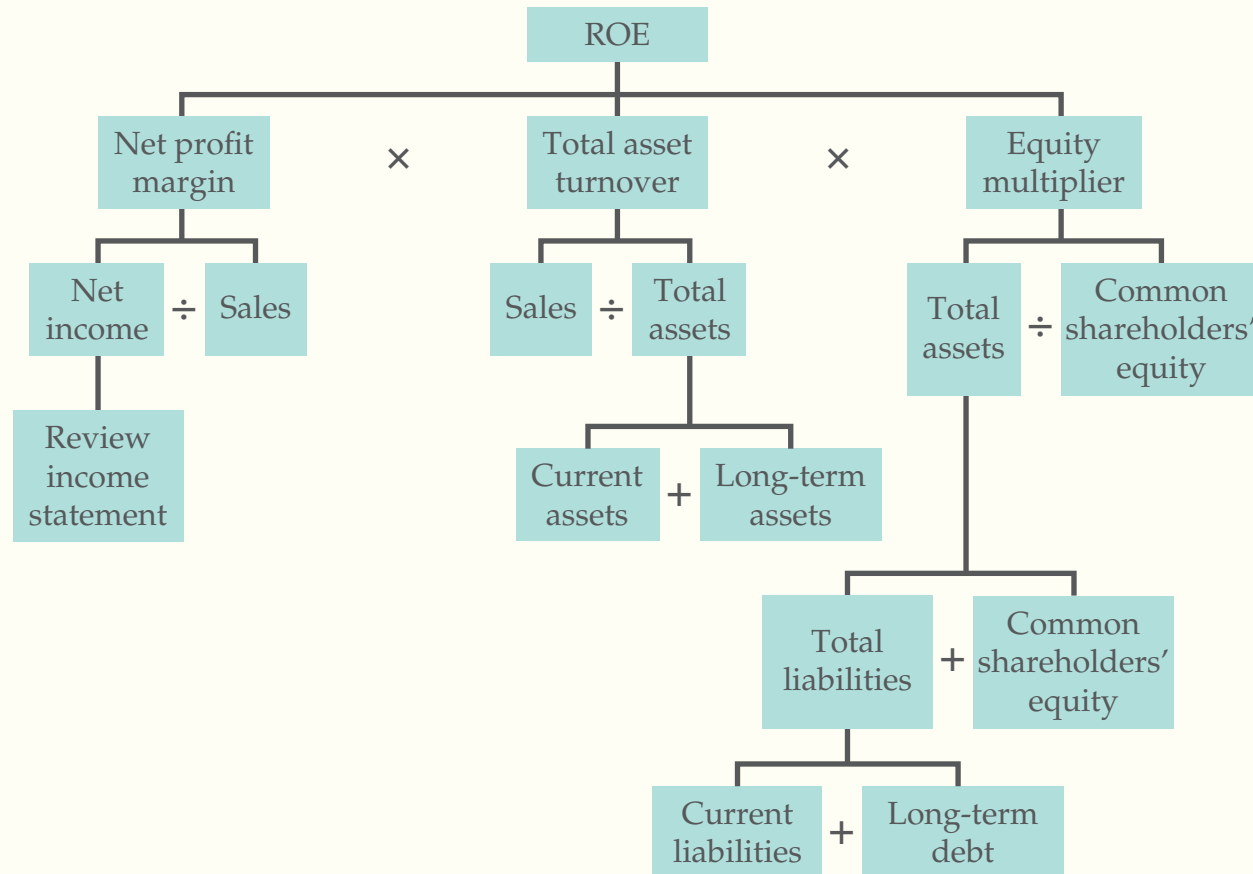
Table 2.9 presents a sample Du Pont analysis over 10 years, where year 10 is the most recent. We can easily see that the problem lies with the declining profit margin.

Table 2.9 Du Pont Example

	Year 10	Year 9	Year 8	Year 7	Year 6	Year 5	Year 4	Year 3	Year 2	Year 1
Profit margin	1.03%	1.95%	1.81%	2.33%	3.80%	4.87%	4.70%	4.07%	1.53%	3.31%
Total asset turnover	1.56	1.30	1.37	1.24	1.32	1.40	1.42	1.46	1.39	1.39
Equity multiplier	3.08	3.53	3.41	4.00	3.10	3.06	2.90	3.02	3.12	2.89
ROE	4.95%	8.95%	8.48%	11.53%	15.62%	20.89%	19.32%	18.01%	6.63%	13.34%

3.9 Putting the Ratios to Work

Now that we have a number of tools to use for analyzing firms, we need to decide how to proceed. The task can seem overwhelming until we decide on an organized approach.

The financial analysis of a firm should include the following steps:

1. Analyze the economy in which the firm operates.
2. Analyze the industry in which the firm operates.
3. Analyze the competitors that currently challenge the firm.
4. Analyze the strengths and weaknesses of the firm, using common-sized statements and ratios.

Earlier, we explored steps 1–3. For step 4, there are two primary methods to ascertain the strengths and weaknesses of a firm. The first and preferred approach uses the Du Pont ratio, which leads you through the ratios as described in the previous section. The second is to summarize the ratios by type. For example, summarize the profitability ratios, then the liquidity ratios, and so on. The problem with this approach is that it can hide causality in the sheer volume of ratios computed and does not help identify ratio interactions.

1. **Ratio Interaction**   Ratio interaction refers to the effect one ratio has on another. For example, if sales fall, inventory turnover will also fall if inventory is held constant. The goal of ratio analysis is to locate the most fundamental cause of a firm's problem. We do not want to recommend that a firm adjust its inventory if the real problem is that its cost of goods sold is higher than that of its competitors. Because no two firms are likely to have the exact same problem, no two approaches to financial analysis are the same. The analyst must take on the role of a detective for whom ratios provide clues that must be tracked down and explained.

2. **Reading between the Lines**   Often, ratios simply will not tell the whole story. The analyst can only hope that the ratios will provide flags that prompt investigation and lead to the truth about the firm. For example, a banker will review the statements of a credit applicant, looking for items that stand out as unusual. These unusual items generate questions that can be posed to the borrower. The borrower's responses to these questions may lay the issue to rest or may generate new, more probing questions.

It is important to recognize that ratio analysis is not useful for all firms. Conglomerates are especially difficult to analyze because widely different divisions may be combined on the financial statements. Insiders to the firm usually have departmental or divisional statements to use for management purposes, but outsiders may not have sufficient details to draw meaningful conclusions.

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Chapter Summary

Concepts You Should Know	Key Terms and Equations	Solution Tools	Extra Practice MyFinanceLab
LO1 Know the Three Financial Statements Needed for Financial Analysis	**financial analysis, balance sheet, income statement, statement of cash flows**		**Study Plan 2.LO1**
LO2 Know the Goals of Financial Statement Analysis			**Study Plan 2.LO2**

Concepts You Should Know	Key Terms and Equations	Solution Tools	Extra Practice MyFinanceLab
LO3 Perform Financial Statement Analysis	**cross-sectional analysis, time-series analysis, profitability ratios, return on equity (ROE), return on assets (ROA), gross profit margin, operating profit margin, net profit margin, liquidity ratios, current ratio, quick ratio, activity ratios, inventory turnover, accounts receivable turnover, total asset turnover, average collection period, debt ratio, debt-equity ratio, times interest earned ratio, market ratios, earnings per share (EPS), price earnings (PE), market to book, common-sized financial statements, Du Pont ratio analysis**		**Study Plan 2.LO3**
	$$Return\ on\ equity = \frac{Net\ income\ after\ tax}{Common\ shareholders'\ equity} \quad \textbf{Eq. 2.1}$$	▶❓	
	$$Return\ on\ assets = \frac{Net\ income\ after\ tax}{Total\ assets} \quad \textbf{Eq. 2.2}$$	▶❓	

Concepts You Should Know	Key Terms and Equations	Solution Tools	Extra Practice MyFinanceLab
	$$\text{Gross profit margin} = \frac{\text{Sales} - \text{Cost of goods sold}}{\text{Sales}}$$ $$= \frac{\text{Gross profit}}{\text{Sales}} \quad \textbf{Eq. 2.3}$$		
	$$\text{Operating profit margin} = \frac{\text{Operating profits}}{\text{Sales}} \quad \textbf{Eq. 2.4}$$		
	$$\text{Net profit margin} = \frac{\text{Net income after tax}}{\text{Sales}} \quad \textbf{Eq. 2.5}$$		
	$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}} \quad \textbf{Eq. 2.6}$$		
	$$\text{Quick ratio} = \frac{\text{Current assets} - \text{Inventory}}{\text{Current liabilities}} \quad \textbf{Eq. 2.7}$$		

Concepts You Should Know	Key Terms and Equations	Solution Tools	Extra Practice MyFinanceLab
	$$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Inventory}}$$ **Eq. 2.8**		
	$$\text{Accounts receivable turnover} = \frac{\text{Sales}}{\text{Accounts receivable}}$$ **Eq. 2.9**		
	$$\text{Total asset turnover} = \frac{\text{Sales}}{\text{Total assets}}$$ **Eq. 2.10**		
	$$\text{Average collection period} = \frac{\text{Accounts receivable}}{\text{Daily credit sales}}$$ or $$\text{Average collection period} = \frac{365 \text{ days}}{\text{Receivables turnover}}$$ **Eq. 2.11**		

Concepts You Should Know	Key Terms and Equations	Solution Tools	Extra Practice MyFinanceLab
	$\text{Debt ratio} = \dfrac{\text{Total liabilities}}{\text{Total assets}}$ **Eq. 2.12**		
	$\text{Debt-equity ratio} = \dfrac{\text{Total liabilities}}{\text{Common shareholders' equity}}$ **Eq. 2.13**		
	$\text{Times interest earned} =$ $\dfrac{\text{Earnings before interest and taxes (EBIT)}}{\text{Interest}}$ **Eq. 2.14**		
	$\text{EPS} =$ $\dfrac{\text{Net income available to common shareholders}}{\text{Number of shares outstanding}}$ **Eq. 2.15**		
	$\text{PE} = \dfrac{\text{Market price of common shares}}{\text{Earnings per share}}$ **Eq. 2.16**		

Concepts You Should Know	Key Terms and Equations	Solution Tools	Extra Practice MyFinanceLab
	$$\text{Market to book ratio} = \frac{\text{Market value per share}}{\text{Book value per share}} \quad \textbf{Eq. 2.17}$$		
	$$ROE = \text{Net profit margin} \times \text{Total asset turnover} \times \text{Equity multiplier} \quad \textbf{Eq. 2.18}$$		
	$$ROE = \frac{\text{Net income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total assets}} \times \frac{1}{1 - \dfrac{\text{Total debt}}{\text{Total assets}}} \quad \textbf{Eq. 2.19}$$		

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