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mention that comparison to seasonally lagged earnings numbers provides a measure of earnings momentum and growth, and therefore is a useful gauge of corporate performance.”

Thus, are earnings important? To the majority of finance chiefs surveyed, the answer is a resounding yes. (Source: Graham, et al., *Journal of Accounting and Economics*, 2005)

Financial Statement Analysis in an Efficient Capital Market

Some question the value of financial statement analysis if capital markets are efficient. The idea of market-efficiency is that security prices reflect available information and respond rapidly to new information when it is available. Some people incorrectly believe that this implies there is no gain to engaging in financial statement analysis. However, if our expectations differ from those of other investors there exists an opportunity to trade.

Market-efficiency is predicated on the efforts of many individuals (investors and analysts) who gather information, interpret it, and then engage in trades based on their analysis. These trades create supply or demand pressures such that market prices adjust to a new equilibrium. This task of information gathering and processing is the task of financial analysts and investors. Capital markets function well in the U.S., particularly for the largest firms, because of self-interested buy-side and sell-side analysts, institutional investors, and others. For firms where there is infrequent coverage in the financial press and little following from investors, prices can be less efficient. Nonetheless, academic research has found many anomalies where markets appear to not fully reflect information or reflect it with a lag.

Another facet of this discussion is management incentives. Management often has an incentive to report favorable financial information due to a desire to maximize share price for compensation contracts or other reasons. While U.S. GAAP and IFRS put some restrictions on what is reported, the financial data potentially can be biased, misleading, or obfuscated. Our analysis attempts to recognize and adjust for such possibilities. However, our estimates of value are only as good as the accounting numbers that underlie them. If we are able to perform effective analysis and gain a thorough understanding of where the firm operates, is currently situated, and is going, then even in an efficient market there are gains available through financial statement analysis.

ANALYZING GLOBAL REPORTS

As we discussed earlier, the United States is one of the only economically developed countries that does not use IFRS. While laws and enforcement mechanisms vary across countries, the demand and supply of accounting information are governed by global economic forces. Thus, it is not surprising that IFRS and U.S. GAAP both prescribe the same set of financial statements. While account titles and note details differ, the underlying principles are the same. That is, U.S. GAAP and IFRS both capture, aggregate, summarize, and report economic activities on an accrual basis.

Given the global economy and liquid transnational capital markets, along with the fact that many non-U.S. companies file IFRS financial statements with the SEC, it is critical that we be conversant with both U.S. GAAP and IFRS. For this purpose, the final section of each module includes a summary of notable differences between these two systems of accounting for topics covered in that module. Also, each module has assignments that examine IFRS companies and their financial statements. By using a wide array of financial information, we will speak the language of accounting in at least two dialects.



Analyzing Global Reports sections summarize notable differences between IFRS and U.S. GAAP for topics covered in the module.

APPENDIX 1A: ACCESSING SEC FILINGS

As noted in the module, all publicly traded companies are required to file various reports with the SEC, two of which are the 10-Q (quarterly financial statements) and the 10-K (annual financial statements). Following is a brief tutorial to access these electronic filings. The SEC's website is <https://www.sec.gov/edgar/searchedgar/companysearch.html>.

Note:
There is not an eLecture for this Appendix.

Review 2-6—Solution

| | Balance Sheet | | | | | | Income Statement | | | |
|---|---------------|---|---|---|-----------------------------|---|------------------|-------|----------------|--|
| | Cash Assets | + | Noncash Assets | = | Liabilities | + | Contrib. Capital | + | Earned Capital | |
| Balance January 1, 2017 | 10,000 | | 41,000 | | 26,000 | | 10,000 | | 15,000 | |
| Transactions | | | | | | | | | | |
| 1. Issue common stock for \$3,000 cash | 3,000 | | | | | | 3,000 | | | |
| 2. Purchase inventory for \$8,000 on credit | | | 8,000 Inventory | | 8,000 Accounts payable | | | | | |
| 3. Sell inventory costing \$8,000 for \$15,000 on credit | | | (8,000) Inventory 15,000 Accounts receivable | | | | | 7,000 | | |
| 4. Issue long-term debt for \$10,000 cash | 10,000 | | | | 10,000 Long-term debt | | | | | |
| 5. Pay \$15,000 cash for PPE | (15,000) | | 15,000 PPE | | | | | | | |
| 6. Pay \$500 cash for salaries | (500) | | | | | | | (500) | | |
| 7. Receive \$300 cash in advance for future consulting services | 300 | | | | 300 Unearned revenue | | | | | |
| 8. Pay \$50 cash for interest on long-term debt | (50) | | | | | | | (50) | | |
| 9. Receive \$3,000 cash from accounts receivable | 3,000 | | (3,000) Accounts receivable | | | | | | | |
| 10. Pay \$2,500 cash toward accounts payable | (2,500) | | | | (2,500) Accounts payable | | | | | |
| 11. Perform consulting services for client who previously paid in 7 | | | | | (300) Unearned revenue | | | 300 | | |
| 12. Pay \$100 cash for dividends | (100) | | | | | | | (100) | | |

Review 2-7—Solution

| | Balance Sheet | | | | | | Income Statement | | | |
|--|---------------|---|----------------------------|---|---------------------------|---|------------------|---------|----------------|--|
| | Cash Assets | + | Noncash Assets | = | Liabilities | + | Contrib. Capital | + | Earned Capital | |
| Accounting Adjustments | | | | | | | | | | |
| 13. Record depreciation of \$600 | | | (600) PPE | | | | | (600) | | |
| 14. Accrue salaries of \$1,000 | | | | | 1,000 Salaries payable | | | (1,000) | | |
| 15. Advertising costing \$1,300 is aired | | | (1,300) Prepaid expense | | | | | (1,300) | | |
| 16. Accrue income taxes of \$1,200 | | | | | 1,200 Taxes payable | | | (1,200) | | |
| Balance January 31, 2017 | <u>8,150</u> | | <u>66,100</u> | | <u>43,700</u> | | <u>13,000</u> | | <u>17,550</u> | |

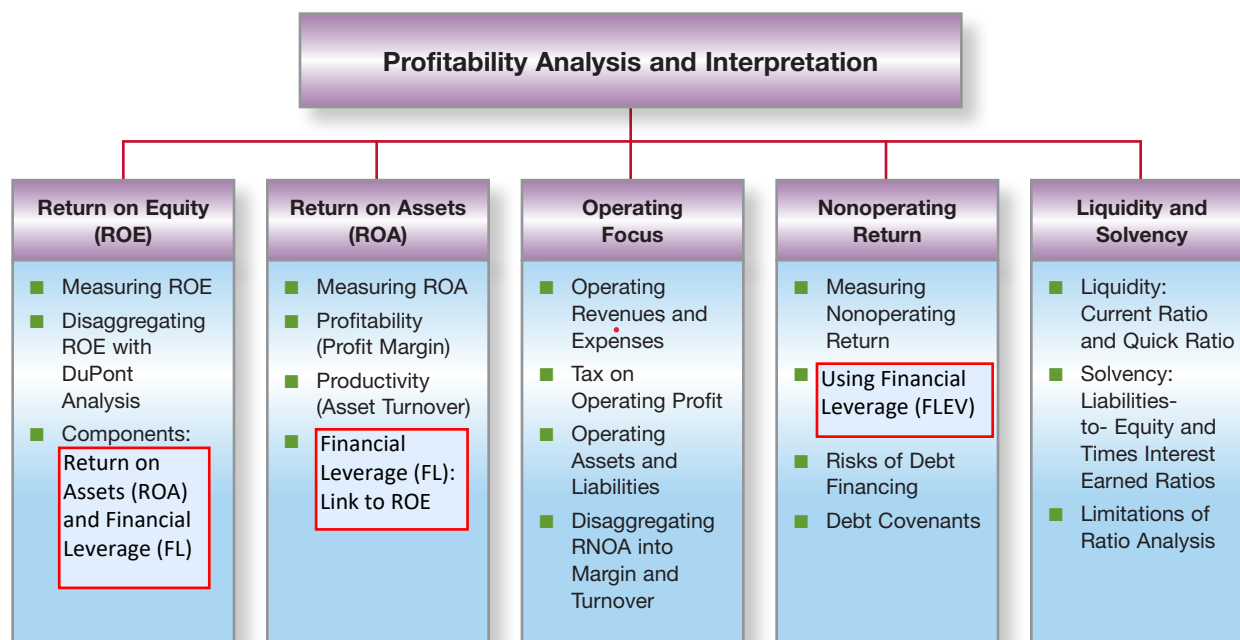
M O D U L E

3

Profitability Analysis and Interpretation

Analyst Playbook

| LO | Learning Objective Topics | Page | eLecture | Guided Example | Assignments |
|-----|---|------|----------|----------------|--|
| 3-1 | Compute and interpret return on equity (ROE). ROE Definition :: ROE Computation :: ROE Interpretation | 3-3 | e3-1 | Review 3-1 | 1, 6, 18, 22, 26, 30, 39, 40, 41, 47, 53, 54, 59, 60, 62 |
| 3-2 | Apply DuPont disaggregation of ROE into return on assets (ROA) and financial leverage (FL). ROE Disaggregation :: Return on Assets :: Financial Leverage | 3-4 | e3-2 | Review 3-2 | 2, 5, 19, 26, 30, 39, 41, 47, 59, 60 |
| 3-3 | Disaggregate ROA into profitability and productivity and analyze both. ROA Disaggregation :: Profitability :: Productivity :: Financial Leverage (FL) | 3-6 | e3-3 | Review 3-3 | 16, 19, 26, 30, 31, 32, 39, 47, 59, 60, 66, 67, 68 |
| 3-4 | Identify balance sheet operating items and compute net operating assets. Operating Focus on Balance Sheet :: RNOA Motivation :: NOA Computation | 3-14 | e3-4 | Review 3-4 | 9, 20, 24, 46, 50, 53, 55, 56, 64 |
| 3-5 | Identify income statement operating items and compute net operating profit after tax. Operating Focus on Income Statement :: Operating vs Nonoperating :: NOPAT Computation :: Income Tax Expense | 3-20 | e3-5 | Review 3-5 | 7, 8, 21, 25, 29, 33, 45, 46, 50, 53, 55, 56, 64 |
| 3-6 | Compute and interpret return on net operating assets (RNOA). RNOA Computation :: ROA vs. RNOA :: ROA components :: Key Definitions | 3-24 | e3-6 | Review 3-6 | 6, 22, 23, 27, 34, 35, 36, 37, 38, 40, 41, 46, 50, 53, 55, 56, 61, 62, 64 |
| 3-7 | Disaggregate RNOA into net operating profitability and net operating asset turnover. RNOA Disaggregation :: Net Operating Profit Margin :: Net Operating Asset Turnover :: Trade-Off of Margin and Turnover | 3-26 | e3-7 | Review 3-7 | 3, 4, 10, 11, 15, 22, 23, 27, 29, 36, 37, 38, 40, 46, 50, 53, 55, 56, 58, 61, 62, 64 |
| 3-8 | Compute and interpret nonoperating return (Appendix 3A). Nonoperating Return Components :: Under Various Conditions | 3-31 | e3-8 | Review 3-8 | 1, 46, 49, 52, 54, 55, 56, 57, 64 |
| 3-9 | Compute and interpret measures of liquidity and solvency (Appendix 3B). Liquidity :: Solvency :: Vertical & Horizontal Analysis | 3-36 | e3-9 | Review 3-9 | 28, 42, 43, 44, 48, 51, 63, 65 |



RETURN ON EQUITY (ROE)



LO1

Compute and interpret return on equity (ROE).

The most common analysis metric used by managers and investors alike, is **return on equity (ROE)**, a powerful summary measure of company performance defined as:¹

$$\text{ROE} = \frac{\text{Net income}}{\text{Average stockholders' equity}}$$

ROE relates net income to the average total stockholders' equity from the balance sheet. ROE measures return from the perspective of the company's stockholders. ROE is an important metric and, in the five years from 2011–2015, return on equity of the S&P 500 firms has ranged from 14% to 15%. Exhibit 3.1 includes Intel's income statement and balance sheet data used to compute its ROE for 2015 of 19.53%.

EXHIBIT 3.1 Financial Statement Data for Intel Corporation

| \$ millions | Dec. 26, 2015 | Dec. 27, 2014 |
|---|---------------|---------------|
| Sales | \$ 55,355 | \$55,870 |
| Net income | 11,420 | 11,704 |
| Total assets | 103,065 | 91,900 |
| Total stockholders' equity | 61,085 | 55,865 |
| $\text{ROE} = \frac{\$11,420}{(\$61,085 + \$55,865)/2} = 19.53\%$ | | |

ROE is a summary return metric that measures the return the company has earned on the book (reported) value of the shareholders' investment. It is one measure of how effective management has been in its role as stewards of the capital invested by shareholders. In our analysis of company performance, we seek to uncover the *drivers* of ROE and how those drivers have trended over time so that we are better able to predict future performance.

¹ ROE uses net income, in the numerator, that represents profit earned *during* the year. Therefore, the denominator would ideally reflect equity that the company had *throughout* the year. As an approximation, we use a simple average of the balance sheet values for equity at the start and end of the year to reflect equity during the year.

REVIEW 3-1 LO1

Following are selected income statement and balance sheet data for **Cisco Systems Inc.**

| \$ millions | July 25, 2015 | July 26, 2014 |
|---------------------------------|---------------|---------------|
| Sales..... | \$ 49,161 | \$ 47,142 |
| Net income..... | 8,981 | 7,853 |
| Total assets..... | 113,481 | 105,070 |
| Cisco shareholders' equity..... | 59,698 | 56,654 |

Required

Compute return on equity (ROE) for Cisco Systems for fiscal 2015.

Solution on p. 3-66.



ROE DISAGGREGATION: DUPONT ANALYSIS

There are two methods for disaggregating ROE into its components; each provides a different perspective that can inform our analysis.

- The first method is the traditional DuPont analysis that disaggregates return on equity into components of profitability, productivity, and **financial leverage**.
- The second method extends the traditional DuPont analysis by taking an *operating focus* that separates operating and nonoperating activities. Operating activities are the drivers of shareholder value. This method, which focuses on operating or core activities, provides insight into the factors that drive value creation.

**LO2**

Apply DuPont disaggregation of ROE into return on assets (ROA) and financial leverage (FL).

Disaggregation of return on equity (ROE) was initially introduced by the **E.I. DuPont de Nemours and Company** to aid its managers in performance evaluation. DuPont realized that management's focus on profit alone was insufficient because profit can be increased simply by the purchase of additional investment in low-yielding, but safe, assets. DuPont wanted managers to think like investors and to manage their portfolio of activities using investment principles that allocate scarce investment capital to competing projects in descending order of return on investment (so-called capital budgeting approach). The DuPont model incorporates this investment perspective into performance measurement by disaggregating ROE into two components.

$$\text{ROE} = \frac{\text{Net income}}{\text{Average stockholders' equity}} = \frac{\text{Net income}}{\text{Average total assets}} \times \frac{\text{Average total assets}}{\text{Average stockholders' equity}}$$

Return on Assets
(ROA)

Financial
Leverage
(FL)

Return on equity takes the perspective of company's shareholders and measures rate of return on shareholders' investment—how much net income is earned relative to the equity invested by shareholders. It reflects *both* company performance (as measured by return on assets) *and* how assets are financed (relative use of liabilities and equity). ROE is higher when there is more debt and less equity for a given level of assets (this is because the denominator in ROE, equity, is smaller). There is, however, a tradeoff: while using more debt and less equity results in higher ROE, the greater debt means higher risk for the company. , which is the concept of financial leverage.

Return on Assets Component

Return on assets (ROA) measures return from the perspective of the entire company. This return includes both profitability (numerator) and total company assets (denominator). To earn a high return on assets, the company must be profitable *and* manage assets to minimize the assets invested to the level necessary to achieve its profit.

Most operating managers understand the income statement and the focus on profit. However, many of the same managers fail to manage the balance sheet (the denominator in ROA). ROA analysis encourages managers to focus on the profit achieved from the invested capital under their control. This means that managers seek to increase profits with the same level of assets *and* to decrease assets without decreasing the level of profit. It is this dual focus that makes return on assets a powerful performance measure—focusing managers’ attention on *both* the income statement and balance sheet.

Intel’s net income is \$11,420 million and its total assets are \$103,065 million and \$91,900 million at fiscal-year-end for 2015 and 2014, respectively (data from Exhibit 3.1). Intel’s 11.71% return on assets is computed as follows.

$$\text{ROA} = \frac{\$11,420 \text{ million}}{(\$103,065 \text{ million} + \$91,900 \text{ million})/2} = 11.71\%$$

By comparison, the median return on assets of the S&P 500 companies for the same period was 5.2% and ranged from 5.2% to 6.2% for the 2011–2015 period.

Financial Leverage Component

In general, financial leverage measures the degree to which the company finances its assets with debt versus equity. Financial leverage is measured in the DuPont analysis as the ratio of average total assets to average stockholders’ equity. An increase in this ratio implies an increase in the relative level of debt. This is evident from the accounting equation: assets = liabilities + equity. For example, if assets are financed equally with debt and equity, the accounting equation, expressed in percentage terms is: 100% = 50% + 50%, and financial leverage (FL) is 2.0 (100%/50%). If debt increases to 75%, the accounting equation is: 100% = 75% + 25%, and financial leverage (FL) is 4.0 (100%/25%).

financial leverage ratio (labeled FL) implies

BUSINESS INSIGHT Which Accounts Are Used to Compute ROE?

Return on equity has net income in the numerator and stockholders’ equity in the denominator. The complexity of company financial statements, however, presents some complications: which net income and stockholders’ equity accounts should we use?

- **Preferred Stock.** The ROE formula takes the perspective of the *common* stockholder in that it relates the income available to pay common dividends to the average common stockholder. The presence of preferred stock on the balance sheet requires two adjustments to ROE.

1. Preferred dividends are subtracted from net income in the numerator.
2. Preferred stock is subtracted from stockholders’ equity in the denominator.

This modified return on equity is labeled *return on common equity* (ROCE).

$$\text{ROCE} = \frac{\text{Net income} - \text{Preferred dividends}}{\text{Average stockholders' equity} - \text{Average preferred equity}}$$

- **Noncontrolling interests.** Many companies have two sets of stockholders: those that own the common stock of the parent company whose financial statements are under analysis (called *controlling interest*) and those that own shares in one or more of the parent company’s subsidiaries (called *noncontrolling interest*). Companies separately identify the stockholders’ equity relating to each group and, likewise, net income attributable to each. ROE is computed from the perspective of the controlling (parent company) stockholders and, thus, the numerator is net income attributable to parent company’s stockholders and the denominator is equity attributable to parent company’s stockholders. We explain controlling and noncontrolling interest in a later module and ROE computations with noncontrolling interests in Appendix 3A.

Measuring financial leverage is important because debt is a contractual obligation and a company’s failure to repay principal or interest can result in legal repercussions or even bankruptcy.

As financial leverage (FL) increases so does the level of debt payments, which all else equal, increases the probability of default and possible bankruptcy. For fiscal 2015, Intel's financial leverage is 1.67, computed as:

$$\text{Financial leverage (FL)} = \frac{(\$103,065 \text{ million} + \$91,900 \text{ million})/2}{(\$61,085 \text{ million} + \$55,865 \text{ million})/2} = 1.67$$

By comparison, the median financial leverage (FL) of the S&P 500 companies for the same period was 2.74 and ranged from 2.4 to 2.7 for the 2011–2015 period.

REVIEW 3-2 L02

Refer to the financial information for **Cisco Systems** reported in Review 3-1.

Required

Compute return on assets (ROA) and financial leverage following DuPont disaggregation of ROE for fiscal 2015. Confirm that $\text{ROA} \times \text{FL} = \text{ROE}$.

Solution on p. 3-66.



RETURN ON ASSETS AND ITS DISAGGREGATION

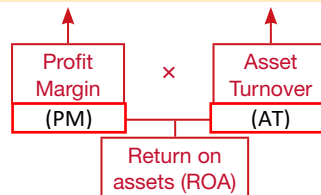
Return on assets (ROA) includes both profitability (in the numerator) and total assets (in the denominator). Managers can increase ROA by increasing profitability for a given level of asset investment or by reducing assets invested to generate a given level of profitability, or both. We gain insight into these two drivers by disaggregating return on assets into two components to isolate its profitability and asset investment levels as:



L03

Disaggregate ROA into profitability and productivity and analyze both.

$$\text{ROA} = \frac{\text{Net income}}{\text{Average total assets}} = \frac{\text{Net income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Average total assets}}$$



Return on assets is the product of profit margin and utilization of assets in generating sales (asset turnover). This is the insight that DuPont analysis offers as it focuses managers' attention on both profitability *and* management of the balance sheet. The two drivers of return on assets are:

- **Profit margin (PM).** PM is what the company earns on each sales dollar; a company increases profit margin by increasing its gross profit margin (Gross profit/Sales) and/or reducing its operating expenses as a percent of sales.
- **Asset turnover (AT).** AT is the sales level generated from each dollar invested in assets; a company increases asset turnover (*productivity*) by increasing sales volume with no increase in assets and/or by reducing assets invested without reducing sales.

The goal is to increase the productivity of the company's assets in generating sales and then to bring as much of each sales dollar to the bottom line (net income). Managers usually understand product pricing, management of production costs, and control of overhead costs. Fewer managers understand the role of the balance sheet. The ROA approach to performance measurement encourages managers to focus on returns achieved from assets under their control, and ROA is maximized with a joint focus on both profitability and productivity.

ANALYST ADJUSTMENTS 3.1 Adjusted ROA

Return on assets is typically under the control of operating managers while the capital structure decision (the relative proportion of debt and equity) is not. Accordingly, a common adjustment is made to the numerator of ROA by adding back the after-tax net interest expense (net of any interest revenue or other nonoperating expense or revenue reported after operating income). Using data from its income statement (see Exhibit 3B.3), the adjusted ROA for Intel is as follows (\$ in millions).

$$\text{Adjusted ROA} = \frac{\text{Net income} + [\text{Net interest expense} \times (1 - \text{Statutory tax rate})]}{\text{Average total assets}}$$

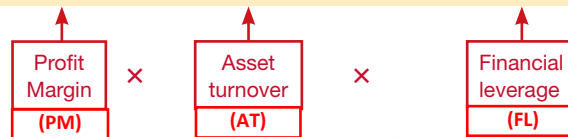
$$\frac{\$11,420 + [(\$105 - \$315) \times (1 - 37\%)]}{(\$103,065 + \$91,900) / 2} = 11.58\%$$

“Statutory tax rate” in the adjusted ROA formula is the federal statutory tax rate *plus* the state tax rate net of any federal tax benefits; we use the assumed 37% federal and state tax rates as explained in the NOPAT computation later in this module. This adjusted numerator better reflects the company’s operating profit as it measures return on assets exclusive of financing costs (independent of the capital structure decision).

Analysis of Profitability and Productivity

The complete DuPont return on equity disaggregation follows.

$$\text{ROE} = \frac{\text{Net income}}{\text{Average stockholders' equity}} = \frac{\text{Net income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Average total assets}} \times \frac{\text{Average total assets}}{\text{Average stockholders' equity}}$$



Return on equity increases with each of the three components provided the company is profitable and reports a positive stockholders' equity.

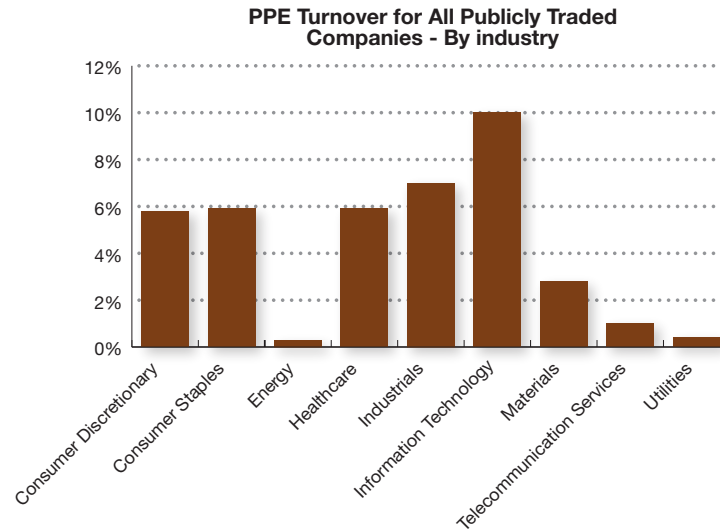
In Exhibit 3.2, we compute the disaggregation of Intel's return into profit margin, asset turnover, and financial leverage. The analysis in Exhibit 3.2 represents a *first level* of analysis where we examine ROE over time and in comparison with peers to identify trends and differences from the norm.

EXHIBIT 3.2 Disaggregation of Intel's ROE (\$ millions)

| | | | |
|--------------------------------|---|--|--------|
| Profit margin (PM) | $\frac{\text{Net income}}{\text{Sales}}$ | $\frac{\$11,420}{\$55,355}$ | 20.63% |
| × | | | × |
| Asset turnover (AT) | $\frac{\text{Sales}}{\text{Average total assets}}$ | $\frac{\$55,355}{(\$103,065 + \$91,900) / 2}$ | 0.57 |
| = | | | = |
| Return on assets (ROA) | $\frac{\text{Net income}}{\text{Average total assets}}$ | $\frac{\$11,420}{(\$103,065 + \$91,900) / 2}$ | 11.71% |
| × | | | × |
| Financial leverage (FL) | $\frac{\text{Average total assets}}{\text{Average stockholders' equity}}$ | $\frac{(\$103,065 + \$91,900) / 2}{(\$61,085 + \$55,865) / 2}$ | 1.67 |
| = | | | = |
| Return on equity (ROE) | $\frac{\text{Net income}}{\text{Average stockholders' equity}}$ | $\frac{\$11,420}{(\$61,085 + \$55,865) / 2}$ | 19.53% |

- Divestiture of production facilities with agreements to purchase finished goods from the facilities' new owners.
- Sale and leaseback of administrative buildings.

Each of these activities is a strategic and financial event, often requiring integration within the supply chain, new financing, and relationship building. As such, improvements in PPE turnover can be difficult to achieve. If properly structured, however, they can markedly increase asset returns and cash flow.



Analysis of Financial Leverage

As companies utilize a larger proportion of borrowed money in their capital structures, they incur obligations for interest payments and the repayment of the amount borrowed (the principal). Those obligations are typically evidenced by a loan agreement (or bond indenture) that contains some or all of the following.

- Restrictions on certain activities, such as mergers or acquisitions of other companies without approval of lenders.
- Prohibitions against dividend payments or the repurchase of common stock without approval of lenders.
- Covenants to maintain required levels of financial ratios, such as a maximum level of financial leverage, minimum levels of the current and quick ratios, minimum level of equity, and minimum level of working capital.
- Prohibitions against the pledging of assets to secure new borrowings.
- Remedies to lenders in event of default (failure to make required interest and principal payments when due). These remedies can include seizing company assets or, possibly, forcing the company into bankruptcy and requiring liquidation.

Judicial use of financial leverage is beneficial to stockholders (it is a relatively inexpensive source of capital), but the use of borrowed money adds risk as debt payments are contractual obligations. Analysis typically involves ratios that investigate the *level* of borrowed money relative to equity capital and the level of profitability and *cash flow* relative to required debt payments. Although there are dozens of **other financial leverage-related** ratios in commercial databases, the following two ratios capture the spirit of such analysis.

- Total liabilities-to-equity ratio (Total liabilities/Stockholders' equity).
- Times interest earned ratio (Earnings before interest and taxes/Interest expense).

In this section, we introduced a financial leverage ratio (FL), measured as average total assets divided by average total equity.

As for all ratios, analysis of financial leverage ratios must consider ratios over time and comparisons with peers. Appropriate financial leverage varies across industries because different business models generate cash flow streams that differ in amount and variability over time. Generally, business models that generate high and stable levels of cash flow can support a higher level of debt.

The median total liabilities-to-equity ratio for all publicly traded companies in 2015 was 0.71, indicating that companies typically borrow money, but have more equity than borrowed money in their capital structures. Financial leverage ratios differ by industry and company size. The median financial leverage ratio for the S&P 500 companies, for example, was 2.74 in 2015 and ranged from 2.4 to 2.7 over the 2011–2015 period.

Exhibit 3.4 shows a summary of ratios used in the DuPont disaggregation of return on equity.

| EXHIBIT 3.4 Summary of Ratios in DuPont Disaggregation of Return on Equity | | | |
|---|--|--|---|
| Ratio | Computation | What The Ratio Measures | Positive Indicators Include |
| Return on equity | Net income ÷ Avg. stockholders' equity, or Return on assets × Financial leverage | ROE measures accounting return to shareholders using net income and the book value of stockholders' equity. | <ul style="list-style-type: none"> Improvement over time and favorable comparison to peers. Greater proportion of ROE from ROA (operations) than financial leverage (risk). |
| Return on assets | Net income/Avg. total assets or Profit margin × Asset turnover | ROA measures the accounting return on total assets using net income and total assets. | <ul style="list-style-type: none"> Improvement over time in both profit margin and asset turnover. Improvement in gross margins and not solely from expense reduction. |
| PROFITABILITY | | | |
| Gross profit margin | Gross profit / Sales | Gross profit measures the difference between selling price and the cost to make or buy the products sold for the year. | <ul style="list-style-type: none"> Improvement over time due to increases in selling prices and/or reductions in cost to make or buy without compromising product quality. Favorable comparison to peers. |
| Operating expense margin (or SG&A expense margin) | SG&A expense / Sales | Operating expense margin measures total overhead expense (SG&A) as a percent of sales. | <ul style="list-style-type: none"> Improvement over time. Favorable comparison to peers. No short-term gains at long-term cost (such as unusual reductions in marketing and R&D expenses). |
| Profit margin (or net profit margin) | Net income / Sales | Profit margin includes effects of both gross profit margin, the operating expense margin, and net nonoperating expenses. | <ul style="list-style-type: none"> Improvement over time. Favorable comparison to peers. |
| PRODUCTIVITY | | | |
| Accounts receivable turnover | Sales / Avg. accounts receivable | AR turnover reflects how effective a company manages the credit issued to customers. | <ul style="list-style-type: none"> Improvement over time. Favorable comparison to peers. |
| Days sales outstanding (DSO) | $365 \times (\text{Avg. accounts receivable} / \text{Sales})$ | DSO reflects how well a company's accounts receivables are managed. | <ul style="list-style-type: none"> Maintain sales while reducing days to collect receivables. |
| Inventory turnover | COGS / Avg. inventory | Inventory turnover reflects the number of times inventory is sold or used during the period. | <ul style="list-style-type: none"> Improvement over time. Favorable comparison to peers. |
| Days inventory outstanding (DIO) | $365 \times \text{Avg. inventory} / \text{COGS}$ | DIO reflects how many days it takes for a company to sell its inventory. | <ul style="list-style-type: none"> Maintain sales while reducing days to sell inventory. |
| Accounts payable turnover | COGS ÷ Avg. accounts payable | AP turnover reflects how many times a company pays off its suppliers during the period. | <ul style="list-style-type: none"> Improvement over time. Favorable comparison to peers. |
| Days payables outstanding (DPO) | $365 \times (\text{Avg. accounts payable} / \text{COGS})$ | DPO reflects how long it takes a company to pay its invoices from suppliers. | <ul style="list-style-type: none"> Maintain supplier relations while delaying payment to suppliers. |
| Cash conversion cycle | AR days + Inv days – AP days | Cash conversion (operating) cycle measures the days to convert cash to inventories, receivables to cash, cash to payables. | <ul style="list-style-type: none"> Improvement over time. Favorable comparison to peers. |
| PPE turnover | Sales / Avg. PPE assets | Plant asset turnover is a productivity measure, comparing the volume of sales generated by plant assets. | <ul style="list-style-type: none"> Improvement over time. Favorable comparison to peers. |

continued

APPENDIX 3A: NONOPERATING COMPONENT OF ROE

Nonoperating Return

Recall that ROE can be written as:

$$\text{ROE} = \text{Operating return} + \text{Nonoperating return}$$

In simple form, return on nonoperating activities measures the extent to which a company is using debt to increase its return on equity.

We can infer the nonoperating return indirectly as the difference between ROE and RNOA. We can also compute the nonoperating return directly as follows:

$$\text{Nonoperating return} = \text{Financial Leverage (FLEV)} \times \text{Spread}$$

where Spread is the difference between return on net operating assets and the after-tax cost of debt, net of any after-tax returns on nonoperating assets such as investments in marketable securities.

This means return on equity can be disaggregated as:

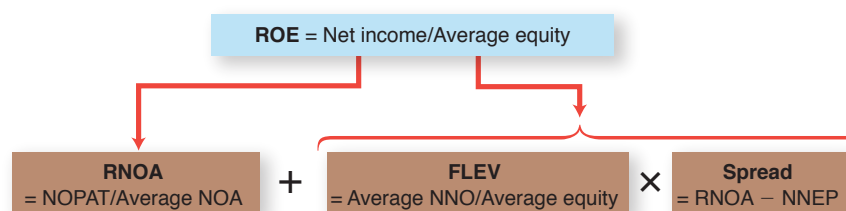


Exhibit 3A.1 provides definitions for each of the terms required in this computation.

EXHIBIT 3A.1 Nonoperating Return Definitions

| | | |
|----------------|---|--|
| NNO: | Net nonoperating obligations | Nonoperating liabilities less nonoperating assets |
| FLEV: | Financial leverage* | Average NNO/Average total stockholders' equity |
| NNE: | Net nonoperating expense | NOPAT – Consolidated net income; or Nonoperating expenses × (1 – Statutory tax rate) |
| NNEP: | Net nonoperating expense percent | NNE/Average NNO |
| Spread: | | RNOA – NNEP |

In most cases, nonoperating return is positive and it increases ROE. However, there are a number of other situations where the company's nonoperating activities are more complex. And in some situations, the nonoperating return is negative (as for Intel). In this section, we illustrate four specific situations and demonstrate how to directly compute nonoperating return in each case.

Nonoperating Return—with Debt Financing

The following illustration provides the intuition for the simple case when a company has debt (nonoperating obligations) but no nonoperating assets (such as cash).

Assume that a company has \$1,000 in average net operating assets during the year and earns net operating profit after tax (NOPAT) of \$200; yielding a 20% RNOA (NOPAT/Average NOA = \$200/\$1,000). (To simplify the example, assume a tax rate of 0%.) The company finances the assets entirely with equity and thus ROE is also 20% (Net income/Average equity = \$200/\$1,000).

Next assume that the company borrows \$500 at 7% and uses the funds to acquire additional operating assets that yield the same RNOA of 20%. Its net operating assets are now \$1,500 and its profit is \$265, computed as:

| | | |
|---|-------|--------------|
| Profit from assets financed with equity (\$1,000 × 20%) | | \$200 |
| Profit from assets financed with debt (\$500 × 20%) | \$100 | |
| Less interest expense from debt (\$500 × 7%) | (35) | 65 |
| Net income | | <u>\$265</u> |

*Financial leverage (FLEV) is defined here differently than the financial leverage (FL) used in the DuPont analysis, despite the same name.

the financials apart into their component businesses and separately analyze each component. Fortunately, companies must report financial information (albeit limited) for major business segments in their 10-Ks.

Fuzzy View Ratios reduce, to a single number, the myriad complexities of a company's operations. No scalar can accurately capture all qualitative aspects of a company. Ratios cannot meaningfully convey a company's marketing and management philosophies, its human resource activities, its financing activities, its strategic initiatives, and its product management. In our analysis we must learn to look through the numbers and ratios to better understand the operational factors that drive financial results. Successful analysis seeks to gain insight into what a company is really about and what the future portends. Our overriding purpose in analysis is to understand the past and present to better predict the future. Computing and examining ratios is one step in that process.

REVIEW 3-9 LO9

Use the income statement and balance sheet for **Cisco Systems Inc.** from Reviews 3-4 and 3-5.



Required

- Compute and interpret measures of liquidity for fiscal 2015 and 2014.
- Compute and interpret liabilities-to-equity ratio for fiscal 2015 and 2014. Compute times interest earned for 2015. (Note: The times interest earned ratio uses interest expense, gross, which is what Cisco Systems reports separately on its income statement.)

Solution on p. 3-68.

GUIDANCE ANSWERS

You Are the CEO Pg. 3-27 Your company is performing substantially better than its competitors. Namely, your RNOA of 16% is markedly superior to competitors' RNOA of 10%. However, RNOA disaggregation shows that this is mainly attributed to your NOAT of 0.89 versus competitors' NOAT of 0.59. Your NOPM of 18% is essentially identical to competitors' NOPM of 17%. Accordingly, you will want to maintain your NOAT as further improvements are probably difficult to achieve. Importantly, you are likely to achieve the greatest benefit with efforts at improving your NOPM of 18%, which is only marginally better than the industry norm of 17%.

Superscript ^{A(B)} denotes assignments based on Appendix 3A (3B).

QUESTIONS

- Q3-1.** Explain in general terms the concept of return on investment. Why is this concept important in the analysis of financial performance?
- Q3-2.^A** (a) Explain how an increase in financial leverage (FL) can increase a company's ROE. (b) Given the potentially positive relation between financial leverage (FL) and ROE, why don't we see companies with 100% financial leverage (entirely nonowner financed)?
- Q3-3.** Gross profit margin (Gross profit/Sales) is an important determinant of NOPAT. Identify two factors that can cause gross profit margin to decline. Is a reduction in the gross profit margin always bad news? Explain.
- Q3-4.** When might a reduction in operating expenses as a percentage of sales denote a short-term gain at the cost of long-term performance?
- Q3-5.** Describe the concept of asset turnover. What does the concept mean and why is it so important to understanding and interpreting financial performance?
- Q3-6.** Explain what it means when a company's ROE exceeds its RNOA. What about when the reverse occurs?
- Q3-7.** Discontinued operations are typically viewed as a nonoperating activity in the analysis of the balance sheet and the income statement. What is the rationale for this treatment?
- Q3-8.** Describe what is meant by the "tax shield."
- Q3-9.** What is meant by the term "net" in net operating assets (NOA)?
- Q3-10.** Why is it important to disaggregate RNOA into net operating profit margin (NOPM) and net operating assets turnover (NOAT)?

- Q3-11.** What insights do we gain from the graphical relation between profit margin and asset turnover?
- Q3-12.** Explain the concept of liquidity and why it is crucial to company survival.
- Q3-13.** Identify at least two factors that limit the usefulness of ratio analysis.
- Q3-14.** Define (1) net nonoperating obligations and (2) net nonoperating expense.
- Q3-15.** What is the chief difference between the traditional DuPont disaggregation of ROE and the disaggregation based on RNOA?
- Q3-16.** What is meant by the term cash conversion cycle?
- Q3-17.** What insights can be gained from a common-sized income statement or balance sheet?

Assignments with the  logo in the margin are available in [my BusinessCourse](#).
See the Preface of the book for details.

MINI EXERCISES

LO1 M3-18. Compute ROE

HOME DEPOT
(HD)



Selected balance sheet and income statement information for [Home Depot](#) follows. Compute the return on equity for the year ended January 31, 2016.

| \$ millions | Jan. 31, 2016 | Feb. 01, 2015 |
|---|---------------|---------------|
| Operating assets | \$40,333 | \$38,223 |
| Nonoperating assets | 2,216 | 1,723 |
| Total assets | 42,549 | 39,946 |
| Operating liabilities | 14,918 | 13,427 |
| Nonoperating liabilities | 21,315 | 17,197 |
| Total liabilities | 36,233 | 30,624 |
| Total stockholders' equity | 6,316 | 9,322 |
| Sales | 88,519 | |
| Net operating profit before tax (NOPBT) | 11,774 | |
| Nonoperating expense before tax | 753 | |
| Tax expense | 4,012 | |
| Net income | 7,009 | |

LO2, 3 M3-19. Apply DuPont Disaggregation of ROE

HOME DEPOT
(HD)



Refer to the balance sheet and income statement information for [Home Depot](#), from M3-18.

- Compute ROE and disaggregate the ratio into its DuPont components of ROA and financial leverage (FL).
- Disaggregate ROA into profitability and productivity components.

LO4 M3-20. Compute Net Operating Assets (NOA)

HOME DEPOT
(HD)



Refer to the balance sheet information for [Home Depot](#), from M3-18. Compute net operating assets for the years ended January 31, 2016 and February 1, 2015.

LO5 M3-21. Compute Net Operating Profit after Tax

HOME DEPOT
(HD)



Refer to the income statement information for [Home Depot](#), from M3-18.

Compute net operating profit after tax for the year ended January 31, 2016. Assume a statutory tax rate of 37%.

LO1, 6, 7 M3-22. Compute ROE and RNOA with Disaggregation

HOME DEPOT
(HD)



Refer to the balance sheet and income statement information for [Home Depot](#) from M3-18.

- Compute return on equity.
- Compute return on net operating assets (RNOA).
- Use ROE and RNOA to determine the nonoperating return for the year.
- Disaggregate RNOA into components of profitability and productivity and show that the product of the two components equals RNOA.

| UNDER ARMOUR INC. Consolidated Balance Sheet | | |
|---|--------------------|--------------------|
| \$ in 000s | Dec. 31, 2015 | Dec. 31, 2014 |
| Assets | | |
| Cash and cash equivalents | \$ 129,852 | \$ 593,175 |
| Accounts receivable, net | 433,638 | 279,835 |
| Inventories | 783,031 | 536,714 |
| Prepaid expenses and other current assets | 152,242 | 87,177 |
| Deferred income taxes | — | 52,498 |
| Total current assets | 1,498,763 | 1,549,399 |
| Property and equipment, net | 538,531 | 305,564 |
| Goodwill | 585,181 | 123,256 |
| Intangible assets, net | 75,686 | 26,230 |
| Deferred income taxes | 92,157 | 33,570 |
| Other long-term assets | 78,582 | 57,064 |
| Total assets | <u>\$2,868,900</u> | <u>\$2,095,083</u> |
| Liabilities and Stockholders' Equity | | |
| Accounts payable | \$ 200,460 | \$ 210,432 |
| Accrued expenses | 192,935 | 147,681 |
| Current maturities of long term-debt | 42,000 | 28,951 |
| Other current liabilities | 43,415 | 34,563 |
| Total current liabilities | 478,810 | 421,627 |
| Long-term debt, net of current maturities | 352,000 | 255,250 |
| Long-term line of credit, noncurrent | 275,000 | — |
| Other long-term liabilities | 94,868 | 67,906 |
| Total liabilities | <u>1,200,678</u> | <u>744,783</u> |
| Stockholders' equity | | |
| Additional paid-in capital | 636,630 | 508,350 |
| Retained earnings | 1,076,533 | 856,687 |
| Accumulated other comprehensive loss | (45,013) | (14,808) |
| Total stockholders' equity | <u>1,668,222</u> | <u>1,350,300</u> |
| Total liabilities and stockholders' equity | <u>\$2,868,900</u> | <u>\$2,095,083</u> |

Required

- Compute return on equity (ROE).
- Apply the DuPont disaggregation into return on assets (ROA) and financial leverage (FL).
- Calculate the profitability and productivity components of ROA.
- Confirm the ROA from part *a.* above with the full DuPont disaggregation: $ROE = PM \times AT \times FL$.

P3-48. Analysis and Interpretation of Liquidity and Solvency

Refer to the financial information of **3M Company** in P3-46 to answer the following requirements.

L09**3M COMPANY**
(MMM)**Required**

- Compute the current ratio and quick ratio for 2015 and 2014. Comment on any observed trends.
- Compute times interest earned and liabilities-to-equity ratios for 2015 and 2014. Comment on any noticeable changes.
- Summarize your findings about the company's liquidity and solvency. Do you have any concerns about its ability to meet its debt obligations?

P3-49. Direct Computation of Nonoperating Return

Refer to the financial information of **3M Company** in P3-46 to answer the following requirements.

L08**3M COMPANY**
(MMM)**Required**

- Compute its financial leverage (FLEV), Spread, and noncontrolling interest (NCI) ratio for 2015. Recall that $NNE = NOPAT - \text{Net income}$.
- Assume that its return on equity (ROE) for 2015 is 38.95% and its return on net operating assets (RNOA) is 26.58%. Confirm computations to yield the relation: $ROE = [RNOA + (FLEV \times \text{Spread})] \times \text{NCI ratio}$.
- What do your computations of the nonoperating return imply about the company's use of borrowed funds?

SOLUTIONS TO REVIEW PROBLEMS

Review 3-1—Solution (\$ millions)

$$\text{ROE} = \frac{\$8,981}{(\$59,698 + \$56,654) / 2} = 15.44\%$$

Review 3-2—Solution (\$ millions)

ROE = Return on assets (ROA) × Financial leverage (FL)

$$\text{ROA} = \frac{\$8,981}{(\$113,481 + \$105,070) / 2} = 8.22\% \quad \text{Financial leverage (FL)} = \frac{(\$113,481 + \$105,070) / 2}{(\$59,698 + \$56,654) / 2} = 1.878$$

$$8.22\% \times 1.878 = 15.44\% = \text{ROE}$$

Review 3-3—Solution (\$ millions)

$$a. \text{ROA} = \frac{\$8,981}{(\$113,481 + \$105,070) / 2} = 8.22\%$$

$$\text{PM} = \frac{\$8,981}{\$49,161} = 18.27\%$$

$$\text{AT} = \frac{\$49,161}{(\$113,481 + \$105,070) / 2} = 0.45$$

ROA = Profit Margin (PM) × Asset Turnover (AT)

$$8.22\% = 18.27\% \times 0.45$$

$$b. (\$49,161 - \$19,480) / \$49,161 = 60.38\%$$

$$c. \text{Days sales outstanding} = 365 \times [(\$5,344 + \$5,157) / 2] / \$49,161 = 38.98$$

$$\text{Days inventory outstanding} = 365 \times [(\$1,627 + \$1,591) / 2] / \$19,480 = 30.15$$

$$\text{Days accounts payable outstanding} = 365 \times [(\$1,104 + \$1,032) / 2] / \$19,480 = 20.01$$

$$\text{Cash conversion cycle} = 38.98 + 30.15 - 20.01 = 49.12$$

$$d. (\$53,774 / \$59,707) = 0.90$$

Review 3-4—Solution

| <i>a.</i> \$ millions | July 25, 2015 | July 26, 2014 |
|--|-----------------|-----------------|
| Accounts receivable, net | \$ 5,344 | \$ 5,157 |
| Inventories | 1,627 | 1,591 |
| Financing receivables, net | 4,491 | 4,153 |
| Deferred tax assets | 2,915 | 2,808 |
| Other current assets | 1,490 | 1,331 |
| Property and equipment, net | 3,332 | 3,252 |
| Financing receivables, net | 3,858 | 3,918 |
| Goodwill | 24,469 | 24,239 |
| Purchased intangible assets, net | 2,376 | 3,280 |
| Other assets | 3,163 | 3,267 |
| Total operating assets | <u>\$53,065</u> | <u>\$52,996</u> |
| Accounts payable | \$ 1,104 | \$ 1,032 |
| Income taxes payable | 62 | 159 |
| Accrued compensation | 3,049 | 3,181 |
| Deferred revenue | 9,824 | 9,478 |
| Other current liabilities | 5,687 | 5,451 |
| Income taxes payable | 1,876 | 1,851 |
| Deferred revenue | 5,359 | 4,664 |
| Other long-term liabilities | 1,459 | 1,748 |
| Total operating liabilities | <u>\$28,420</u> | <u>\$27,564</u> |

ANALYST ADJUSTMENTS 5.2 Adjusting for Allowances on Accounts Receivable (cont.)

Then, we estimate the allowance for doubtful accounts using the average percent computed here for each of the past 3 years for Pfizer. Reformulations for the 2013 through 2015 balance sheets follow (assume a 30% tax rate).

| Balance Sheets Adjustments (\$ millions) | 2013 | 2014 | 2015 (current year) |
|---|--------|--------|---|
| Allowance for doubtful accounts | − \$17 | − \$17 | No adjustment required at current year-end (as the year-end balance sheet reflects all prior and current year cost allocations) |
| Net accounts receivable | + \$17 | + \$17 | |
| Deferred tax liabilities | + \$ 5 | + \$ 5 | |
| Retained earnings | + \$12 | + \$12 | |

Reformulations for the 2013 through 2015 income statements follow (assume a 30% tax rate):

| Income Statements Adjustments (\$ millions) | 2013 | 2014 | 2015 (current year) |
|---|--------|------|---------------------|
| Bad debts expense | − \$17 | \$0* | + \$17 |
| Income tax expense at 30% | + \$ 5 | \$0* | − \$ 5 |
| Net income | + \$12 | \$0* | − \$12 |

* The \$0 adjustment is a coincidence resulting from our 4.682% average rate approximating the 2014 reported rate of 4.68%.

We could have computed our balance sheet average using any number of possible years. The key is that we assess the credibility of the valuation allowance and adjust it if necessary. We could also use the *income statement method* to determine the average percent for 2013 through 2015 as follows.

$$\Sigma \text{Bad Debts Expense}_{2013, 2014, 2015} / \Sigma \text{Revenues}_{2013, 2014, 2015}$$

We would then use this percent and employ similar adjustments as applied above. The key here is deciding which ratio, balance sheet or the income statement, better reflects actual economic conditions.

**REVIEW 5-5** LO5

AT&T Corporation reported the following information on its December 31, 2015, balance sheet.

| \$ millions | 2015 | 2014 |
|--|----------|----------|
| Accounts receivable—net of allowances for doubtful accounts of \$704 and \$454 | \$16,532 | \$14,527 |

Footnotes to the financial statements reported, “Credit risks are assessed based on historical write-offs, net of recoveries, as well as an analysis of the aged accounts receivable balances with allowances generally increasing as the receivable ages.”

Assume the company analyzed and aged its accounts receivable at December 31, 2015, and developed the following table.

| \$ millions | Accounts Receivable | % Uncollectible |
|----------------------------------|---------------------|-----------------|
| Current | \$12,650 | 0.5% |
| 1–30 days past due | 2,785 | 5% |
| 31–60 days past due | 854 | 15% |
| 61–90 days past due | 589 | 25% |
| 91–120 days past due | 207 | 55% |
| Over 120 days past due | 151 | 75% |

AT&T’s allowance for doubtful accounts had a balance of \$454 million at January 1, 2015. Assume that during the year, the company wrote off accounts receivable totaling \$1,166 million. This exceeded the balance in the account at the start of the year. In its 2015 Form 10-K filing, the company explained that the write-offs were higher than expected due to acquisitions of DIRECTV and wireless properties in Mexico in 2015.

continued

L05 E5-43. Interpreting the Accounts Receivable Footnote

Hewlett-Packard Company reports the following in its 2015 10-K report.



| October 31 (\$ millions) | 2015 | 2014 |
|-------------------------------|----------|----------|
| Accounts receivable | \$13,363 | \$13,832 |

Footnotes to the company's 10-K provide the following additional information relating to its allowance for doubtful accounts.

| For the Fiscal Years Ended October 31 (\$ millions) | 2015 | 2014 | 2013 |
|--|--------------|--------------|--------------|
| Allowance for doubtful accounts—accounts receivable | | | |
| Balance, beginning of period | \$232 | \$332 | \$464 |
| Provision for doubtful accounts | 46 | 25 | 23 |
| Deductions, net of recoveries | (89) | (125) | (155) |
| Balance, end of period | <u>\$189</u> | <u>\$232</u> | <u>\$332</u> |

- What is the gross amount of accounts receivables for Hewlett-Packard in fiscal 2015 and 2014?
- What is the percentage of the allowance for doubtful accounts to gross accounts receivable for 2015 and 2014?
- What amount of bad debts expense did Hewlett-Packard report each year 2013 through 2015 (ignore increase in allowance from acquisitions)? How does bad debts expense compare with the amounts of its accounts receivable actually written off? (Identify the amounts, and explain.)
- Explain the changes in the allowance for doubtful accounts from 2013 through 2015. Does it appear that Hewlett-Packard increased or decreased its allowance for doubtful accounts in any particular year beyond what seems reasonable?

L05 E5-44. Estimating Bad Debts Expense and Reporting Receivables

At December 31, Barber Company had a balance of \$420,000 in its accounts receivable and an unused balance of \$2,600 in its allowance for uncollectible accounts. The company then aged its accounts as follows.

| | |
|-------------------------------------|------------------|
| Current | \$346,000 |
| 1–60 days past due | 48,000 |
| 61–180 days past due | 17,000 |
| Over 180 days past due | <u>9,000</u> |
| Total accounts receivable | <u>\$420,000</u> |

The company has experienced losses as follows: 1% of current balances, 5% of balances 1–60 days past due, 15% of balances 61–180 days past due, and 40% of balances over 180 days past due. The company continues to base its allowance for uncollectible accounts on this aging analysis and percentages.

- What amount of bad debts expense does Barber report on its income statement for the year?
- Show how Barber's December 31 balance sheet will report the accounts receivable and the allowance for uncollectible accounts.

L05 E5-45. Estimating Uncollectible Accounts and Reporting Receivables over Multiple Periods

Weiss Company, which has been in business for three years, makes all of its sales on credit and does not offer cash discounts. Its credit sales, customer collections, and write-offs of uncollectible accounts for its first three years follow.

| Year | Sales | Collections | Accounts Written Off |
|----------------|-----------|-------------|----------------------|
| 2014 | \$733,000 | \$716,000 | \$5,300 |
| 2015 | 857,000 | 842,000 | 5,800 |
| 2016 | 945,000 | 928,000 | 6,500 |

- Weiss recognizes bad debts expense as 1% of sales. (*Hint:* This means the allowance account is increased by 1% of credit sales regardless of any write-offs and unused balances.) What does Weiss' **2016** balance sheet report for accounts receivable and the allowance for uncollectible accounts? What total amount of bad debts expense appears on Weiss' income statement for each of the three years?

Review 5-2—Solution

1. “Additions” represents the amount of returns allowances recorded during fiscal 2015 for sales during that year.
2. “Returns, net” is the dollar value of actual returns offset by the value of the merchandise returned. The actual returns number is very close to the amount estimated. This indicates that Nordstrom is fairly accurate in its estimation process.
3. a. Sales returns/gross sales shows an increasing pattern. The ratio is up from 13.4% two years ago to 16.2% in the most current year. This could indicate that customer satisfaction with products is decreasing. However, Nordstrom’s business model focuses on customer satisfaction, and the fact that its margin is very high (35% in 2015) puts the increase in perspective—it is not alarming, but should be monitored.

| \$ millions | 2015 | 2014 | 2013 |
|--|----------|----------|----------|
| Net sales. | \$14,095 | \$13,110 | \$12,166 |
| Year-end allowance for sales returns | 2,720 | 2,129 | 1,880 |
| Gross sales. | \$16,815 | \$15,239 | \$14,046 |
| % Returned merchandise | 16.2% | 14.0% | 13.4% |

- b. Nordstrom’s allowance is adequate considering the following ratio of actual to estimate:

| \$ millions | 2015 | 2014 | 2013 |
|--|---------|---------|---------|
| Actual returns during the year | \$2,710 | \$2,097 | \$1,868 |
| Estimated returns for the year | \$2,720 | \$2,129 | \$1,880 |
| Adequacy | 99.6% | 98.5% | 99.4% |

Review 5-3—Solution

1. Some customers have very low credit scores and by allowing them to prepay for their wireless services, AT&T increases revenue without the risk of increasing the bad debt expense. Other customers may want a temporary phone while visiting the United States. Still other customers may not want a long-term contract because of uncertainty in their usage. For a variety of reasons, a prepaid wireless service makes economic sense for AT&T. Indeed, the company collected nearly \$5 billion in revenue from this product line in 2015.
2. The amount of cash received from the customers is the amount added to the liability.

Advanced Billings and Customer Deposits (\$ millions)

| | |
|---|----------------|
| Balance at 1/1/2015. | \$4,105 |
| + Cash prepayments by customers during the year. | ?? |
| – Revenue recognized during the year | (4,662) |
| = Balance at 12/31/2015. | <u>\$4,682</u> |
| Cash prepayments by customers during the year = \$4,682 + \$4,662 – \$4,105 = \$5,239 | |

3. The gift card is booked as a liability when sold, then AT&T would use historical analysis to age the gift cards. For example, the analysis might reveal that by the time a gift card is one year old, there is a 75% chance it will be redeemed, so AT&T would recognize 25% of the value of these cards as revenue (100% – 75%) leaving 75% of the value of the gift card in the liability account. When a gift card is two years old, analysis reveals there is only a 5% chance it will be redeemed, and AT&T would recognize another 70% of the revenue, leaving 5% of the value of the gift card still in the liability account.

Inventory (in \$000s) . . . During fiscal 2016, 2015 and 2014, a reduction in inventories related to working capital initiatives resulted in the liquidation of applicable LIFO inventory quantities carried at lower costs in prior years. This LIFO liquidation resulted in a \$60,653, \$38,867 and \$13,894 cost of revenues decrease, with a corresponding reduction to the adjustment to LIFO for fiscal 2016, fiscal 2015 and fiscal 2014, respectively.

Rite Aid reports that reductions in inventory quantities in 2016 led to the sale (at current selling prices) of inventory that had a low balance sheet value—the inventory was valued using costs from prior years when those costs were much lower. As a result of these inventory reductions, COGS was lower, which increased income by \$60,653 thousand in 2016. Fiscal years 2015 and 2014 were similarly affected.



IFRS INSIGHT Inventory Measurement under IFRS

Like GAAP, IFRS measures inventories at the lower of cost or market. The cost of inventory generally is determined using the FIFO (first-in, first-out) or average cost method; use of the LIFO (last-in, first-out) method is prohibited under IFRS.

ANALYST ADJUSTMENTS 6.1 Adjusting LIFO Statements to FIFO Statements

Walgreens Boots Alliance (WBA) discloses the following inventory information in its August 2016 10-K.

The Company's Retail Pharmacy USA segment inventory is accounted for using the last-in-first-out ("LIFO") method. At August 31, 2016 and 2015, Retail Pharmacy USA segment inventories would have been greater by \$2.8 billion and \$2.5 billion, respectively, if they had been valued on a lower of first-in-first-out ("FIFO") cost or market basis.

Walgreens Boots only uses LIFO for its US inventory because IFRS (the accounting rules used in all of the other countries where Walgreens Boots operates) prohibits use of LIFO.¹ To perform a financial analysis of the company, we must first reformulate certain balance sheet and income statement items using the LIFO reserve. By accessing each prior years' 10-K, we can obtain the LIFO reserve for as many additional years as we believe are useful for our analysis. For our example here, we analyze Walgreens Boots for two years, which requires we obtain the LIFO reserve for three years as follows.

| \$ millions | 2014 | 2015 | 2016 |
|------------------------|---------|---------|---------|
| LIFO reserve | \$2,300 | \$2,500 | \$2,800 |

To convert LIFO numbers to FIFO on the balance sheet and income statement, recall two equations:

$$\begin{aligned} \text{FIFO Inventory} &= \text{LIFO Inventory} + \text{LIFO Reserve} \\ \text{FIFO COGS} &= \text{LIFO COGS} - \text{Increase in LIFO Reserve (or + Decrease)} \end{aligned}$$

Using these two equations we reformulate the following key numbers.

| Balance Sheet Adjustments (\$ millions) | 2014 | 2015 | 2016 |
|---|----------|----------|----------|
| Inventories | +\$2,300 | +\$2,500 | +\$2,800 |
| Total assets | +2,300 | +2,500 | +2,800 |
| Tax liabilities (LIFO reserve \times 35%) | +805 | +875 | +980 |
| Equity (LIFO reserve \times 65%) | +1,495 | +1,625 | +1,820 |

| Income Statement Adjustments (\$ millions) | 2015 | 2016 |
|--|--------|--------|
| Cost of goods sold ² | -\$200 | -\$300 |
| Gross profit | +200 | +300 |
| Pretax income | +200 | +300 |
| Income tax expense (Increase in LIFO reserve \times 35%) | +70 | +105 |
| Net income (Increase in LIFO reserve \times 65%) | +130 | +195 |

¹ Further neither IRS nor GAAP requires use of a single inventory costing method. Companies are allowed to, and frequently do, use different inventory methods for different types of inventory (such as spare parts versus finished goods) or inventory in different geographical locations.

² Recall: Cost of Goods Sold = Beginning Inventories + Purchases - Ending Inventories. Thus, as ending inventories decrease, cost of goods sold increases.

continued

- Describe what is meant by *service cost* and *interest cost*.
- What is the total amount paid to retirees during fiscal 2016? What is the source of funds to make these payments to retirees?
- Compute the 2016 funded status for the company's pension plan.
- What are actuarial gains and losses? What are the plan amendment adjustments, and how do they differ from the actuarial gains and losses?
- General Mills projects payments to retirees of about \$300 million per year. How is the company able to contribute only \$23.7 million to its pension plan?
- What effect would a substantial decline in the financial markets have on General Mills' contribution to its pension plans?

E10-34. Analyzing and Interpreting Pension and Health Care Footnote

Xerox Corporation reports the following pension and retiree health care ("Other") footnote as part of its 10-K report.

LO2

**XEROX
CORPORATION**
(XRX)



| December 31, 2015 (\$ millions) | Pension Benefits | Retiree Health |
|---|-------------------------|-----------------------|
| Change in Benefit Obligation | | |
| Benefit obligation, January 1 | \$11,855 | \$ 937 |
| Service cost | 36 | 7 |
| Interest cost | 295 | 34 |
| Plan participants' contributions | 4 | 14 |
| Actuarial loss | (332) | (4) |
| Currency exchange rate changes | (538) | (25) |
| Plan amendments and curtailments | (17) | (31) |
| Benefits paid/settlements | (638) | (77) |
| Benefit obligation, December 31 | \$10,665 | \$ 855 |
| Change in Plan Assets | | |
| Fair value of plan assets, January 1 | \$ 9,214 | \$ — |
| Actual return on plan assets | (89) | — |
| Employer contribution | 309 | 63 |
| Plan participants' contributions | 4 | 14 |
| Currency exchange rate changes | (440) | — |
| Benefits paid/settlements | (638) | (77) |
| Other | (4) | — |
| Fair value of plan assets, December 31 | \$ 8,356 | \$ — |
| Net funded status at December 31 | <u>\$(2,309)</u> | <u>\$(855)</u> |

| December 31, 2015 (\$ millions) | Pension Benefits | Retiree Health |
|--|----------------------|--------------------|
| Components of Net Periodic Benefit Cost | | |
| Service cost | \$ 36 | \$ 7 |
| Interest cost | 295 | 34 |
| Expected return on plan assets | (376) | — |
| Recognized net actuarial loss | 96 | 1 |
| Amortization of prior service credit | 2 | (18) |
| Recognized settlement loss | 89 | — |
| Recognized curtailment gain | — | (22) |
| Defined benefit plans | 142 | 2 |
| Defined contribution plans | 100 | — |
| Total net periodic cost | <u>\$242</u> | <u>\$ 2</u> |
| Other Changes in Plan Assets and Benefit Obligations Recognized in Other Comprehensive Income | | |
| Net actuarial loss | \$125 | \$ (4) |
| Prior service credit | (16) | (32) |
| Amortization of net actuarial loss | (185) | (1) |
| Amortization of net prior service credit | (2) | 18 |
| Curtailment gain | — | 22 |
| Total recognized in other comprehensive income | <u>\$(78)</u> | <u>\$ 3</u> |

LO2 M14-16. Computing Present Value of Terminal Residual Operating Income

Use the following data to compute the present value of the terminal period ROPI for each of the four firms A through D. Assume a forecast horizon of four years.

| | A | B | C | D |
|---|-----------|----------|----------|----------|
| Terminal period ROPI | \$171,345 | \$10,101 | \$57,008 | \$87,956 |
| Weighted average cost of capital (WACC) | 7.2% | 11% | 8.8% | 13% |
| Terminal period growth rate | 2.0% | 1% | 2.5% | 2% |

LO3 M14-17. Comparing Model Weights for DCF and ROPI

GENERAL MILLS
(GIS)

Compare the valuation model information for **General Mills** from Review 14-2 (ROPI) with Review 13-2 (DCF). For each model, compute the relative proportion of the total estimated firm value that comes from the following components:

- Net operating assets.
- Present value of estimates for each year in the horizon period.
- Present value of the terminal value estimate.

What do these relative proportions tell us about the precision of the DCF model compared to the ROPI model?

EXERCISES

LO2 E14-18. Estimating Share Value Using the ROPI Model

WHOLE FOODS
MARKET
(WFM)



Following are forecasts of **Whole Foods**' sales, net operating profit after tax (NOPAT), and net operating assets (NOA) as of September 25, 2016.

| \$ millions | Reported | Horizon Period | | | | Terminal Period |
|-----------------|----------|----------------|----------|----------|----------|-----------------|
| | 2016 | 2017 | 2018 | 2019 | 2020 | |
| Sales | \$15,724 | \$15,881 | \$16,199 | \$16,523 | \$16,853 | \$17,022 |
| NOPAT | 526 | 524 | 535 | 545 | 556 | 562 |
| NOA | 3,466 | 3,500 | 3,570 | 3,642 | 3,715 | 3,752 |

Answer the following requirements assuming a discount rate (WACC) of 6%, a terminal period growth rate of 1%, common shares outstanding of 318.3 million, and net nonoperating obligations (NNO) of \$242 million.

- Estimate the value of a share of Whole Foods' common stock using the residual operating income (ROPI) model as of September 25, 2016.
- Whole Foods stock closed at \$30.96 on November 18, 2016, the date the 10-K was filed with the SEC. How does your valuation estimate compare with this closing price? What do you believe are some reasons for the difference?

LO2 E14-19. Estimating Share Value Using the ROPI Model

WALMART
STORES INC.
(WMT)



Following are forecasts of sales, net operating profit after tax (NOPAT), and net operating assets (NOA) as of January 31, 2016, for **Walmart Stores Inc.**

| \$ millions | Reported | Horizon Period | | | | Terminal Period |
|-----------------|-----------|----------------|-----------|-----------|-----------|-----------------|
| | 2016 | 2017 | 2018 | 2019 | 2020 | |
| Sales | \$482,130 | \$486,951 | \$491,821 | \$496,739 | \$501,706 | \$506,723 |
| NOPAT | 16,634 | 17,043 | 17,214 | 17,386 | 17,560 | 17,735 |
| NOA | 124,940 | 126,186 | 127,448 | 128,722 | 130,009 | 131,309 |

Answer the following requirements assuming a discount rate (WACC) of 7%, a terminal period growth rate of 1%, common shares outstanding of 3,144 million, net nonoperating obligations (NNO) of \$41,329 million, and noncontrolling interest (NCI) on the balance sheet of \$3,065 million.

- Estimate the value of a share of Walmart common stock using the residual operating income (ROPI) model as of January 31, 2016.
- Walmart (WMT) stock closed at \$68.80 on March 30, 2016, the date the 10-K was filed with the SEC. How does your valuation estimate compare with this closing price? What do you believe are some reasons for the difference?

| CISCO SYSTEMS INC. Consolidated Balance Sheets | | |
|--|------------------|------------------|
| In millions, except par value | July 30, 2016 | July 25, 2015 |
| Assets | | |
| Current assets | | |
| Cash and cash equivalents | \$ 7,631 | \$ 6,877 |
| Investments | 58,125 | 53,539 |
| Accounts receivable, net of allowance for doubtful accounts of \$249 at July 30, 2016 and \$302 at July 25, 2015. | 5,847 | 5,344 |
| Inventories | 1,217 | 1,627 |
| Financing receivables, net | 4,272 | 4,491 |
| Other current assets. | 1,627 | 1,490 |
| Total current assets | 78,719 | 73,368 |
| Property and equipment, net | 3,506 | 3,332 |
| Financing receivables, net | 4,158 | 3,858 |
| Goodwill | 26,625 | 24,469 |
| Purchased intangible assets, net | 2,501 | 2,376 |
| Deferred tax assets | 4,299 | 4,454 |
| Other assets. | 1,844 | 1,516 |
| Total assets. | <u>\$121,652</u> | <u>\$113,373</u> |
| Liabilities and equity | | |
| Current liabilities | | |
| Short-term debt | \$ 4,160 | \$ 3,897 |
| Accounts payable. | 1,056 | 1,104 |
| Income taxes payable | 517 | 62 |
| Accrued compensation | 2,951 | 3,049 |
| Deferred revenue | 10,155 | 9,824 |
| Other current liabilities | 6,072 | 5,476 |
| Total current liabilities. | 24,911 | 23,412 |
| Long-term debt | 24,483 | 21,457 |
| Income taxes payable | 925 | 1,876 |
| Deferred revenue | 6,317 | 5,359 |
| Other long-term liabilities | 1,431 | 1,562 |
| Total liabilities. | 58,067 | 53,666 |
| Cisco shareholders' equity | | |
| Preferred stock, no par value: 5 shares authorized; none issued and outstanding | — | — |
| Common stock and additional paid-in capital, \$0.001 par value: 20,000 shares authorized; 5,029 and 5,085 shares issued and outstanding at July 30, 2016 and July 25, 2015, respectively | 44,516 | 43,592 |
| Retained earnings | 19,396 | 16,045 |
| Accumulated other comprehensive income (loss) | (326) | 61 |
| Total Cisco shareholders' equity | 63,586 | 59,698 |
| Noncontrolling interests | (1) | 9 |
| Total equity | 63,585 | 59,707 |
| Total liabilities and equity | <u>\$121,652</u> | <u>\$113,373</u> |

| | |
|--|---|
| Sales growth 2017 | 1% |
| Sales growth 2018–2020 | 2% |
| Terminal growth | 1% |
| Net operating profit margin | 2016 rate rounded to three decimal places |
| Net operating asset turnover | 2016 rate rounded to three decimal places |

Required

- Compute net operating assets (NOA) for 2016.
- Compute net operating profit after tax (NOPAT) for 2016, assuming a federal and state statutory tax rate of 37%.
- Use the parsimonious forecast method, as shown in the Analysis Insight box and illustrated in Exhibit 14.2, to forecast Cisco's sales, NOPAT, and NOA for 2017 through 2020 *and* the terminal period using the above assumptions.

continued

- d. Estimate the value of a share of Cisco common stock using the residual operating income (ROPI) model as of July 30, 2016; assume a discount rate (WACC) of 10%, common shares outstanding of 5,029 million, and net nonoperating obligations (NNO) of \$(37,113) million (NNO is negative which means that Cisco has net nonoperating investments).
- e. Cisco stock closed at \$31.47 on September 8, 2016, the date the Form 10-K was filed with the SEC. How does your valuation estimate compare with this closing price? What do you believe are some reasons for the difference? What investment decision is suggested from your results?

LO2 P14-28. Estimating Share Value Using the ROPI Model

Following are forecasts of **Texas Roadhouse**'s sales, net operating profit after tax (NOPAT), and net operating assets (NOA) as of December 29, 2015.

**TEXAS
ROADHOUSE**
(TXRH)



| \$ thousands | Reported 2015 | Forecast Horizon | | | |
|-----------------|------------------|------------------|-------------|-------------|-------------|
| | | 2016 | 2017 | 2018 | 2019 |
| Sales | \$1,807,368 | \$2,060,400 | \$2,348,855 | \$2,513,275 | \$2,689,205 |
| NOPAT | 102,495 | 168,953 | 192,606 | 206,089 | 220,515 |
| NOA | 662,502 | 755,279 | 861,017 | 921,288 | 985,779 |

- a. Forecast the terminal period values assuming a 1% terminal period growth rate for all three model inputs: Sales, NOPAT, and NOA.
- b. Estimate the value of a share of TXRH common stock using the residual operating income (ROPI) model as of December 29, 2015; assume a discount rate (WACC) of 7%, common shares outstanding of 70,091 thousand, net nonoperating obligations (NNO) of \$(14,680) thousand, and noncontrolling interest (NCI) from the balance sheet of \$7,520 thousand.
- c. TXRH closed at \$42.13 on February 26, 2016, the date the Form 10-K was filed with the SEC. How does your valuation estimate compare with this closing price? What do you believe are some reasons for the difference? What investment decision is suggested from your results?

LO2 P14-29. Forecasting with the Parsimonious Method and Estimating Share Value Using the ROPI Model

Following are the income statement and balance sheet for **Nike Inc.**

NIKE INC.
(NKE)

| NIKE INC. Consolidated Income Statement | | |
|--|-----------------|-----------------|
| For Year Ended (\$ millions) | May 31, 2016 | May 31, 2015 |
| Revenues | \$32,376 | \$30,601 |
| Cost of sales | 17,405 | 16,534 |
| Gross profit | 14,971 | 14,067 |
| Demand creation expense | 3,278 | 3,213 |
| Operating overhead expense | 7,191 | 6,679 |
| Total selling and administrative expense | 10,469 | 9,892 |
| Interest expense (income), net | 19 | 28 |
| Other (income) expense, net | (140) | (58) |
| Income before income taxes | 4,623 | 4,205 |
| Income tax expense | 863 | 932 |
| Net income | \$ 3,760 | \$ 3,273 |

| NIKE INC. Consolidated Balance Sheets | | |
|---|-----------------|-----------------|
| \$ millions | May 31, 2016 | May 31, 2015 |
| Current assets | | |
| Cash and equivalents | \$ 3,138 | \$ 3,852 |
| Short-term investments | 2,319 | 2,072 |
| Accounts receivable, net | 3,241 | 3,358 |
| Inventories | 4,838 | 4,337 |
| Prepaid expenses and other current assets | 1,489 | 1,968 |
| Total current assets | 15,025 | 15,587 |
| Property, plant and equipment, net | 3,520 | 3,011 |
| Identifiable intangible assets, net | 281 | 281 |
| Goodwill | 131 | 131 |
| Deferred income taxes and other assets | 2,439 | 2,587 |
| Total assets | \$21,396 | \$21,597 |
| Current liabilities | | |
| Current portion of long-term debt | \$ 44 | \$ 107 |
| Notes payable | 1 | 74 |
| Accounts payable | 2,191 | 2,131 |
| Accrued liabilities | 3,037 | 3,949 |
| Income taxes payable | 85 | 71 |
| Total current liabilities | 5,358 | 6,332 |
| Long-term debt | 2,010 | 1,079 |
| Deferred income taxes and other liabilities | 1,770 | 1,479 |
| Total liabilities | 9,138 | 8,890 |
| Shareholders' equity | | |
| Class A convertible common stock | 0 | 0 |
| Class B common stock | 3 | 3 |
| Capital in excess of stated value | 7,786 | 6,773 |
| Accumulated other comprehensive income | 318 | 1,246 |
| Retained earnings | 4,151 | 4,685 |
| Total shareholders' equity | 12,258 | 12,707 |
| Total liabilities and shareholders' equity | \$21,396 | \$21,597 |

Required

- Compute net operating assets (NOA) and net nonoperating obligations (NNO) for 2016. Note that the company's NNO is negative because cash exceeds debt.
- Compute net operating profit after tax (NOPAT) for 2016 assuming a federal and state statutory tax rate of 37%.
- Use the parsimonious forecast method, as shown in the Analysis Insight box and illustrated in Exhibit 14.2, to forecast sales, NOPAT, and NOA for 2017 through 2020 using the following assumptions.

| | |
|---|---|
| Sales growth | 6% |
| Net operating profit margin (NOPM) | 2016 ratios rounded to three decimal places |
| Net operating asset turnover (NOAT), year-end | 2016 ratios rounded to three decimal places |

 Forecast the terminal period value assuming a 1% terminal period growth and using the NOPM and NOAT assumptions above.
- Estimate the value of a share of Nike's common stock using the residual operating income (ROPI) model as of May 31, 2016; assume a discount rate (WACC) of 6.3% and common shares outstanding of 1,682 million.
- Nike's stock closed at \$56.99 on July 21, 2016, the date the Form 10-K was filed with the SEC. How does your valuation estimate compare with this closing price? What do you believe are some reasons for the difference? What investment decision is suggested from your results?

LO2 P14-30. Estimating Share Value Using the ROPI Model

**COLGATE-
PALMOLIVE
COMPANY**
(CL)

Following are forecasted sales, NOPAT, and NOA for **Colgate-Palmolive Company** for 2016 through 2019.

| \$ millions | Reported 2015 | Forecast Horizon | | | |
|-------------|------------------|------------------|----------|----------|----------|
| | | 2016 | 2017 | 2018 | 2019 |
| Sales..... | \$16,034 | \$16,836 | \$17,677 | \$18,561 | \$19,489 |
| NOPAT | 2,247 | 3,199 | 3,359 | 3,527 | 3,703 |
| NOA | 5,557 | 5,836 | 6,127 | 6,434 | 6,755 |

- Forecast the terminal period values assuming a 1% terminal period growth for all three model inputs, that is Sales, NOPAT, and NOA.
- Estimate the value of a share of Colgate-Palmolive common stock using the residual operating income (ROPI model); assume a discount rate (WACC) of 7.5%, common shares outstanding of 893 million, net nonoperating obligations (NNO) of \$5,601 million, and noncontrolling interest (NCI) from the balance sheet of \$255 million.
- Colgate-Palmolive's stock closed at \$67.22 on February 18, 2016, the date the Form 10-K was filed with the SEC. How does your valuation estimate compare with this closing price? What do you believe are some reasons for the difference? What investment decision is suggested from your results?

ANALYSIS DISCUSSION POINTS

LO4 D14-31. Management Application: Operating Improvement versus Financial Engineering

Assume that you are the CEO of a small publicly traded company. The operating performance of your company has fallen below market expectations, which is reflected in a depressed stock price. At your direction, your CFO provides you with the following recommendations that are designed to increase your company's return on net operating assets (RNOA) and your operating cash flows, both of which will, presumably, result in improved financial performance and an increased stock price.

- To improve net cash flow from operating activities, the CFO recommends that your company reduce inventories (raw material, work-in-progress, and finished goods) and receivables (through selective credit granting and increased emphasis on collection of past due accounts).
- The CFO recommends that your company sell and lease back its office building. The lease will be structured so as to be classified as an operating lease under GAAP. The assets will, therefore, not be included in the computation of net operating assets (NOA), thus increasing RNOA.
- The CFO recommends that your company lengthen the time taken to pay accounts payable (lean on the trade) to increase net cash flows from operating activities.
- Because your company's operating performance is already depressed, the CFO recommends that you take a "big bath;" that is, write off all assets deemed to be impaired and accrue excessive liabilities for future contingencies. The higher current period expense will, then, result in higher future period income as the assets written off will not be depreciated and your company will have a liability account available to absorb future cash payments rather than recording them as expenses.
- The CFO recommends that your company increase its estimate of expected return on pension investments. This will reduce pension expense and increase operating profit, a component of net operating profit after tax (NOPAT) and, thus, of RNOA.
- The CFO recommends that your company share ownership of its outbound logistics (trucking division) with another company in a joint venture. This would have the effect of increasing throughput, thus spreading overhead over a larger volume base, and would remove the assets from your company's balance sheet since the joint venture would be accounted for as an equity method investment.

Evaluate each of the CFO's recommendations. In your evaluation, consider whether each recommendation will positively impact the operating performance of your company or whether it is cosmetic in nature.