Chapter 4

Financial Analysis: Sizing up Firm Performance

Chapter Contents

• Learning Objectives

• Principles Used in this Chapter
  1. Why Financial Statements are Analyzed
  2. Common Size Statements – Standardizing Financial Information
  3. Using Financial Ratios
  4. Selecting a Performance Benchmark
  5. The Limitations of Ratio Analysis
Learning Objectives
1. Be able to explain what can learned by analyzing a firm’s financial statements.
2. Be able to prepare and use common size financial statements as a financial analysis tool.
3. Calculate and use a comprehensive set of financial ratios to evaluate a firm’s performance.
4. Select an appropriate benchmark for use in performing a financial ratio analysis.
5. Describe the limitations of financial ratio analysis.

Core Principles Used in this Chapter

- **Principle 1**: Money has a Time Value.
  - Financial statements are not typically adjusted for time value of money effects.
  - Thus financial managers and accountants may view financial statements very differently.

- **Principle 2**: There Is a Risk-Return Tradeoff.
  - Financial statement analysis can yield important information about the strengths and weaknesses of a firm’s financial condition.
  - Analysts can use such information to infer the risk-return tradeoff in a firm.
Core Principles Used in Chapter (cont.)

- **Principle 3**: Cash Flows Are the Source of Value.
  - An important use of firm’s financial statements involves analyzing past performance as a tool for predicting future cash flows.

- **Principle 4**: Market Prices Reflect Information.
  - Financial statement analysis requires gathering information about a firm’s financial condition, which is important to the valuation of the firm.

Who Analyzes Financial Statements & Why?

- Firm’s financial statements can be analyzed **internally** (by employees, managers) and **externally** (by bankers, investors, customers, and other interested parties).
  - Different information for different users view information for different purposes.

- An internal financial analysis might be done:
  - To evaluate the performance of employees and determine their pay raises and bonuses.
  - To compare the financial performance of the firm’s different divisions.
  - To prepare financial projections (new product launch).
  - To evaluate the firm’s financial performance in light of its competitors and determine how the firm might improve its operations.
Who Analyzes Financial Statements? Why?

A variety of firms and individuals that have an economic interest (stakeholders) might also undertake an external financial analysis:

- **Banks and other lenders** deciding whether to loan money to the firm.
- **Suppliers** who are considering whether to grant credit to the firm.
- **Credit-rating agencies** trying to determine the firm’s creditworthiness.
- **Professional analysts** who work for investment companies considering investing in the firm or advising others about investing.
- **Individual investors** deciding whether to invest in the firm.
- **Governmental Regulatory Agencies**

Common Size Statements – Standardizing Financial Information

A common size financial statement is a standardized version of a financial statement in which all entries are presented in percentages.

A common size financial statement helps with:

- **Cross Sectional Analysis**: comparing companies of different sizes.
- **Time Series (Trend) Analysis**: entries in a firm’s financial statements, even if the firms are not of equal size.
Common Size Statements – Standardizing Financial Information (cont.)

- Preparing common size financial statements
  - **Common size income statement**: divide each entry in the income statement by the company’s sales.
    - No disagreement to this approach. Standard Method.
  - **Common size balance sheet**:
    - **One Approach**: divide each entry in the balance sheet by the firm’s total assets.
    - **Other Approaches** exist. For example, divide asset items by total assets. Divide liability items by total liabilities, etc.

---

### Common Size Income Statement Example

**Table 4.1  H. J. Boswell, Inc.**

<table>
<thead>
<tr>
<th>Item</th>
<th>100.0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td></td>
</tr>
<tr>
<td>Cost of goods sold</td>
<td>−75.0%</td>
</tr>
<tr>
<td>Gross profits</td>
<td>25.0%</td>
</tr>
<tr>
<td>Operating expenses:</td>
<td></td>
</tr>
<tr>
<td>Selling expenses</td>
<td>−3.3%</td>
</tr>
<tr>
<td>General and administrative expense</td>
<td>−2.5%</td>
</tr>
<tr>
<td>Depreciation and amortization expense</td>
<td>−5.0%</td>
</tr>
<tr>
<td>Total operating expense</td>
<td>−10.8%</td>
</tr>
<tr>
<td>Operating income (EBIT or earnings before interest and taxes)</td>
<td>14.2%</td>
</tr>
<tr>
<td>Interest expense</td>
<td>−2.5%</td>
</tr>
<tr>
<td>Earnings before taxes</td>
<td>11.7%</td>
</tr>
<tr>
<td>Income taxes</td>
<td>−4.1%</td>
</tr>
<tr>
<td>Net income</td>
<td>7.6%</td>
</tr>
</tbody>
</table>

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Using Financial Ratios

- **Financial ratios** provide a second method for standardizing the financial information on the income statement and balance sheet.

<table>
<thead>
<tr>
<th>Question</th>
<th>Category of Ratios Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How liquid is the firm? Will it be able to pay its bills as they become due?</td>
<td>Liquidity ratios</td>
</tr>
<tr>
<td>2. How has the firm financed the purchase of its assets?</td>
<td>Capital structure ratios</td>
</tr>
<tr>
<td>3. How efficient has the firm’s management been in utilizing its assets to generate sales?</td>
<td>Asset management efficiency ratios</td>
</tr>
<tr>
<td>4. Has the firm earned adequate returns on its investments?</td>
<td>Profitability ratios</td>
</tr>
<tr>
<td>5. Are the firm’s managers creating value for shareholders?</td>
<td>Market value ratios</td>
</tr>
</tbody>
</table>

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Liquidity Ratios - Logic

- A firm is financially liquid if it is able to pay its bills on time. We can analyze a firm’s liquidity from two perspectives:
  - Overall or general firm liquidity
    - analyzed by comparing the firm’s current assets to the firm’s current liabilities (Current Ratio).
  - Liquidity of specific current asset accounts
    - analyzed by examining the timeliness in which the firm’s primary liquid assets – accounts receivable and inventories – are converted into cash.

Liquidity Ratios - Formulas

**Current Ratio**: Current Ratio compares a firm’s current (liquid) assets to its current (short-term) liabilities. (Primary, Common measure)

\[
\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}
\]

**Acid-Test (Quick) Ratio**: This ratio excludes the inventory from current assets as inventory may not always be very liquid.

\[
\text{Acid-Test (or Quick) Ratio} = \frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}}
\]
**Individual Asset Liquidity – Operating Efficiency**

- Can assess the liquidity of a firm by measuring how long it takes the firm to **convert its accounts receivables and inventories into cash**.

**Inventory Turnover Ratio**

- Measures how many times the company turns over its inventory during the year.
  - Shorter inventory cycles lead to greater liquidity since the items in inventory are converted to cash more quickly.

\[
\text{Inventory Turnover} = \frac{\text{Cost of Goods Sold}}{\text{Inventories}}
\]

- Inventory Turnover Ratio (Assumed input)
  - $1,980 \div $229.50 = 8.63 \text{ times}$
  - The firm turned over its inventory 8.63 times per year.
Days’ Supply of Inventory

- Can express the inventory turnover ratio in terms of the number of days the inventory sits unsold on the firm’s shelves.

- Days’ Sales in Inventory
  \[ = \frac{365}{\text{inventory turnover ratio}} \]
  \[ = \frac{365}{8.63} = \textbf{42.29 days} \]

- The firm, on average, holds its inventory for about 42 days.
- Commonly used measure in industry

Accounts Receivable Turnover Ratio

- Accounts Receivable Turnover Ratio (AR TO) measures how many times accounts receivable are “rolled over” during a year.
Liquidity Ratios: Accounts Receivable

- **Days Sales Outstanding (DSO) or Average Collection Period** measures the number of days it takes the firm to collect its receivables.

  \[
  DSO = \frac{365}{(AR \ TO)} 
  \]

  Cash to cash cycle measured by DSI + DSO

Can a Firm Have Too Much Liquidity?

- A high investment in liquid assets will enable the firm to repay its current liabilities in a timely manner.

- However, an excessive investments in liquid assets can prove to be costly as liquid assets (such as cash) generate minimal return.
Checkpoint 4.1

Evaluating Dell Computer Corporation’s (DELL) Liquidity

You work for a small company that manufactures a new memory storage device. Computer giant Dell has offered to put the new device in their laptops if your firm will extend them credit terms that allow them 90 days to pay. Since your company does not have many cash resources, your boss has asked that you look into Dell’s liquidity and analyze its ability to pay their bills on time using the following accounting information for Dell and two other computer firms (figures in thousands of dollars):

<table>
<thead>
<tr>
<th></th>
<th>Dell 2009</th>
<th>Apple 2009</th>
<th>HP 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current assets</td>
<td>$24,245,000</td>
<td>$31,555,000</td>
<td>$52,239,000</td>
</tr>
<tr>
<td>Accounts receivable</td>
<td>8,543,000</td>
<td>5,057,000</td>
<td>25,301,000</td>
</tr>
<tr>
<td>Cash</td>
<td>10,635,000</td>
<td>23,464,000</td>
<td>13,334,000</td>
</tr>
<tr>
<td>Inventories</td>
<td>1,061,000</td>
<td>455,000</td>
<td>6,128,000</td>
</tr>
<tr>
<td>Other current assets</td>
<td>3,643,000</td>
<td>2,579,000</td>
<td>7,776,000</td>
</tr>
<tr>
<td>Sales</td>
<td>61,101,000</td>
<td>42,905,000</td>
<td>91,658,000</td>
</tr>
<tr>
<td>Cost of goods sold</td>
<td>50,144,000</td>
<td>25,683,000</td>
<td>69,178,000</td>
</tr>
<tr>
<td>Total current liabilities</td>
<td>14,959,000</td>
<td>11,506,000</td>
<td>35,650,000</td>
</tr>
</tbody>
</table>

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Capital Structure Ratios

- **Capital structure** refers to the way a firm finances its assets.

- Capital structure ratios address the important question: How has the firm financed the purchase of its assets?

- We will use two ratios, **debt ratio** and **times interest earned ratio**, to answer the question.
• **Debt ratio** measures the proportion of the firm’s assets that are financed by borrowing or debt financing.

\[
\text{Debt Ratio} = \frac{\text{Total Liabilities}}{\text{Total Assets}}
\]

• **Times Interest Earned Ratio** measures the ability of the firm to service its debt or repay the interest on debt.

\[
\text{Times Interest Earned} = \frac{\text{Operating Income or EBIT}}{\text{Interest Expense}}
\]

– We use EBIT or operating income as interest expense is paid before a firm pays its taxes.
Step 1: Picture the Problem (cont.)

- Picture an Income Statement
  - Sales
    - Less: Cost of Good Sold
    - Equals: Gross Profit
    - Less: Operating Expenses
    - Equals: Net Operating Income (EBIT)
    - Less: Interest Expense
    - Equals: Earnings before Taxes
    - Less: Taxes
    - Equals Net Income

<table>
<thead>
<tr>
<th></th>
<th>Home Depot 2007</th>
<th>Lowes 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total debt</td>
<td>$27,233,000</td>
<td>$21,962,000</td>
</tr>
<tr>
<td>Total common equity</td>
<td>25,030,000</td>
<td>15,775,000</td>
</tr>
<tr>
<td>Total assets</td>
<td>52,263,000</td>
<td>27,767,000</td>
</tr>
<tr>
<td>Operating income</td>
<td>9,073,000</td>
<td>5,152,000</td>
</tr>
<tr>
<td>Interest expense</td>
<td>392,000</td>
<td>154,000</td>
</tr>
</tbody>
</table>

As you can see from the calculations above, in 2007 Home Depot's debt ratio exceeds that of Lowes by almost 10%, and its times interest earned ratio is lower than that of Lowes.
Asset Management Efficiency Ratios

- **Asset management efficiency ratios** measure a firm’s effectiveness in utilizing its assets to generate sales.

- Commonly referred to as **turnover ratios** as they reflect the number of times a particular asset account balance turns over during a year.

**Total Asset Turnover Ratio** represents the amount of sales generated per dollar invested in firm’s assets.

\[
\text{Total Asset Turnover} = \frac{\text{Sales}}{\text{Total Assets}} = \frac{\$2,700 \text{ million}}{\$1,971 \text{ million}} = 1.37 \text{ times}
\]

Peer group total asset turnover = 1.15 times
• **Fixed asset turnover ratio** measures firm’s efficiency in utilizing its fixed assets (such as property, plant and equipment).

\[
\text{Fixed Asset Turnover} = \frac{\text{Sales}}{\text{Net Plant and Equipment}} = \frac{2,700 \text{ million}}{1,327.5 \text{ million}} = 2.03 \text{ times}
\]

Peer group fixed asset turnover = 1.75 times

---

**Evaluate Asset Management Efficiency**

• The following grid summarizes the efficiency of Boswell’s management in utilizing its assets to generate sales in 2010. (Cross Sectional)

<table>
<thead>
<tr>
<th>Turnover Ratio</th>
<th>Boswell</th>
<th>Peer Group</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Assets</td>
<td>1.37</td>
<td>1.15</td>
<td>Good</td>
</tr>
<tr>
<td>Fixed Assets</td>
<td>2.03</td>
<td>1.75</td>
<td>Good</td>
</tr>
<tr>
<td>Receivables</td>
<td>16.67</td>
<td>14.60</td>
<td>Good</td>
</tr>
<tr>
<td>Inventory</td>
<td>5.36</td>
<td>7.0</td>
<td>Poor</td>
</tr>
</tbody>
</table>
Profitability Ratios

- **Profitability ratios** address a very fundamental question.
  - Has firm earned adequate returns on its investments?
- Answer this question by analyzing the firm’s **profit margin**, which predict the ability of the firm to control its expenses, and the firm’s **rate of return on investments**.
- Two fundamental determinants of firm’s profitability and returns on investments:
  - **Cost Control**: Is the firm controlling costs and earning reasonable profit margin?
  - **Efficiency of asset utilization**: Is the firm efficiently utilizing assets to generate sales?

- **Gross profit margin** shows how well the firm’s management controls its expenses to generate profits.
  - Fundamental Measure of Basic Product Profitability
  - Natural result found when common size income statement is prepared.
  - Firms and investors track this as a time series (trend) as well as cross-sectional comparison with competitors.

\[
\text{Gross Profit Margin} = \frac{\text{Gross Profits}}{\text{Sales}}
\]
• **Operating Profit Margin** measures how much profit is generated from each dollar of sales after accounting for both costs of goods sold and operating expenses.
  - It thus also indicates how well the firm is managing its income statement.
  - View as the profitability of running the day-to-day business.

\[
\text{Operating Profit Margin (OPM)} = \frac{\text{Net Operating Income or EBIT}}{\text{Sales}} = \frac{\$382.5 \text{ million}}{\$2,700 \text{ million}} = 14.2\%
\]

Peer group operating profit margin = 15.5%

• **Net Profit Margin** measures income is generated from each dollar of sales after adjusting for all expenses (including income taxes).

\[
\text{Net Profit Margin} = \frac{\text{Net Income}}{\text{Sales}}
\]

• Net Profit Margin (Example)
  \[= \frac{\$217.75 \text{ million}}{\$2,500 \text{ million}} = 8.71\%\]

• The firm generated $0.087 for each dollar of sales after all expenses (including income taxes) were accounted for.
• **Operating Return on Assets ratio** is the summary measure of operating profitability
  - Takes into account both the management’s success in controlling expenses, contributing to profit margins, and its efficient use of assets to generate sales.

\[
\text{Operating Return on Assets (OROA)} = \frac{\text{Net Operating Income or EBIT}}{\text{Total Assets}}
\]

• **Decomposing the OROA ratio:** Use following equation to decompose the OROA ratio.
  - Allows us to analyze the firm’s ability to control costs and utilize its investments in assets efficiently.

\[
\text{Operating Return on Assets} = \left( \frac{\text{Operating Profit Margin (OPM)}}{\text{Operating Income (EBIT)}} \right) \times \left( \frac{\text{Total Asset Turnover (TATO)}}{\text{Sales}} \right)
\]

\[
= \left( \frac{\text{Operating Income (EBIT)}}{\text{Total Assets}} \right) \times \left( \frac{\text{Sales}}{\text{Total Assets}} \right)
\]
Checkpoint 4.2

Evaluating the Operating Return on Assets Ratio for Home Depot (HD) and Lowes (LOW)

In Checkpoint 4.1 we evaluated how much debt financing Home Depot and Lowes used. We continue our analysis by evaluating the operating return on assets (OROA) earned by the two firms. Calculate the net operating income each firm earned during 2007 relative to the total assets of each firm using the information found below:

<table>
<thead>
<tr>
<th></th>
<th>Home Depot 2007</th>
<th>Lowes 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounts receivable</td>
<td>$3,323,000</td>
<td>$161,000</td>
</tr>
<tr>
<td>Inventories</td>
<td>12,822,000</td>
<td>7,144,000</td>
</tr>
<tr>
<td>Sales</td>
<td>90,837,000</td>
<td>46,927,000</td>
</tr>
<tr>
<td>Operating profits</td>
<td>9,673,000</td>
<td>5,152,000</td>
</tr>
<tr>
<td>Cost of goods sold</td>
<td>61,054,000</td>
<td>30,729,000</td>
</tr>
<tr>
<td>Net fixed assets</td>
<td>30,744,000</td>
<td>19,453,000</td>
</tr>
<tr>
<td>Total assets</td>
<td>52,263,000</td>
<td>27,767,000</td>
</tr>
</tbody>
</table>
**Checkpoint 4.2**

**STEP 2: Solve**

Using the following financial information from the 2007 annual reports of Home Depot and Lowe’s, we first calculate the operating return on assets for Home Depot and Lowe’s to be 18.51% and 18.59%, respectively. So, we can make a very important observation right away that the two firms earn very similar returns on their total assets. Our objective from this point forward then is not so much to explore the source of this very small difference, but to look for anything that is unusual and that we might want to explore further.

Next, we break down the operating return on assets ratio into the product of the operating profit margin (OPM) and the total asset turnover ratio (TATR). We learn that the firms are very similar operating profit margins of 10.65% and 10.68% with the slight edge going to Lowe’s. However, Lowe’s total asset turnover ratio is slightly lower than Home Depot. This similarity in operating return on assets for the two firms also characterizes the two determinants of this ratio. These firms look very much alike in terms of their operating performance.

<table>
<thead>
<tr>
<th></th>
<th>Home Depot 2007</th>
<th>Lowe’s 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating return on assets (OROA)</td>
<td>18.51%</td>
<td>18.59%</td>
</tr>
<tr>
<td>Operating profit margin (OPM)</td>
<td>10.65%</td>
<td>10.68%</td>
</tr>
<tr>
<td>Total asset turnover (TATR)</td>
<td>1.74</td>
<td>1.69</td>
</tr>
<tr>
<td>Accounts receivable turnover</td>
<td>27.34</td>
<td>29.47</td>
</tr>
<tr>
<td>Inventory turnover</td>
<td>4.76</td>
<td>4.30</td>
</tr>
<tr>
<td>Fixed assets turnover</td>
<td>2.95</td>
<td>2.41</td>
</tr>
</tbody>
</table>

From there, we can look closer at the total asset turnover ratio and determine the turnover ratios for the major asset subcategories that make up total assets—receivables, inventories, and fixed assets. In this analysis we are struck by the dramatic difference in the accounts receivable turnover ratios of the two firms. Home Depot turns its accounts receivable over every 27.34 days or about once a month (12 times a year). Lowe’s, in contrast, turns its receivables over 29.47 times a year. Why this dramatic difference? Looking at the determinants of these two ratios we see that Lowe’s has a very low accounts receivable balance compared to Home Depot. It would appear that the two firms follow very different policies with respect to offering credit.

---

**Is the Firm Providing a Reasonable Return on the Owner’s Investment?**

- A firm’s net income consists of earnings that is available for distribution to the firm’s shareholders.

- **Return on Equity** ratio measures the accounting return on the common stockholders’ investment.

\[
\text{Return on Equity} = \frac{\text{Net Income}}{\text{Common Equity}}
\]
Assumed Return on Equity Computation

\[
\text{Return on Equity} = \frac{\text{Net Income}}{\text{Common Equity}}
\]

- Return on Equity
  \[= \frac{217.75 \text{ million}}{751.50 \text{ million}} = 28.98\%
  \]
- Thus the shareholders earned 28.97% on their investments.
- Note common equity includes both common stock plus the firm’s retained earnings.

Using the DuPont Method for Decomposing the ROE ratio

- **DuPont method** analyzes the firm’s ROE by decomposing it into three parts: profitability, efficiency and an equity multiplier.

\[
\text{ROE} = \text{Profitability} \times \text{Efficiency} \times \text{Equity Multiplier}
\]

- Equity multiplier captures the effect of the firm’s use of debt financing on its return on equity. The equity multiplier increases in value as the firm uses more debt.
  - Puts together relationships between Capital Structure (leverage), Profitability and Asset Utilization Efficiency.
Using the DuPont Method for Decomposing the ROE ratio (cont.)

- **ROE = Profitability × Efficiency × Equity Multiplier**

\[
\text{Return on Equity} = \text{Profitability} \times \text{Efficiency} \times \text{Equity Multiplier} \\
= \frac{\text{Net Profit Margin}}{\text{Total Asset Turnover}} \times \frac{\text{Net Income}}{\text{Sales}} \times \frac{1}{\text{1 - Debt Ratio}}
\]

- **ROE = Net Profit Margin × Total Asset Turnover Ratio × 1/(1-debt ratio)**

The following table shows why Boswell’s return on equity was higher than its peers.

<table>
<thead>
<tr>
<th></th>
<th>Return on Equity</th>
<th>Net Profit Margin</th>
<th>Total Asset Turnover</th>
<th>Equity Multiplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>H. J. Boswell, Inc.</td>
<td>22.5%</td>
<td>7.6%</td>
<td>1.37</td>
<td>2.16</td>
</tr>
<tr>
<td>Peer Group</td>
<td>18.0%</td>
<td>10.2%</td>
<td>1.15</td>
<td>1.54</td>
</tr>
</tbody>
</table>
DuPont Method Logic

Market Value Ratios

- **Market value ratios** try to address the question, “How are the firm’s shares valued in the stock market?”, by linking accounting values to share price.

- Two market value ratios are:
  - Price-Earnings Ratio
  - Market-to-Book Ratio
• **Price-Earnings (PE) Ratio** indicates how much investors are currently willing to pay for $1 of reported earnings.

\[
\text{Price Earnings Ratio} = \frac{\text{Market Price per Share}}{\text{Earnings per Share}}
\]

\[
\text{Price Earnings Ratio} = \frac{\$32.00}{\$2.28} = 14.07 \text{ times}
\]

Peer group average price-earnings ratio = 12.0 times

---

• **Market-to-Book Ratio** measures the relationship between the market value and the accumulated investment in the firm’s equity.

  - Market value of Equity divided by the Book Value of Owners Equity.
  - Typically measured on a per share basis. Take the observed stock price and divide it by the Book value of equity per share.

\[
\text{Market-to-Book-Ratio} = \frac{\text{Market Price per Share}}{\text{Book Value per Share}} = \frac{\text{Market Price per Share}}{\text{Common Shareholders'/Equity outstanding}}
\]

\[
\text{Market-to-Book-Ratio} = \frac{\$32.00}{\$911.25 \text{ million/90 million}} = \frac{\$32.00}{\$10.13} = 3.16
\]

Peer firm market-to-book ratio = 2.7X
Checkpoint 4.3

Comparing the Valuation of Dell (DELL) to Apple (APPL) Using Market Value Ratios

The following information on Dell and Apple was gathered on April 9, 2010:

<table>
<thead>
<tr>
<th>Financial Statement as of (millions of dollars except per share figures)</th>
<th>1/21/2010 Dollar</th>
<th>9/26/2009 Apple</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net income</td>
<td>$1,433</td>
<td>$8,235</td>
</tr>
<tr>
<td>Shares outstanding (millions)</td>
<td>1,962</td>
<td>907</td>
</tr>
<tr>
<td>Earnings per share</td>
<td>$0.73</td>
<td>$9.08</td>
</tr>
<tr>
<td>Price per share (4/9/10)</td>
<td>$15.56</td>
<td>$241.00</td>
</tr>
<tr>
<td>Book value of common equity</td>
<td>$5.641</td>
<td>$31,640</td>
</tr>
<tr>
<td>Book value per share</td>
<td>$2.88</td>
<td>$34.88</td>
</tr>
</tbody>
</table>

STEP 3: Solve

We can now calculate the price to earnings ratio and market-to-book value for both Dell and Apple as follows:

<table>
<thead>
<tr>
<th></th>
<th>Dell</th>
<th>Apple</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price to earnings ratio (PE ratio)</td>
<td>21.3</td>
<td>26.54</td>
</tr>
<tr>
<td>Market-to-book ratio</td>
<td>5.41</td>
<td>6.91</td>
</tr>
</tbody>
</table>

STEP 4: Analyze

Dell’s share price of $15.56 is much less than the Apple share price of $241.00, but this tells us very little about how investors are valuing the shares of the two companies. To learn more, we standardize the market price by dividing it first by earnings per share to calculate the price-to-earnings ratio and then by book value per share to calculate the market-to-book ratio. We are now prepared to compare the prices of the two company’s shares since the share prices have now been standardized. It appears that Apple enjoys a higher price per share when compared to its 2009 earnings as well as a higher book to market value ratio.
Selecting a Performance Benchmark

- There are two types of benchmarks that are commonly used:
  - Trend Analysis – involves comparing a firm’s financial statements over time. (Time Series)
  - Peer Group Comparisons – involves comparing the subject firm’s financial statements with those of similar, or “peer” firms.
    - The benchmark for peer groups typically consists of firms from the same industry or industry average financial ratios.
    - Also known as cross-sectional analysis

Trend Analysis

Figure 4.3


Description: The inventory turnover ratio is defined as follows:

\[
\text{Inventory Turnover} = \frac{\text{Cost of Goods Sold}}{\text{Inventory}}
\]

For example, Hewlett Packard Corporation’s inventory turnover ratio is used as a benchmark for comparison purposes.
The Limitations of Ratio Analysis

1. Picking an industry benchmark can sometimes be difficult.

2. Published peer-group or industry averages are not always representative of the firm being analyzed.

3. An industry average is not necessarily a desirable target or norm.
More Limitations of Ratio Analysis

4. Accounting practices differ widely among firms.

5. Many firms experience seasonal changes in their operations.

6. Financial ratios offer only clues. We need to analyze the numbers in order to fully understand the ratios.

7. The results of financial analysis are dependent on the quality of the financial statements.