“How Well Am I Doing?” Financial Statement Analysis

Chapter 16
Limitations of Financial Statement Analysis

Differences in accounting methods between companies sometimes make comparisons difficult.

We use the LIFO method to value inventory.  

We use the average cost method to value inventory.
Limitations of Financial Statement Analysis

Analysts should look beyond the ratios.

- Industry trends
- Technological changes
- Changes within the company
- Consumer tastes
- Economic factors

16-3
Statements in Comparative and Common-Size Form

An item on a financial statement has little meaning by itself. The meaning of the numbers can be enhanced by drawing comparisons.

1. Dollar and percentage changes on statements
2. Common-size statements
3. Ratios
Horizontal Analysis

Calculating Change in Dollar Amounts

\[ \text{Dollar Change} = \text{Current Year Figure} - \text{Base Year Figure} \]

The dollar amounts for 2007 become the “base” year figures.
Calculating Change as a Percentage

\[
\text{Percentage Change} = \frac{\text{Dollar Change}}{\text{Base Year Figure}} \times 100\%
\]
Trend Percentages

Trend percentages state several years’ financial data in terms of a base year, which equals 100 percent.
Trend Analysis

\[
\text{Trend Percentage} = \frac{\text{Current Year Amount}}{\text{Base Year Amount}} \times 100\%
\]
Vertical analysis focuses on the relationships among financial statement items at a given point in time. A common-size financial statement is a vertical analysis in which each financial statement item is expressed as a percentage.
Common-Size Statements

In income statements, all items usually are expressed as a percentage of sales.
Gross Margin Percentage

\[
\text{Gross Margin Percentage} = \frac{\text{Gross Margin}}{\text{Sales}}
\]

This measure indicates how much of each sales dollar is left after deducting the cost of goods sold to cover expenses and provide a profit.
Common-Size Statements

In balance sheets, all items usually are expressed as a percentage of total assets.
**Common-Size Statements**

<table>
<thead>
<tr>
<th></th>
<th>Wendy's</th>
<th>McDonald's</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2007 Net income</strong></td>
<td>$88 3.60%</td>
<td>$2,396 10.50%</td>
</tr>
</tbody>
</table>

*Common-size financial statements are particularly useful when comparing data from different companies.*
The ratios that are of the most interest to stockholders include those ratios that focus on net income, dividends, and stockholders’ equities.

### NORTON CORPORATION 2008

<table>
<thead>
<tr>
<th></th>
<th>Beginning of year</th>
<th>End of year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of common shares</td>
<td>17,000</td>
<td>27,400</td>
</tr>
<tr>
<td>Net income</td>
<td>$53,690</td>
<td></td>
</tr>
<tr>
<td>Stockholders' equity</td>
<td>180,000</td>
<td>234,390</td>
</tr>
<tr>
<td>Dividends per share</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Dec. 31 market price per share</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Interest expense</td>
<td>7,300</td>
<td></td>
</tr>
<tr>
<td>Total assets</td>
<td>300,000</td>
<td>346,390</td>
</tr>
</tbody>
</table>
Earnings Per Share

\[
\text{Earnings per Share} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Average Number of Common Shares Outstanding}}
\]

Whenever a ratio divides an income statement balance by a balance sheet balance, the average for the year is used in the denominator.

Earnings form the basis for dividend payments and future increases in the value of shares of stock.
Earnings Per Share

Earnings per Share = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Average Number of Common Shares Outstanding}}

Earnings per Share = \frac{$53,690 - $0}{($17,000 + $27,400)/2} = $2.42

This measure indicates how much income was earned for each share of common stock outstanding.
Price-Earnings Ratio

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

\[
\text{Price-Earnings Ratio} = \frac{$20.00}{$2.42} = 8.26 \text{ times}
\]

A higher price-earnings ratio means that investors are willing to pay a premium for a company’s stock because of optimistic future growth prospects.
Dividend Payout Ratio

\[
\text{Dividend Payout Ratio} = \frac{\text{Dividends Per Share}}{\text{Earnings Per Share}}
\]

\[
\text{Dividend Payout Ratio} = \frac{2.00}{2.42} = 82.6\%
\]

This ratio gauges the portion of current earnings being paid out in dividends. Investors seeking dividends (market price growth) would like this ratio to be large (small).
Dividend Yield Ratio

\[
\text{Dividend Yield Ratio} = \frac{\text{Dividends Per Share}}{\text{Market Price Per Share}}
\]

Dividend Yield Ratio = \( \frac{\$2.00}{\$20.00} \) = 10.00%

This ratio identifies the return, in terms of cash dividends, on the current market price of the stock.
Return on Total Assets

Return on Total Assets = \( \frac{\text{Net Income} + [\text{Interest Expense} \times (1 - \text{Tax Rate})]}{\text{Average Total Assets}} \)

Return on Total Assets = \( \frac{\$53,690 + [\$7,300 \times (1 - .30)]}{($300,000 + $346,390) \div 2} = 18.19\% \)

Adding interest expense back to net income enables the return on assets to be compared for companies with different amounts of debt or over time for a single company that has changed its mix of debt and equity.
Return on Common Stockholders’ Equity

\[
\text{Return on Common Stockholders’ Equity} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Average Stockholders’ Equity}}
\]

\[
\text{Return on Common Stockholders’ Equity} = \frac{\$53,690 - 0}{\frac{\$180,000 + \$234,390}{2}} = 25.91\%
\]

This measure indicates how well the company used the owners’ investments to earn income.
Financial Leverage

Financial leverage results from the difference between the rate of return the company earns on investments in its own assets and the rate of return that the company must pay its creditors.

\[
\text{Positive financial leverage} = \begin{cases} 
\text{Return on investment in assets} > \text{Fixed rate of return on borrowed funds} \\
\text{Negative financial leverage} = \begin{cases} 
\text{Return on investment in assets} < \text{Fixed rate of return on borrowed funds} 
\end{cases}
\end{cases}
\]
Book Value Per Share

Book Value per Share = \frac{\text{Common Stockholders’ Equity}}{\text{Number of Common Shares Outstanding}}

Book Value per Share = \frac{234,390}{27,400} = $8.55

This ratio measures the amount that would be distributed to holders of each share of common stock if all assets were sold at their balance sheet carrying amounts after all creditors were paid off.
Book Value Per Share

Book Value per Share = \frac{\text{Common Stockholders’ Equity}}{\text{Number of Common Shares Outstanding}}

Book Value per Share = \frac{\$234,390}{27,400} = \$8.55

Notice that the book value per share of $8.55 does not equal the market value per share of $20. This is because the market price reflects expectations about future earnings and dividends, whereas the book value per share is based on historical cost.
Ratio Analysis – The Short-Term Creditor

Short-term creditors, such as suppliers, want to be paid on time. Therefore, they focus on the company’s cash flows and working capital.

<table>
<thead>
<tr>
<th>NORTON CORPORATION</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>$ 30,000</td>
</tr>
<tr>
<td>Accounts receivable, net</td>
<td></td>
</tr>
<tr>
<td>Beginning of year</td>
<td>17,000</td>
</tr>
<tr>
<td>End of year</td>
<td>20,000</td>
</tr>
<tr>
<td>Inventory</td>
<td></td>
</tr>
<tr>
<td>Beginning of year</td>
<td>10,000</td>
</tr>
<tr>
<td>End of year</td>
<td>12,000</td>
</tr>
<tr>
<td>Total current assets</td>
<td>65,000</td>
</tr>
<tr>
<td>Total current liabilities</td>
<td>42,000</td>
</tr>
<tr>
<td>Sales on account</td>
<td>494,000</td>
</tr>
<tr>
<td>Cost of goods sold</td>
<td>140,000</td>
</tr>
</tbody>
</table>
Working Capital

The excess of current assets over current liabilities is known as working capital.

Working capital is not free. It must be financed with long-term debt and equity.
# Working Capital

<table>
<thead>
<tr>
<th></th>
<th>December 31, 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current assets</strong></td>
<td>$65,000</td>
</tr>
<tr>
<td><strong>Current liabilities</strong></td>
<td>$(42,000)</td>
</tr>
<tr>
<td><strong>Working capital</strong></td>
<td>$23,000</td>
</tr>
</tbody>
</table>
The current ratio measures a company’s short-term debt-paying ability. A declining ratio may be a sign of deteriorating financial condition, or it might result from eliminating obsolete inventories.
Current Ratio

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

\[
\text{Current Ratio} = \frac{$65,000}{$42,000} = 1.55
\]
Acid-Test (Quick) Ratio

\[
\text{Acid-Test Ratio} = \frac{\text{Quick Assets}}{\text{Current Liabilities}}
\]

\[
\text{Acid-Test Ratio} = \frac{\$50,000}{\$42,000} = 1.19
\]

Quick assets include Cash, Marketable Securities, Accounts Receivable, and current Notes Receivable. This ratio measures a company’s ability to meet obligations without having to liquidate inventory.
Accounts Receivable Turnover

\[
\text{Accounts Receivable Turnover} = \frac{\text{Sales on Account}}{\text{Average Accounts Receivable}}
\]

\[
\text{Accounts Receivable Turnover} = \frac{\$494,000}{\left(\frac{\$17,000 + \$20,000}{2}\right)} = 26.7 \text{ times}
\]

This ratio measures how many times a company converts its receivables into cash each year.
Average Collection Period

Average Collection Period = \frac{365 \text{ Days}}{\text{Accounts Receivable Turnover}}

Average Collection Period = \frac{365 \text{ Days}}{26.7 \text{ Times}} = 13.67 \text{ days}

This ratio measures, on average, how many days it takes to collect an account receivable.
Inventory Turnover

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

This ratio measures how many times a company’s inventory has been sold and replaced during the year.

If a company’s inventory turnover is less than its industry average, it either has excessive inventory or the wrong types of inventory.
Inventory Turnover

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

\[
\text{Inventory Turnover} = \frac{\$140,000}{($10,000 + $12,000) \div 2} = 12.73 \text{ times}
\]
Average Sale Period

Average Sale Period = \frac{365 \text{ Days}}{\text{Inventory Turnover}}

Average Sale Period = \frac{365 \text{ Days}}{12.73 \text{ Times}} = 28.67 \text{ days}

This ratio measures how many days, on average, it takes to sell the entire inventory.
Ratio Analysis – The Long-Term Creditor

Long-term creditors are concerned with a company’s ability to repay its loans over the long-run.

This is also referred to as net operating income.

<table>
<thead>
<tr>
<th>NORTON CORPORATION</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earnings before interest expense and income taxes</td>
<td>$ 84,000</td>
</tr>
<tr>
<td>Interest expense</td>
<td>7,300</td>
</tr>
<tr>
<td>Total stockholders' equity</td>
<td>234,390</td>
</tr>
<tr>
<td>Total liabilities</td>
<td>112,000</td>
</tr>
</tbody>
</table>
**Times Interest Earned Ratio**

This is the most common measure of a company’s ability to provide protection for its long-term creditors. A ratio of less than 1.0 is inadequate.

\[
\text{Times Interest Earned} = \frac{\text{Earnings before Interest Expense and Income Taxes}}{\text{Interest Expense}}
\]

\[
\text{Times Interest Earned} = \frac{\$84,000}{\$7,300} = 11.51 \text{ times}
\]
Debt-to-Equity Ratio

\[
\text{Debt-to-Equity Ratio} = \frac{\text{Total Liabilities}}{\text{Stockholders' Equity}}
\]

This ratio indicates the relative proportions of debt to equity on a company’s balance sheet.

Stockholders like a lot of debt if the company can take advantage of positive financial leverage.

Creditors prefer less debt and more equity because equity represents a buffer of protection.
Debt-to-Equity Ratio

\[
\text{Debt–to–Equity Ratio} = \frac{\text{Total Liabilities}}{\text{Stockholders’ Equity}}
\]

\[
\text{Debt–to–Equity Ratio} = \frac{\$112,000}{\$234,390} = 0.48
\]
### Published Sources That Provide Comparative Ratio Data

<table>
<thead>
<tr>
<th>Source</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Almanac of Business and Industrial Financial Ratios</em>, Aspen Publishers; published annually</td>
<td>An exhaustive source that contains common-size income statements and financial ratios by industry and by the size of companies within each industry.</td>
</tr>
<tr>
<td><em>AMA Annual Statement Studies</em>, Risk Management Association; published annually.</td>
<td>A widely used publication that contains common-size statements and financial ratios on individual companies; the companies are arranged by industry.</td>
</tr>
<tr>
<td><em>EDGAR</em>, Securities and Exchange Commission; website that is continually updated <a href="http://www.sec.gov">www.sec.gov</a></td>
<td>An exhaustive database accessible on the World Wide Web that contains reports filed by companies with the SEC; these reports can be downloaded.</td>
</tr>
<tr>
<td><em>FreeEdgar</em>, EDGAR Online, Inc.; website that is continually updated; <a href="http://www.freeedgar.com">www.freeedgar.com</a></td>
<td>A site that allows you to search SEC filings; financial information can be downloaded directly into Excel worksheets.</td>
</tr>
<tr>
<td><em>Hoover’s Online</em>, Hoovers, Inc.; website that is continually updated; <a href="http://www.hoovers.com">www.hoovers.com</a></td>
<td>A site that provides capsule profiles for 10,000 U.S. companies with links to company websites, annual reports, stock charts, news articles, and industry information.</td>
</tr>
<tr>
<td><em>Industry Norms &amp; Key Business Ratios</em>, Dun &amp; Bradstreet; published annually</td>
<td>Fourteen commonly used financial ratios are computed for over 800 major industry groupings.</td>
</tr>
<tr>
<td><em>Standard &amp; Poor’s Industry Survey</em>, Standard &amp; Poor’s; published annually</td>
<td>Various statistics, including some financial ratios, are given by industry and for leading companies within each industry grouping.</td>
</tr>
</tbody>
</table>
End of Chapter 16