

Go Figure! The Sequel

Interpret Financial Ratios for Investment

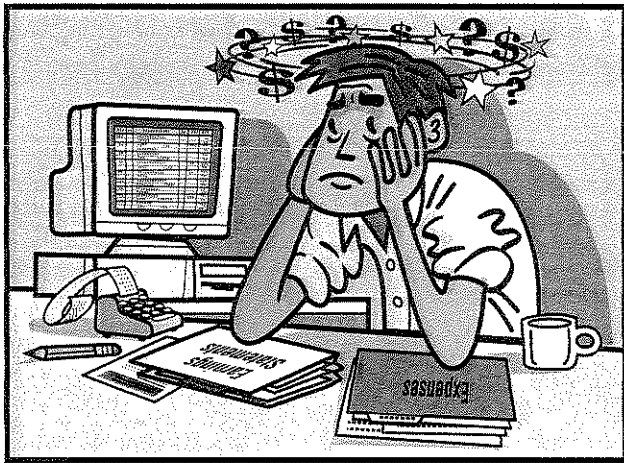
Objective



Fun with Ratios?

Ratios to the Rescue

Do your eyes glaze over when you look at a company's financial statements? Mine do. At least they did, until I discovered financial **ratios**, very handy tools for quickly assessing company performance. That's right—ratios can actually make your life easier! They're nothing more than mathematical tools for making comparisons. Even better, they're all computed the same way—by dividing one number into another.



You already use ratios all the time. Miles per gallon, dollars per hour, income tax rates, words per minute—these are all based on ratios that are meant to give us meaningful information about various aspects of our lives. Ratios inform our decisions by measuring relationships and allowing us to make valuable comparisons.

Ratios in Financial Analysis

Ratios in financial analysis are versatile, measuring everything from a company's profitability and efficiency to its level of debt. The numbers used in financial ratios come from a company's financial statements—its **income statement**, **balance sheet**, and **cash flow statement**. Together, these statements provide the basis for a thorough examination of **fiscal** health. Is the company able to pay its bills? How profitable is it? Is it doing better or worse than last year? How does it compare to similar companies in the same industry?

Ratio Road Trip

All ratios have to be considered in context. Their meaning is apparent when they are compared over time or to ratios from similar situations.

Let's say you drive a Jeep Grand Cherokee on a 1,300 mile trip. Along the way, you have to buy 62 gallons of gas. Miles per gallon is a simple ratio—1300 miles divided by 62 gallons of gas gives you 21 mpg. Is that good? It is if you're used to driving in the city, where you get only 17 mpg. If your other car is a Toyota Prius, which gets 60 mpg, it's not so good.

Furthermore, ratios usually provide only part of a larger, more complex picture. Jumping to a conclusion about the best car to buy based solely on miles per gallon, for example, is shortsighted. Likewise, a single financial ratio is not a complete representation of a company's fiscal health.

Objectives:

- A** Explain how financial ratios are used.
- B** Demonstrate how to interpret profitability ratios.



Who Wants to Know?

Fortunately, it's not necessary to do an exhaustive analysis of every line on every statement. Depending on who you are and what you want to know, financial analysis can be limited to the handful of ratios most important to your purpose.

Financial ratios are used internally by managers who are evaluating the company's operations, but they are also used externally. As investors, we look at ratios that help us determine whether to buy, sell, or hold a company's stock. Lenders might look at ratios that measure a company's debt, suppliers might look at ratios about the company's ability to pay its bills, and governments might look at ratios that indicate taxable profits.

Types of Ratios

Financial ratios are most often classified according to what they measure. Here are the most basic types.

- **Asset management ratios**, or efficiency ratios, measure how efficiently a company manages its assets. The inventory turnover ratio, for example, measures the number of times a company turns over, or sells, inventory during the year.

$$\text{Inventory turnover} = \frac{\text{average inventory}}{[\text{annual cost of goods sold (COGS)} / 365]}$$

- **Liquidity ratios** measure the ability of a company to turn assets into cash to pay its bills. The current ratio (current assets / current liabilities), for example, is a quick look at how cash and liquid assets compare to short-term debt.
- **Debt ratios**, also called safety or financial leverage ratios, compare what a company owns to what it owes. Because too much debt puts a business at risk, ratios such as the debt-equity ratio (total debt / total equity), which measures overall debt compared to **book value**, are very informative.
- **Profitability ratios** measure the ability of a company to make a profit. This large category of ratios is of particular interest to investors who practice fundamental analysis. Some common profitability ratios are discussed in detail later on.

This is a very short list. Other categories and many more ratios are used by financial analysts, managers, investors, and other groups interested in assessing a company from one point of view or another.



Using Ratios to Value Stock

Profitability ratios are widely used by investors. Here are a few that are appropriate for a beginning investor doing fundamental analysis:

- Sales growth
- Return on equity
- Earnings per share
- Price-earnings
- Profit margin
- Price-earnings and growth

Sales growth. Sales, also called revenue or income, are the top line of a company's income statement. In 2004, Starbucks (SBUX) sold \$5,294,247,000 of coffee and related merchandise. That's a lotta lattes! But we still don't know if sales are increasing, let alone by how much. We want to know sales *growth*, the year-to-year increase or decrease.

To calculate sales growth for the previous year, use sales figures for the past two (the first year is the starting point).

Remember, you are looking for the *change in sales*. Let's use these recent SBUX figures* as examples:

Year One (2003): \$4,075,522

Year Two (2004): \$5,294,247

$$\begin{aligned} \text{Sales growth} &= \frac{\text{Year Two total revenue} - \text{Year One total revenue}}{\text{Year One total revenue}} \\ &= \frac{5,294,247 - 4,075,522}{4,075,522} = .299 \text{ or } 29.9\% \end{aligned}$$

Sales at Starbucks increased nearly 30% in 2004. Most helpful to investors, however, is sales growth over the long term. To establish a company's *long-term* trend, average the change in sales growth over each of the last five years or more.

* Numbers are in thousands. Based on data from <http://www.sec.gov>. SBUX uses the labels "Consolidated Statement of Earnings" and "total net revenues."

Earnings per share. Earnings per share (EPS) measures how much profit goes to each share of common stock. You may recall EPS is calculated by dividing net earnings by number of shares of outstanding common stock. Let's continue using SBUX. In 2004, the company reported net earnings of \$390,559,000 and basic outstanding shares of 397,173,000. (In case you decide to look this up, see page 28 of the 2004 10-K. C'mon, you know you want to.) As of October 3, 2004, EPS for SBUX looked like this:

$$\text{EPS} = \frac{\text{net earnings}}{\text{outstanding shares}} = \frac{\$390,559}{397,173} = .98 \text{ or } 98\text{¢ per share}$$

EPS and shares outstanding are often reported at the end of a company's income statement, so sometimes you won't even have to do the calculation. Pretty simple, right? Not so fast . . .

Trouble arises when an investor uses EPS figures from different sources. There are many varieties of EPS, mainly because earnings and shares outstanding can be defined so many different ways.

Let's talk about earnings first. Depending on a company's accounting policies, it's possible for earnings to be distorted. It's perfectly legal for a large, one-time gain from the sale of a subsidiary, for example, to be counted as operating income. It's also possible *not* to count a large, one-time expense, such as the purchase of large equipment. These accounting decisions, which directly affect earnings, are made at the discretion of each company. (You can read about the details of such transactions in the notes to a company's financial statements.) In addition, dividends paid to holders of preferred stock have to be subtracted from reported earnings before calculating EPS. Calculating earnings consistently from company to company can be time-consuming and difficult.

What about outstanding shares? For one thing, the actual number can change day to day. If a company issues more stock or if investors exercise their **stock options**, the number increases. (Having an option on a stock means you have the right to buy it at a certain price during a certain period of time.) If a company chooses to buy back its own stock, the number decreases. To smooth these changes, EPS is often figured with average shares outstanding over a period of time.

Secondly, outstanding shares can be reported as basic or diluted. Basic refers to the number of shares held by investors. Diluted includes shares that are held as options, so that *all* the shares that can possibly be traded are counted. Basic and diluted figures can be very different—it's important to pay attention to which is being used.

Does a beginning investor need to spend hours poring over the numbers and notes of financial statements? Fortunately,

no. By using reliable, independent sources, an investor can be relatively certain the EPS figures are consistent and useful.

Profit margin. A company's profit margin, the percentage of sales that it gets to keep as profit, is easy to calculate and is especially useful when comparing companies in the same industry. Let's stick with SBUX as an illustration. Here's a simplified version of the income statement that is part of the company's 2004 10-K (with added lines showing profit margin).

Consolidated Statement of Earnings

(In thousands)

	Oct 3, 2004
Total net revenues	\$4,457,378
Cost of sales	2,191,440
Gross profit	3,102,807
<i>Gross profit margin</i>	69.6%
(Gross profit / Total net revenues)	
Operating expenses	2,494,634
Operating income	608,173
<i>Operating profit margin</i>	13.6%
(Operating income / Total net revenues)	
Interest expense/gain	14,140
Earnings before taxes	622,213
<i>Pre-tax profit margin</i>	14.0%
(Earnings before taxes / Total net revenues)	
Income taxes	231,754
Net earnings	390,559
<i>Net profit margin</i>	8.8%
(Net earnings / Total net revenues)	

Some investors like to look at **gross profit margin**, often referred to simply as gross margin, because it tells you how much of each sales dollar is left after the direct cost of bringing the product to market. If SBUX sold only coffee, and each cup were priced at \$1, then it would keep as gross profit 69.6¢ (see above). All the other costs of doing business, such as salaries, rent, and utilities, are reported as operational expenses and are reflected in **operating profit margin**. **Pre-tax profit margin** and **net profit margin** are also favorites.

No matter what level is considered, profit margin is often interpreted as a measure of how well management is controlling costs. In most cases, net profit margin is less than 7%. Higher margins are better, though every industry has its own norms.

Return on equity. Return on equity (ROE) is another measure of management. It looks at management's ability to make a profit with the money that shareholders have invested. The equation and the 2004 numbers, in thousands, from SBUX look like this:

$$\text{ROE} = \frac{\text{Net income}}{\text{Shareholders' equity}} = \frac{\$390,559}{\$2,474,218} = .158 \text{ or } 15.8\%$$

You already know where to find net income. Shareholders' equity comes directly from the balance sheet. While the ROE number by itself means little, if it happens to be the highest ROE in its industry, it's reasonable to conclude that the company is more efficient than its competitors at wringing profit from investors' dollars.

ROE might seem like the ultimate measure of a company's value. Unfortunately, it's not that simple. We've already discussed some of the ways that earnings can be distorted. Shareholders' equity can be misleading, too.

Remember the balance sheet equation "assets = liabilities + shareholders' equity"? The more debt a company has (the more money it borrows), the less equity it has. And the less equity a company has, the higher its ROE. That means that a company with more debt than another company with similar financials has a higher ROE, when in fact it may not be in a position to provide a higher long-term return.

Shareholders' equity does not include intangible assets, which may make a significant contribution to a firm's overall value.

A high ROE can be a signal of value, but like any other ratio, it is only part of the story.

Price-earnings. The price-earnings (PE) ratio lets you know how a company's share price compares to earnings per share. It tells you how much investors are willing to pay for each dollar of earnings. PE for the stock market in general has averaged around 15, with a slightly higher average during periods of low inflation. Individual stocks may be valued at much more or less.

PE is widely used because it reflects investors' *expectations* about a company's performance. High expectations translate into a high stock price and a high PE, and low expectations translate into a low stock price and low PE. The trick is to be able to judge the validity of those expectations. A high PE might mean the stock is overvalued, and therefore *not* a good buy, or it might mean the company is positioned for extraordinary growth, and therefore a good buy even at a high price. Conversely, a lower than average PE can indicate that the stock is undervalued (and therefore a bargain) or that the company is headed for trouble—a poor purchase at any price.

Let's see how SBUX fares. Stock price is not reflected in a company's financial statements, but EPS is often included on the income statement. In its 2004 10-K, SBUX reported a basic EPS of .98. At the end of the 2004 fiscal year, SBUX was trading at about \$23.52.

$$\text{PE} = \frac{\text{Stock price per share}}{\text{Earnings per share}} = \frac{23.52}{.98} = 24$$

At the time, investors were willing to pay \$24 for every dollar of earnings. Don't forget all of those concerns about how earnings are reported—they apply here as well. Other factors, such as a company's level of debt, cash-on-hand, growth rate, and life cycle, can affect PE, too. Still, PE is an often-reported ratio that adds to an investor's toolbox.

Nowadays, PE is included on most stock quote tables. You can rely on Internet sources, such as Yahoo! Finance (finance.yahoo.com), and other independent sources, such as Standard & Poor's and Value Line.

Price-earnings and growth. The price-earnings and growth ratio (PEG) compares PE to earnings growth. The idea is to see if *expectations* about earnings (PE) match the evidence for those expectations (earnings growth). Note that PEG is usually figured with estimates about *future* earnings per share.

This is how it works. If price and earnings growth are equal, PEG is 1.0. If price is higher than earnings growth would indicate, PEG is greater than 1.0. If price is lower, PEG is less than 1.0. A PEG value of .5 or lower is appealing because it indicates a stock that is undervalued compared to its projected growth. As with any other ratio, however, you must know where the numbers come from. A PEG ratio is only as good as the earnings estimates upon which it is based.

To calculate PEG, divide PE by annual EPS growth. Like figuring sales growth, past EPS growth is figured by finding the change in EPS from one year to the next and then dividing by the first year. A Year One EPS of .68 and a Year Two EPS of .98, means a change in EPS of .3. Divided by .68, that gives us an annual growth rate of 44 percent. The equation looks like this:

$$\text{PEG} = \frac{\text{Price-earnings (PE)}}{\text{EPS growth}} = \frac{24}{.54} = .44$$

This example uses a one-year **trailing** EPS growth rate, but as noted above, PEG is usually figured with estimates of future earnings per share.

With this basic knowledge of ratios, the beginning investor is well on the way to valuing stock and making sound stock selections.