

Gallagher on Financial Ratio Analysis

Ratios derived from the financial statements of firms are an important management tool. Analogous to someone's vital statistics, heart rate, cholesterol level, blood pressure, etc. ratios can provide valuable insights into and empirical support for strategic issues surrounding firms.

There are a large number of potential ratios. As a manager you will have to use your discretion to identify which ones are the most important or meaningful given the situation. Keep in mind as well that different accounting assumptions or outright manipulation can skew financial ratio comparisons both within and between companies. Therefore, using ratio analysis in isolation can be problematic.

For simplicity we'll group ratios into three common areas, profitability, activity, and solvency. The calculation of any ratio is an elementary school math problem. The extent of the challenge embodied in financial ratios is using them effectively to understand their implications on the performance and future of the firm.

Performance Ratios. These ratios are concerned with how well the firm is using its assets and the investments of stakeholders, especially the firm's shareholders. Common ratios used as performance measures have income as the numerator and include:

Return on Assets = Net Income / Assets

Return on Equity = Net Income / Shareholders Equity

Profit Margin = Net Income / Sales (or Revenue)

Earnings per Share = Net Income / Shares of Common Stock

The larger each of these ratios are the better the firm is performing. While historical or industry level data is exceptionally useful for comparison, other metrics can be used. For example, for any year a firm's *return on assets* should be greater than the risk free rate of return. *Earnings per share* is not really a performance ratio but it can be helpful, especially with new firms, because it takes account of new issues of stock. Make sure this number is computed on a fully diluted basis. Margin ratios can be especially useful and calculated not only for profits but also for operating income.

Activity Ratios. These ratios provide an indication of how well a firm's resources are being used by management. Common activity ratios include:

Asset Turnover = Sales / Total Assets

Days' Receivables = Accounts Receivable / (Average Day's Sales = Sales / 365)

Inventory Turnover = Cost of Goods Sold / (Average Inventory = (starting INV + ending INV)/2) You can also compute day's inventory as = 365 / Inventory Turnover

Working Capital Turnover = Sales / (Avg. Current Assets – Avg. Current Liabilities)

As before, the higher the better. *Days' receivables* is one of the best indicators in the absence of historical or industry comparison data because any number over 90 indicates that the firm is not being very efficient in collecting its debts. *Inventory turnover* is also especially helpful because

it indicates how liquid a firm's inventory is. In industries where the value of products depreciates rapidly, e.g. personal computers, a low number here can indicate an important problem.

Solvency and Leverage Ratios. Probably the most well known and closely watched of the ratios, these ratios indicate the long run viability of the firm. Insolvency can quickly lead to bankruptcy, and so rating agencies such as Standard and Poor are frequently very keen on these ratios. Common solvency ratios include:

Current Ratio = Current Assets / Current Liabilities

Quick or Acid Test Ratio = (cash + marketable securities) / current liabilities

Debt Ratio = Total Debt (or liabilities) / Total Assets

Debt to Equity = Total Debt (or liabilities) / Owner's Equity

Times Interest Earned = (Pretax Operating Income + Interest Expense) / Interest Expense

Unlike before, higher is not always better. It is especially important that the *current ratio* be greater than one. Recall that current refers to things occurring within the accounting year. Therefore, a current ratio lower than one calls for immediate management attention, either to liquidate non current assets or to arrange for some sort of financing or equity issue. *Debt ratios* of larger than one are potentially of concern because they indicate that the company could not meet its debt obligations if it sold off all of its assets. While not intrinsically bad, higher debt ratios suggest higher leverage and the resulting higher returns and larger risks that companies with them undertake. *Times interest earned* is not really a solvency ratio but rather how durable the company will be to adversity. A high ratio here suggests the ability for the firm to weather a downturn and still meet its obligations.

Using Ratios. The key is not calculating the ratios but using them to help you in your analysis of why firm performance differs. For example, if Wal-Mart has a great inventory system where and how would that be reflected in its financial ratios? If a company has high debt and appears to be entering a downturn when should you be alarmed?

Obviously ratios, just like our personal vital statistics, have the most value when compared to industry averages and prior periods. However, looking to ratios can start you on your search of finding valuable firm resources and empirically demonstrating the value of resources or capabilities you've identified in your analysis. In addition, where you think they may be applicable you should devise ratios of your own, e.g. percentage of sales by region or sales by product line.

Finally, for 487, keep in mind that the Business Strategy Game uses a number of these ratios as the basis for your score. Therefore, your grade for the game is a direct result of these types of ratios. A better understanding of them can help you understand how your game score is determined.