

RATIO ANALYSIS

1. Liquidity ratios: Helps the reader to assess the company's ability to meet short-term obligations - those maturing within one year - and evaluate the short-term financial strength of the company.
 - a. Current ratio: a.k.a. the working capital ratio. An indicator of the company's ability to meet its short-term obligations with current assets. An assumption is made that current assets will be converted to cash within one year.

$$\text{Current ratio} = \frac{\text{current assets}}{\text{current liabilities}}$$

A low current ratio indicates the company may be having short term cash flow problems: if extreme, this could force a company into bankruptcy.

- b. Quick ratio or defensive interval: a.k.a. acid-test ratio. Similar to the current ratio, the quick ratio uses only the most liquid of the current assets, such as cash and short-term receivables as the numerator.

$$\text{Quick ratio} = \frac{\text{cash} + \text{short term receivables}}{\text{current liabilities}}$$

By excluding inventory or prepaid expenses, management and other users can get a better idea of how quickly a company can pay off its bills. Another similar ratio is the Defensive interval - how long can the company operate and continue to pay its bills out of current assets?

2. Activity or turnover ratios: a turnover ratio measure how efficiently a company uses its assets.
 - a. Accounts receivable turnover: this indicates how quickly the company collects cash after issuing a sale on credit. It can also be a good indicator of how collectable the receivables are, if the credit policies of the company need to be changed, and if there are bad debts still included as an asset.

$$\text{Accounts receivable turnover} = \frac{\text{Net sales}}{\text{Average accounts receivable}}$$

Average accounts receivable: found by adding the beginning and ending account receivable and dividing by 2.

RATIO ANALYSIS (CONTINUED)

- a. Inventory turnover ratio: helps to measure how quickly a company can generate sales from the purchase of inventory.

$$\text{Inventory turnover} = \frac{\text{Income before taxes plus interest expense}}{\text{interest expense}}$$

Operating income should be well in excess of amounts needed to pay interest expense, as principal payments will likely also need to be made out of operating income. The higher the value, the greater the margin of safety for lenders in receiving their interest payments from the company.

- b. Debt to equity = $\frac{\text{total long-term debt}}{\text{total shareholders' equity}}$

Measure whether creditors are providing too much capital to support operations. The lower this ratio, the greater the ability to borrow additional funds.

3. Profitability ratios: these are usually the most important ratios, that indicate how well the company is operating at making a profit. It is also a good indicator when done on a division level to see how well managers are doing their jobs.

- a. Profit margin on sales: this indicates how much profit a company makes on each dollar of sales.

$$\text{Profit margin} = \frac{\text{net income}}{\text{net sales}}$$

The greater the margin, the higher amount of profit the company generates from the sales. The drawback to this ratio is that there are often amounts included in net income that have little bearing on the profitability of sales, such as interest.

- b. Net operating margin: an indicator of what a company actually makes on sales. Operating income is found by taking Net Sales and subtracting cost of goods sold and operating expenses. No interest expense or unusual charges are deducted from operating income.

$$\text{Net operating margin} = \frac{\text{operating income}}{\text{net sales}}$$

This is the best measure for how effective a company is at making and selling their product for a profit. Since interest expense is not included, a financing decision does not affect this ratio.

RATIO ANALYSIS (CONTINUED)

- a. Return on total assets: this ratio indicates the company's effectiveness at using company assets to generate revenue. A company may have a strong operating margin, but how much in total assets did it take to generate the revenue? Or was it accomplished "on a shoestring"?

$$\text{Return on total assets} = \frac{\text{net income}}{\text{average total assets}}$$

Average total assets: the sum of beginning and ending assets divided by 2. The greater the ratio, the more effective the use of company assets.

4. Some limitations on the use of ratios
 - a. Many of the reasons behind financial transactions are not clear from a cursory reading of financial statements.
 - b. The use of a single ratio can tell the wrong story - multiple ratios for one company should be analyzed.