

# Finance: Equations

Wednesday, September 14, 2016

11:48 AM

## BS, SOE, and SRE

- Net fixed assets = fixtures cost - accumulated depreciation
- Net sales - COGS = Gross profit/income
- Net sales - GP = COGS
- Net sales = COGS + GP
- Net sales - COGS = GP
- COGS = Beginning inventory + purchases - Ending inventory
- COGS - Beginning inventory + Ending inventory = Purchases

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### Efficiency

- **Age**

## Profit analysis

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### Cost of goods sold to sales

$$\text{Cost of goods sold to sales} = \frac{\text{Cost of goods sold to sales} (\$)}{\text{Net sales} (\$)} \times 100 = ?\%$$

**Gross income to sales:** Indicates cost of providing product sold; its complement is the company's profit margin

$$\text{Gross income to sales} = \frac{\text{Gross income} (\$)}{\text{Net sales} (\$)} \times 100 = ?\%$$

**Operating expenses to sales:** Shows percentage of each sales dollar spent on operating costs

$$\text{Operating expenses to sales} = \frac{\text{Operating expenses} (\$)}{\text{Net sales} (\$)} \times 100 = ?\%$$

**Net income/profit margin:** Indicates what percentage of each sales dollar is left after meeting all expenses

$$\text{Net income} = \frac{\text{Net income} (\$)}{\text{Net sales} (\$)} \times 100 = ?\%$$

**Return on equity (ROE):** Ratio of earnings to shareholders' total investment

$$\text{ROE} = \frac{\text{Net income after tax, before dividends} (\$)}{\text{Average year's equity}} \times 100 = ?\%$$

Avg. year's equity

$$= \frac{\text{Last year's ending equity} (\$ *) + \text{This year's ending equity} (\$)}{2}$$

\* ---> Previous year's equity can be found on previous year's balance sheet. If there is no previous year's equity, it is acceptable to use the current year's equity as the average year's equity

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### Analysis of Accounts Receivable (2 steps)

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$$\text{Avg. daily sales} = \frac{\text{Total period net sales (\$)}}{\text{Number of days in period}} = ? \$/\text{day}$$

$$\text{Age of acc. receivable} = \frac{\text{Accounts Receivable (\$)}}{\text{Avg. daily sales}} = ? \text{ Days}$$

### of Inventory (2 steps)

$$\text{Avg. daily cost of goods sold} = \frac{\text{Total period cost of goods sold (\$)}}{\text{Number of days in period}} = ? \$/\text{day}$$

$$\text{Age of inventory} = \frac{\text{Ending Inventory (\$)}}{\text{Avg. daily cost of goods sold} \left( \frac{\$}{\text{day}} \right)} = ? \text{ days}$$

### Age of Accounts Payable (2 steps)

$$\text{Avg. daily purchases} = \frac{\text{Total period purchases (\$)}}{\text{Number of days in period}} = ? \$ (\text{slash}) \text{revenue}$$

$$\text{Age of acc. payable} = \frac{\text{Acc. payable (\$)}}{\text{Avg. daily purchases} \left( \frac{\$}{\text{day}} \right)} = ? \text{ days}$$

**Inventory Turnover:** Measures the number of times inventory is sold in that operating period

$$\text{Inventory turnover} = \frac{\text{Cost of goods sold (\$)}}{\text{Avg. inventory (\$)}^*} = ? \text{ times}$$

$$* \text{ Avg. inventory} = \frac{\text{Beg. inventory} + \text{End. inventory}}{2}$$

**Fixed Asset turnover:** Measures amount of investment the firm has tied up in net fixed assets in order to sustain a given number of sales

$$\text{Fixed asset turnover} = \frac{\text{Net sales (\$)}}{\text{Avg. net fixed assets (\$)}^*} = ? \text{ times}$$

$$* \text{ Avg. net fixed assets} = \frac{\text{Beg. net fixed assets} + \text{End. net fixed assets}}{2}$$

**Total Asset turnover:** Relates sales to total assets owned by the firm

$$\text{Total asset turnover} = \frac{\text{Net sales (\$)}}{\text{Avg. total assets (\$)}^*} = ? \text{ times}$$

$$* \text{ Avg. total assets} = \frac{\text{Beg. net fixed assets} + \text{End. net fixed assets}}{2}$$

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Growth

- **Sale**

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**Current Ratio:** *Relates all outstanding current assets to current liabilities*

$$\text{Current ratio} = \frac{\text{Total current assets (\$)}}{\text{Total current liabilities (\$)}} = ? \frac{\square}{1}$$

**Acid Test Ratio:** *More rigorous measure of immediate liquidity*

$$\text{Acid test ratio} = \frac{\text{Cash (\$)} + \text{Marketable securities (\$)} + \text{Acc. receivable (\$)}}{\text{Current liabilities (\$)}} \\ = ? \text{ (slash) } 1$$

**Working Capital:** *capital of business used in day-to-day trading operations*

$$\text{Working capital} = \text{Current assets (\$)} - \text{Current liabilities (\$)} = ? \$$$

**Net Worth to Total Assets Ratio:** *Proportion of the assets that have been financed by the owners*

$$\text{Net worth to total assets} = \frac{\text{Total shareholders' equity (\$)}}{\text{Total assets (\$)}} \times 100 = ? \%$$

**Total Debt to Total Assets Ratio**

$$\text{Total debt to total assets} = \frac{\text{Total liabilities (\$)}}{\text{Total assets (\$)}} \times 100 = ? \%$$

**Total Debt to Equity Ratio:** *Measures the extent to which a company's assets are debt financed, relative to investor/owner financed*

$$\text{Total debt to equity ratio} = \frac{\text{Total debt (\$)}}{\text{Equity (\$)}}$$

**Interest Coverage Ratio:** *Measures how many times the company's income could pay the interest on the debt it owes; reflects margin of safety that creditors have in event of a decline in earnings*

$$\text{Interest coverage} = \frac{\text{Income before interest and taxes (\$)}}{\text{Interest Expenses (\$)}} = ? \text{ times}$$

**Sales Growth:** *Summarizes overall activity level of the firm from year to year*

$$\text{Sales growth} = \frac{\text{Yr. 2 sales (\$)} - \text{Yr. 1 sales (\$)}}{\text{Yr. 1 sales (\$)}} \times 100 = ? \%$$

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**Profit growth:** Describes overall efficiency of operations relative to previous periods

$$\text{Profit growth} = \frac{\text{Yr. 2 profit (\$)} - \text{Yr. 1 profit (\$)}}{\text{Yr. 1 profit}} \times 100 = ?\%$$

**Asset growth:** Summarizes change in the level of all resources owned by the firm over the course of the period

$$\text{Asset growth} = \frac{\text{Yr. 2 total assets (\$)} - \text{Yr. 1 total assets (\$)}}{\text{Yr. 1 total assets (\$)}} \times 100 = ?\%$$