

FINANCIAL ANALYSIS

Financial Statements

- The income statement provides information about revenue and expenses of a firm,
- The balance sheet provides a point in time snap shot of the firm's assets, liabilities and owner's equity.

Benchmarking: The financial statements by themselves are complex documents involving a whole bunch of numbers.

- One common method of benchmarking is to compare a firm's current performance against that of its own performance over a 3-5 year period (*trend analysis*), by looking at the growth rate in various key items such as sales, costs, and profits.
- Another useful way is to restate the income statement and the balance sheet into common size statements, by expressing each income statement item as a percent of sales and each balance sheet item as a percent of total assets

Financial Ratios

- Financial ratios allow for meaningful comparisons across time, between competitors, and with industry averages.
- **Liquidity ratios:** Can the company meet its obligations over the short term?
- **Solvency ratios:** (also known as *financial leverage ratios*): Can the company meet its obligations over the long term?
- **Asset management ratios:** How efficiently is the company managing its assets to generate sales?
- **Profitability ratios:** How well has the company performed overall?
- **Market value ratios:** How does the market (investors) view the company's financial prospects?
- Du Pont analysis: which involves a breakdown of the return on equity into its three components, i.e. profit margin, turnover, and leverage.

Liquidity Ratios: measure a company's ability to cover its short-term debt obligations in a timely manner:

- Three key liquidity ratios include the current ratio, quick ratio, and cash ratio.

Financial Leverage Ratios: measure a company's ability to meet its long-term debt obligations based on its overall debt level and earnings capacity.

- Failure to meet its interest obligation could put a firm into bankruptcy.
- Key financial leverage ratios are the debt ratio, times interest earned ratio, and cash coverage ratio.

Asset Management Ratios: measure how efficiently a firm is using its assets to generate revenues or how much cash is being tied up in other assets such as receivables and inventory.

- Key asset management ratios are inventory turnover, accounts receivables turnover, average collection period, and total asset turnover.

Profitability Ratios: such as net profit margin, returns on assets, and return on equity, measure a firm's effectiveness in turning sales or assets into profits

- Potential investors and analysts often use these ratios as part of their valuation analysis.

Market Value Ratios: are used to gauge how attractive a firm's current price is relative to its earnings, growth rate, and book value

- Typically, if a firm has a high price to earnings and a high market to book value ratio, it is an indication that investors have a good perception about the firm's performance.
- If these ratios are very high it could also mean that a firm is over-valued.

DuPont analysis: involves breaking down ROE into three components of the firm:

- **operating efficiency**, as measured by the profit margin (net income/sales);
- **asset management efficiency**, as measured by asset turnover (sales/total assets); and
- **financial leverage**, as measured by the equity multiplier (total assets/total equity).

Questions

1. What is the accounting identity?

Assets \equiv Liabilities + Owner's Equity

2. What does analyzing companies over time tell a finance manager?

Trend analysis tells a financial manager the rate at which the various key items are growing and helps explain why profits are growing or eroding over time.

3. What does restating financial statements into common-size financial statements allow a finance manager or financial analyst to do?

Common-size financial statements allow a comparison of companies that are very different in size. It then allows comparison of management choices, such as debt financing or analysis of production costs.

4. What are liquidity ratios? Given an example of a liquidity ratio and how it helps evaluate a company's performance or future performance from an outsider's view.

Liquidity ratios are ratios that show the short-term cash obligation capabilities of the company. The current ratio is a liquidity ratio and it is current assets divided by current liabilities. When this ratio is greater than one it indicates a company should have sufficient cash from its current assets to pay off its current liabilities. This helps an outsider evaluate potential cash flow problems of the company.

5. What are solvency ratios? Which ratio would be of most interest to a banker considering a debt loan to a company? Why?

Solvency ratios are ratios that demonstrate the ability of the company to meet debt obligations over an extended period of time. A banker would probably be most interested in Times Interest Earned to see if the company has sufficient cash from operations to handle more interest payments on a new loan.

6. What are asset management ratios?

Asset management ratios are ratios that indicate how well the management team is using the assets of the company to generate profits.

7. What does the P/E ratio tell an outsider about a company?

The P/E ratio tells you if the firm is a growth firm or a stable firm with growth firms having higher P/E ratios. T

8. What are the three components of the DuPont identity? What do they analyze?

The three components of the DuPont analysis are, (1) operating efficiency, (2) asset management efficiency, and (3) financial leverage. They analyze the return on equity or the shareholders' return.

9. What does analyzing a company against firms in other industries tell a financial manager or analyst?

Analyzing a company against firms in other industries may indicate what areas the company and its industry are falling behind in general.

KEY FINANCIAL RATIOS - DETAILS

Current Ratio

- Current ratio measures the ability of a business to repay current liabilities with current assets.
- Current assets are assets that are expected to be converted to cash within normal operating cycle, or one year. Examples of current assets include cash and cash equivalents, marketable securities, short-term investments, accounts receivable, short-term portion of notes receivable, inventories and short-term prepayments.
- Current liabilities are obligations that require settlement within normal operating cycle or next 12 months. Examples of current liabilities include accounts payable, salaries and wages payable, current tax payable, sales tax payable, accrued expenses, etc.

Formula

Current Ratio = Current Assets/Current Liabilities

Analysis

- Current ratio matches current assets with current liabilities and tells us whether the current assets are enough to settle current liabilities.
- A current ratio of 1 or more means that current assets are more than current liabilities and the company should not face any liquidity problem.
- A current ratio below 1 means that current liabilities are more than current assets, which may indicate liquidity problems.
- In general, higher current ratio is better.
- Current ratios should be analyzed in the context of relevant industry. Some industries for example retail, have very high current ratios. Others, for example service providers such as accounting firms, have relatively low current ratios because they do not have any significant current assets.
- An abnormally high value of current ratio may indicate existence of idle or underutilized resources in the company.

Quick Ratio

- Quick ratio is a stricter measure of liquidity of a company than its current ratio.
- Quick ratio is most useful where the proportion of illiquid current assets to total current assets is high.

Formula

Quick Ratio = (Cash + Marketable Securities + Receivables)/Current Liabilities

Another approach to calculation of quick ratio involves subtracting all illiquid current assets from total current assets and dividing the resulting figure by total current liabilities.

Quick Ratio = (Current Assets – Inventories – Prepayments)/Current Liabilities

Analysis

- Quick ratio is particularly useful in assessing liquidity situation of companies in a crunch situation, i.e. when they find it difficult to sell inventories.
- Quick ratio should be analyzed in the context of other liquidity ratios such as current ratio, cash ratio, etc., the relevant industry of the company, its competitors and the ratio's trend over time.
- A quick ratio lower than the industry average might indicate that the company may face difficulty honoring its current obligations. Alternatively, a quick ratio significantly higher than the industry average highlights inefficiency as it indicates that the company has parked too much cash in low-return assets.

Debt Ratio

- Debt ratio (also known as debt to assets ratio) measures debt level of a business as a percentage of its total assets.
- It is calculated by dividing total debt of a business by its total assets.
- Debt ratio finds out the percentage of total assets that are financed by debt.
- A too high percentage indicate that it is too difficult for the business to pay off its debts and continue operations.

Formula

Debt Ratio = Total Debt/Total Assets

- Total debt equals long-term debt and short-term debt.
- Total assets include both current assets and non-current assets.

Analysis

- Debt ratio is a measure of a business's financial risk, the risk that the business' total assets may not be sufficient to pay off its debts and interest thereon.
- While a very low debt ratio is good, it may indicate underutilization of a major source of finance which may result in restricted growth.

Times Interest Earned Ratio

- Times interest earned ratio (also called interest coverage ratio) is an indicator of the company's ability to pay off its interest expense with available earnings.
- It is a measure of a company's solvency, i.e. its long-term financial strength.
- It calculates how many times a company's operating income (earnings before interest and taxes) can settle the company's interest expense.
- A higher times interest earned ratio indicates that the company's interest expense is low relative to its earnings before interest and taxes (EBIT) which indicates better long-term financial strength, and vice versa.

Formula

Times Interest Earned = Earnings before Interest and Tax (EBIT)/Interest Expense

Analysis

- While debt ratio indicates total debt exposure relative to total assets, times interest earned (TIE) ratio assesses whether the company is earning enough to pay off the associated interest expense.
- Higher value of times interest earned (TIE) ratio is favorable as it shows that the company has sufficient earnings to pay off interest expense and hence its debt obligations.
- Lower values highlight that the company may not be in a position to meet its debt obligations.

Net Profit Margin

- Net profit margin (also called profit margin) is the most basic profitability ratio that measures the percentage of net income of an entity to its net sales.
- It represents the proportion of sales that is left over after all relevant expenses have been adjusted.
- A high ratio indicates that the company is profitable.

Formula

Net Profit Margin = Net Income/Net Sales

Return on Equity (ROE) Ratio

- Return on equity is the ratio of net income to stockholders' equity.
- It is a measure of profitability of stockholders' investments.
- It shows net income as percentage of shareholder equity.

Formula

ROE = Net Income/Stockholders' Equity

- Net income is the after tax income, whereas
- Shareholder equity is common stock fund plus retained earnings

Analysis

- High ROE value means that the firm is efficient in generating income on stock investment.
- Investors should compare the ROE of different companies and check the trend over time.
- ROE can be artificially influenced by the management, for example, when debt financing is used to reduce share capital there will be an increase in ROE even if income remains constant.

Earnings per Share (EPS)

- Earnings per share (EPS) is a profitability indicator which shows dollars of net income earned by a company per share of its common stock
- EPS is a very important profitability ratio, particularly for shareholders of a company, because it is a direct measure of dollars earned per share.

Analysis

- EPS standardizes earnings with reference to number of shares outstanding.
- However, EPS alone too is not very useful because different companies have different number of shares.

Price/Earnings (P/E) Ratio

- Price/Earnings or P/E ratio is the ratio of a company's share price to its earnings per share.
- It tells whether the share price of a company is fairly valued, undervalued or overvalued.
- A high P/E ratio indicates high growth prospects for the company.

Formula

P/E Ratio = Current Share Price/Earnings per Share

Dividend Payout Ratio

- Dividend payout ratio is the percentage of a company's earnings that it pays out to investors in the form of dividends.
- It is calculated by dividing dividends paid during a period by net earnings for that period.

Formula

Dividend Payout Ratio = Dividend per Share/Earnings per Share

Analysis

- People invest in a company expecting a return on their investment which comes from two sources: capital gains and dividends.
- A high dividend payout ratio means that the company is reinvesting less earnings in future projects, which in turn means less capital gains in future periods.
- Similarly, low payout ratio today may result in higher capital gains in future.
- Some investors prefer companies that provide high potential for capital gains while others prefer companies that pay high dividends.
- Dividend payout ratio helps each class of investors identify which companies to invest in.

Inventory Turnover Ratio

- Inventory turnover is an asset efficiency ratio which calculates the number of times per period a business sells and replaces its entire batch of inventories.

Formula

Inventory Turnover = Cost of Goods Sold/Average Inventories

Analysis

- Inventory turnover ratio assesses how efficiently a business is managing its inventories.
- In general, a high inventory turnover indicates efficient operations.
- A low inventory turnover compared to the industry average and competitors means poor inventories management.

- However, a very high value of this ratio may result in stock-out costs, i.e., when a business is not able to meet sales demand due to non-availability of inventories.
- Inventory turnover is a very industry-specific ratio. Businesses which trade perishable goods have very higher turnover compared to those dealing in durables. Hence a comparison would only be fair if made between businesses in the same industry.

Days' Sales Outstanding (DSO) Ratio

- Days' sales outstanding ratio (also called *average collection period* or *days' sales in receivables*) is used to measure the average number of days a business takes to collect its trade receivables after they have been created.
- It gives information about the efficiency of sales collection activities.

Formula

Days Sales Outstanding is calculated using following formula:

$$\text{DSO} = \frac{\text{Accounts Receivable}}{\text{Credit Sales}} \times \text{Number of Days}$$

Analysis

- A low value of Days Sales Outstanding is favorable indicating that the firm is collecting money faster.

Total Assets Turnover Ratio

- Fixed assets turnover ratio measures how successfully a company is utilizing its assets in generating revenue.
- It calculates the dollars of revenue earned per one dollar of investment in assets.
- A higher asset turnover ratio is generally better.

Formula

$$\text{Assets Turnover Ratio} = \text{Sales/Fixed Asset}$$