

Ratio Analysis

Basic information

- Financial statements give an indication about the financial position, performance and changes in financial position of an enterprise, person or any other entity
- These are merely numbers but these are related to one another and these give insights to the operations of the company
- These are presented in a structured manner and in a form that is widely accepted
- Some uses of Financial Statements
 - Owners and managers require financial statements to make important business decisions that affect its continued operations
 - Prospective investors make use of financial statements to assess the viability of investing in a business
 - Financial institutions (banks and other lending companies) use them to decide whether to grant a company with fresh working capital or extend debt securities (such as a long-term bank loan or debentures) to finance expansion and other significant expenditures

Basic information continued

- There are 3 main financial statements
 - Balance Sheet – It gives the state of operations at **a specific point of time**. A balance sheet can be made for March 31, April 5, September 30th etc. There are no restrictions on making the balance sheet. However, as a general practice in India balance sheet are made at the end of every quarter and at the end of every financial year i.e. March 31.
 - Profit & Loss Statement – Also called P&L – This records the **flow of activities** for a **particular period of time**. This records the amount of sales done in 1 year, 1 month, 2 quarters; Salaries/expenses paid over a particular period;
 - Cash Flow Statement – This is also for a **particular period of time**. It records how changes in balance sheet accounts and P&L affect **cash**. It breaks the analysis down to operating, investing and financing activities.

Ratios

- Ratios are the comparison of one financial value with another
- Most ratios are compared either
 - to a standard benchmark, or
 - to the same ratio of the same company over different periods of time, or
 - to the same ratio of other companies (mainly competitors)
- Any financial value can be compared to any one to form a ratio; but not all of these make sense or are used in practice
- Hence it makes sense to study only those ratios that are widely used by a large number of people

Profitability Ratios

- These ratios mainly compare the profits or revenue with other financial quantities
- They give an indication to the business's ability to generate earnings compared to its expenses and other relevant costs incurred during a specific period of time
- For most of these ratios, having a higher value relative to a competitor's ratio or relative to the same ratio from a previous period indicates that the company is doing well

Profitability Ratios

- **Gross Profit Margin:**

- Financial metric used to assess a company's financial health and business model by revealing the proportion of money left over from revenues after accounting for the cost of goods sold (COGS).

$$\text{Gross Profit Margin} = \frac{\text{Revenue} - \text{COGS}}{\text{Revenue}}$$

- **Operating Margin:**

- Used to measure a company's pricing strategy and operating efficiency.
- It is a measurement of what proportion of a company's revenue is left over after paying for variable costs of production such as wages, raw materials, etc.

$$\text{Operating Margin} = \frac{\text{Operating Income}}{\text{Net Sales}}$$

Profitability Ratios continued

- **Net Profit Margin:**

- Show how much of each dollar collected by a company as revenue translates into profit.

- $\text{Net margin} = \text{net profit} / \text{revenue}$

- **Return On Capital Employed (ROCE):**

- Measures a company's profitability and efficiency with which its capital is employed.

- $\text{ROCE} = \text{Earnings Before Interest and Tax (EBIT)} / \text{Capital Employed}$

- $\text{Capital Employed} = \text{Total Assets} - \text{Current Liabilities}$

- A higher ROCE indicates more efficient use of capital, otherwise it indicates that the company is not employing its capital effectively and is not generating shareholder value.
- ROCE should be higher than the company's capital cost.

Profitability Ratios continued

- **Return On Equity (ROE):**

- ROE provides investors with insight into how efficiently a company is managing the equity that shareholders have contributed to the company.

- ROE = Net income / shareholders' equity
 - Shareholders' equity = assets – liabilities

- **Return On Assets (ROA):**

- ROA is an indicator of how profitable a company is relative to its total assets. ROA gives an idea as to how efficient management is at using its assets to generate earnings.

- ROA = Net income / Total Assets

Leverage Ratios

- Companies need money to fund their operations. This comes in the form of equity or debt
 - If a company's operations can generate a higher rate of return than the interest rate on its loans, then the debt is helping to fuel growth in profits.
 - Hence companies can leverage the amount of owners' equity by taking debt. Debt is a low cost source of funds for a company (as opposed to equity*)
- *However, too much debt may lead to bankruptcy
- Hence leverage ratios should not be too high or too low
 - Leverage ratios look at how much capital in the form of debt (loans), or assesses the ability of a company to meet financial obligations.

Leverage

- **Debt To Equity (D/E):**

- The D/E ratio indicates how much debt a company is using to finance its assets relative to the amount of value represented in shareholders' equity.

- $D/E = \text{Total Liabilities} / \text{Shareholders' Equity (or)}$

- $D/E = \text{Total Debt} / \text{Shareholders' Equity}$

- $\text{Shareholders' Equity} = \text{Total Assets} - \text{Total Liabilities}$

- D/E may often be referred to as risk or gearing.

- **Debt To Asset (D/A):**

- This enables comparisons of leverage to be made across different companies.

- The higher the ratio, the higher the degree of leverage, and consequently, financial risk.

- $D/A = (\text{Short term Debt} + \text{Long Term Debt}) / \text{Total Asset}$

Leverage continued

- **Debt Coverage Ratio (DSCR):**

- Measure of the cash flow available to pay current debt obligations.
- DSCR > 1 means the entity (person, company or government) has sufficient income (current year income) to pay its current debt obligations.
 - A DSCR < 1 means it does not. Though a company may be able to meet its obligations from cash balances, DSCR does not take that into account
- $DSCR = \text{Net Operating Income} / \text{Total Debt Service (i.e. interest + principal)}$

- **Interest Covering Ratio:**

- Used to determine how easily a company can pay their interest expenses on outstanding debt.
- The lower the ratio, the more the company is burdened by debt expense.
- When a company's interest coverage ratio is only 1.5 or lower, its ability to meet interest expenses may be questionable.
 - Interest covering ratio = $EBIT / \text{Interest}$

Activity Ratios

- Activity ratios measure the relative efficiency of a firm based on its use of its assets, leverage or other such balance sheet items
- These are important in determining whether a company's management is doing a good enough job of generating revenues and cash from its resources
- The faster a business is able to convert its assets into cash or sales, the more efficient it runs

Activity Ratio

- **Fixed Asset Turnover Ratio:**
- Used to measure operating performance.
- Specifically measures how a company is able to generate net sales from fixed-asset investments, namely property, plant and equipment (PP&E), net of depreciation.
- Higher fixed-asset turnover ratio indicates that a company has more effectively utilized investment in fixed assets to generate revenue.

$$\text{Fixed Asset Turnover} = \frac{\text{Net Sales}}{\text{Net Property, Plan, and Equipment}}$$

Activity Ratio continued

- **Working Capital Turnover Ratio:**
- Measurement comparing the depletion of working capital used to fund operations and purchase inventory, which is then converted into sales revenue for the company.
- Used to analyze the relationship between the money that funds operations and the sales generated from these operations.

$$\text{Working Capital Turnover} = \frac{\text{Sales}}{\text{Working Capital}}$$

Activity Ratio continued

- **Receivables Turnover Ratio:**

- An accounting measure used to quantify a firm's effectiveness in extending credit and in collecting debts on that credit.
- Measures how efficiently a firm uses its assets.

$$\text{Accounts Receivable Turnover} = \frac{\text{Net Credit Sales}}{\text{Average Accounts Receivable}}$$

- **Accounts Payable Turnover Ratio:**

- Short-term liquidity measure used to quantify the rate at which a company pays off its suppliers.

$$\text{Accounts Payable Turnover} = \frac{\text{Total Supplier Purchases}}{\text{Average Accounts Payable}}$$

Activity Ratio continued

- **Inventory Turnover Ratio:**

- Shows how many times a company's inventory is sold and replaced over a period of time.

- $\text{Inventory Turnover} = \text{Sales} / \text{Average Inventory}$

- Inventory turnover measures how fast a company is selling inventory and is generally compared against industry averages.
 - A low turnover implies weak sales and, therefore, excess inventory.
 - A high ratio implies either strong sales and/or large discounts.
- The days in the period can then be divided by the inventory turnover formula to calculate the **days it takes to sell the inventory on hand.**

Liquidity Ratios

- Solvency relates to a company's overall ability to pay debt obligations and continue business operations, while liquidity focuses more on current financial accounts.
- These ratios deal with immediately payments (current liabilities and assets) and are not concerned with long term instruments

Liquidity Ratio

- **Current Ratio / Working Capital Ratio:**

- Measures a company's ability to pay short-term obligations.

- Current Ratio = $\text{Current Assets} / \text{Current Liabilities}$
- Generally current ratio > 1

- **Quick Ratio / Acid-test Ratio / Quick Assets Ratio:**

- Indicator of a company's short-term liquidity.
- Measures a company's ability to meet its short-term obligations with its most liquid assets.

- Quick ratio = $(\text{current assets} - \text{inventories}) / \text{current liabilities}$

- The higher the quick ratio, the better the company's liquidity position.

Valuation Ratios

- These are ratios used by investors to estimate the attractiveness of a potential or existing investment and get an idea of its valuation.
- These are generally used for the following:
 - To compare competitors
 - To derive value of a business considering the competitor is fairly priced

Valuation Ratio

- **Earnings Per Share (EPS):**

- EPS is the portion of a company's profit allocated to each outstanding share of common stock.
- Earnings per share serves as an indicator of a company's profitability.

- $$\text{EPS} = \frac{\text{Net Income} - \text{Dividends on Preferred Stock}}{\text{Average Outstanding Shares}}$$

- **Dividend Per Share (DPS):**

- DPS is the sum of declared dividends issued by a company for every ordinary share outstanding.
- DPS is the total dividends paid out by a business, including interim dividends, divided by the number of outstanding ordinary shares issued.

- $$\text{DPS} = (\text{net income per share}) \times (\text{payout ratio})$$

Valuation Ratio continued

- **Dividend yield:**

- Indicates how much a company pays out in dividends each year relative to its share price.

- Dividend yield =
$$\frac{\text{Annual Dividends Per Share}}{\text{Price Per Share}}$$

- **Dividend Payout Ratio:**

- It is the ratio of the total amount of dividends paid out to shareholders relative to the net income of the company.
- It is the percentage of earnings paid to shareholders in dividends.
- The amount that is not paid out to shareholders is retained by the company to pay off debt or to reinvest in core operations.

- Dividend Payout Ratio =
$$\frac{\text{Dividends}}{\text{Net Income}}$$

Valuation Ratio continued

- **Price-Earnings Ratio (P/E Ratio):**
- Ratio for valuing a company that measures its current share price relative to its per-share earnings.
 - $P/E \text{ ratio} = \text{Market Value per Share} / \text{Earnings per Share}$
- Generally a high P/E ratio means that investors are anticipating higher growth in the future.
- Companies that are losing money do not have a P/E ratio.
- P/E ratio can use estimated earnings to get the forward looking P/E ratio.
- The price-earnings ratio is also known as the price multiple or the earnings multiple.

Valuation Ratio continued

- **Price-To-Book Ratio (P/B Ratio):**
- The P/B Ratio is used to compare a stock's market value to its book value.
- This ratio gives some idea of whether you're paying too much for what would be left if the company went bankrupt immediately.
 - $P/B \text{ Ratio} = \text{Market Price per Share} / \text{Book Value per Share}$
 - where $\text{Book Value per Share} = (\text{Total Assets} - \text{Total Liabilities}) / \text{Number of shares outstanding}$
- A lower P/B ratio could mean that the stock is undervalued.
 - It could also mean that something is fundamentally wrong with the company.

Valuation Ratio continued

- **Price-To-Sales Ratio (PSR):**

- A valuation ratio that compares a company's stock price to its revenues.
- PSR is an indicator of the value placed on each dollar of a company's sales or revenues.
- PSR is most relevant when used to compare companies in the same sector.
- A low ratio may indicate possible undervaluation, while a ratio that is significantly above the average may suggest overvaluation.
 - $PSR = \text{Market Capitalization} / \text{Total sales}$

Valuation Ratio continued

- **Enterprise Value (EV):**

- The enterprise value (EV) measures the value of the ongoing operations of a company.
- It attempts to measure the value of a company's business instead of measuring the value of the company.
- It is the measure for calculating how much it would cost to buy a company's business free of its debts and liabilities. It can be thought of as a theoretical takeover price of a company's business.
- The enterprise value is used as an alternative to market capitalization.
- It is a more accurate estimate of the takeover price of a company than the market capitalization.

- $$\text{Enterprise Value} = \text{Market Capitalization} + \text{Debt} + \text{Preferred Share Capital} + \text{Minority Interest} - \text{Cash and cash equivalents}$$

Valuation Ratio continued

- **EV/EBITDA ratio:**
- Commonly used metric for estimating the business valuations.
- It compares the value of a company, inclusive of debt and other liabilities, to the actual cash earnings exclusive of the non-cash expenses.
- The enterprise multiple can be used compare the value of one company to the value of another company within the same industry.
- A lower enterprise multiple can be indicative of an undervaluation of a company.
 - $EV/EBITDA \text{ Ratio} = EV / EBITDA$
- EBITDA is commonly used as a proxy for cash flow available to the firm.

Valuation Ratio continued

- **EV/EBIT ratio:**

- When depreciation and amortization expenses are small, as in the case of a non-capital-intensive company such as a consulting firm, EV/EBIT and EV/EBITDA will be similar.
- Unlike EBITDA, EBIT recognizes that depreciation and amortization, while non-cash charges, reflect real expenses associated with the utilization and wear of a firm's assets that will ultimately need to be replaced.

- $EV/EBIT \text{ Ratio} = EV / EBIT$

- **EV/Sales:**

- Used when a company has negative EBITDA, EV/EBITDA and EV/EBIT multiples will not be material.
- EV/Sales is commonly used in the valuation of companies whose operating costs still exceed revenues.
- However, revenue is a poor metric by which to compare firms, since two firms with identical revenues may have wildly different margins.

- $EV/Sales \text{ Ratio} = EV / Sales$