

Ratio analysis

- Is a method or process by which the relationship of items or groups of items in the financial statements are computed, and presented.
- Is an important tool of financial analysis.
- Is used to interpret the financial statements so that the strengths and weaknesses of a firm, its historical performance and current financial condition can be determined.

Ratio

- ‘A mathematical yardstick that measures the relationship between two figures or groups of figures which are related to each other and are mutually inter-dependent’.
- It can be expressed as a pure ratio, percentage, or as a rate

Words of caution

- A ratio is not an end in itself. They are only a means to get to know the financial position of an enterprise.
- Computing ratios does not add any information to the available figures.
- It only reveals the relationship in a more meaningful way so as to enable us to draw conclusions there from.

Utility of Ratios

- Accounting ratios are very useful in assessing the financial position and profitability of an enterprise.
- However its utility lies in comparison of the ratios.

Utility of Ratios

- Comparison may be in any one of the following forms:
- For the same enterprise over a number of years
- For two enterprises in the same industry
- For one enterprise against the industry as a whole
- For one enterprise against a pre-determined standard
- For inter-segment comparison within the same organisation

Classification of Ratios

Ratios can be broadly classified into four groups namely:

- Liquidity ratios
- Capital structure/leverage ratios
- Profitability ratios
- Activity ratios

Liquidity ratios

These ratios analyse the short-term financial position of a firm and indicate the ability of the firm to meet its short-term commitments (current liabilities) out of its short-term resources (current assets).

These are also known as 'solvency ratios'. The ratios which indicate the liquidity of a firm are:

- Current ratio
- Liquidity ratio or Quick ratio or acid test ratio

Current ratio

It is calculated by dividing current assets by current liabilities.

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

Conventionally a current ratio of 2:1 is considered satisfactory

CURRENT ASSETS

include –

Inventories of raw material, WIP, finished goods,
stores and spares,
sundry debtors/receivables,
short term loans deposits and advances,
cash in hand and bank,
prepaid expenses,
incomes receivables and
marketable investments and short term securities.

CURRENT LIABILITIES

include –

- sundry creditors/bills payable,
- outstanding expenses,
- unclaimed dividend,
- advances received,
- incomes received in advance,
- provision for taxation,
- proposed dividend,
- instalments of loans payable within 12 months,
- bank overdraft and cash credit

Quick Ratio or Acid Test Ratio

This is a ratio between quick current assets and current liabilities (alternatively quick liabilities).

It is calculated by dividing quick current assets by current liabilities (quick current liabilities)

Quick ratio = $\frac{\text{quick assets}}{\text{Current liabilities}/(\text{quick liabilities})}$ where

Conventionally a quick ratio of 1:1 is considered satisfactory.

QUICK ASSETS & QUICK LIABILITIES

QUICK ASSETS are current assets (as stated earlier)

less prepaid expenses and inventories.

QUICK LIABILITIES are current liabilities (as stated earlier)

less bank overdraft and incomes received in advance.

Capital structure/ leverage ratios

These ratios indicate the long term solvency of a firm and indicate the ability of the firm to meet its long-term commitment with respect to

- (ii) repayment of principal on maturity or in predetermined instalments at due dates and
- (iii) periodic payment of interest during the period of the loan.

Capital structure/ leverage ratios

The different ratios are:

- Debt equity ratio
- Proprietary ratio
- Debt to total capital ratio
- Interest coverage ratio
- Debt service coverage ratio

Debt equity ratio

This ratio indicates the relative proportion of debt and equity in financing the assets of the firm. It is calculated by dividing long-term debt by shareholder's funds.

Debt equity ratio = $\frac{\text{long-term debts}}{\text{Shareholders funds}}$ where

Generally, financial institutions favour a ratio of 2:1.

However this standard should be applied having regard to size and type and nature of business and the degree of risk involved.

LONG-TERM FUNDS are long-term loans whether secured or unsecured like – debentures, bonds, loans from financial institutions etc.

SHAREHOLDER'S FUNDS are equity share capital plus preference share capital plus reserves and surplus minus fictitious assets (eg. Preliminary expenses, past accumulated losses, discount on issue of shares etc.)

Proprietary ratio

This ratio indicates the general financial strength of the firm and the long-term solvency of the business.

This ratio is calculated by dividing proprietor's funds by total funds.

$$\text{Proprietary ratio} = \frac{\text{proprietor's funds}}{\text{Total funds/assets}} \quad \text{where}$$

As a rough guide a 65% to 75% proprietary ratio is advisable

PROPRIETOR'S FUNDS are same as explained in shareholder's funds

TOTAL FUNDS are all fixed assets and all current assets.

Alternatively it can be calculated as proprietor's funds plus long-term funds plus current liabilities.

Debt to total capital ratio

In this ratio the outside liabilities are related to the total capitalisation of the firm. It indicates what proportion of the permanent capital of the firm is in the form of long-term debt.

Debt to total capital ratio = long- term debt

Shareholder's funds + long- term debt

Conventionally a ratio of 2/3 is considered satisfactory.

Interest coverage ratio

This ratio measures the debt servicing capacity of a firm in so far as the fixed interest on long-term loan is concerned. It shows how many times the interest charges are covered by EBIT out of which they will be paid.

$$\text{Interest coverage ratio} = \frac{\text{EBIT}}{\text{Interest}}$$

A ratio of 6 to 7 times is considered satisfactory.

Higher the ratio greater the ability of the firm to pay interest out of its profits. But too high a ratio may imply lesser use of debt and/or very efficient operations

Debt service coverage ratio

This is a more comprehensive measure to compute the debt servicing capacity of a firm. It shows how many times the total debt service obligations consisting of interest and repayment of principal in instalments are covered by the total operating funds after payment of tax.

Debt service coverage ratio =

$$\frac{\text{EAT} + \text{interest} + \text{depreciation} + \text{other non-cash exp}}{\text{Interest} + \text{principal instalment}}$$

EAT is earnings after tax.

Generally financial institutions consider 2:1 as a satisfactory ratio.

Profitability ratios

These ratios measure the operating efficiency of the firm and its ability to ensure adequate returns to its shareholders.

The profitability of a firm can be measured by its profitability ratios.

Further the profitability ratios can be determined

- (i) in relation to sales and
- (ii) in relation to investments

Profitability ratios

Profitability ratios in relation to sales:

- gross profit margin
- Net profit margin
- Expenses ratio

Profitability ratios

Profitability ratios in relation to investments

- Return on assets (ROA)
- Return on capital employed (ROCE)
- Return on shareholder's equity (ROE)
- Earnings per share (EPS)
- Dividend per share (DPS)
- Dividend payout ratio (D/P)
- Price earning ratio (P/E)

Gross profit margin

This ratio is calculated by dividing gross profit by sales. It is expressed as a percentage.

Gross profit is the result of relationship between prices, sales volume and costs.

$$\text{Gross profit margin} = \frac{\text{gross profit} \times 100}{\text{Net sales}}$$

Gross profit margin

- A firm should have a reasonable gross profit margin to ensure coverage of its operating expenses and ensure adequate return to the owners of the business ie. the shareholders.
- To judge whether the ratio is satisfactory or not, it should be compared with the firm's past ratios or with the ratio of similar firms in the same industry or with the industry average.

Net profit margin

This ratio is calculated by dividing net profit by sales. It is expressed as a percentage.

This ratio is indicative of the firm's ability to leave a margin of reasonable compensation to the owners for providing capital, after meeting the cost of production, operating charges and the cost of borrowed funds.

Net profit margin =

$$\frac{\text{net profit after interest and tax}}{\text{Net sales}} \times 100$$

Net profit margin

Another variant of net profit margin is operating profit margin which is calculated as:

$$\text{Operating profit margin} = \frac{\text{net profit before interest and tax}}{\text{Net sales}} \times 100$$

Higher the ratio, greater is the capacity of the firm to withstand adverse economic conditions and vice versa

Expenses ratio

These ratios are calculated by dividing the various expenses by sales. The variants of expenses ratios are:

$$\text{Material consumed ratio} = \frac{\text{Material consumed}}{\text{Net sales}} \times 100$$

$$\text{Manufacturing expenses ratio} = \frac{\text{manufacturing expenses}}{\text{Net sales}} \times 100$$

$$\text{Administration expenses ratio} = \frac{\text{administration expenses}}{\text{Net sales}} \times 100$$

$$\text{Selling expenses ratio} = \frac{\text{Selling expenses}}{\text{Net sales}} \times 100$$

$$\text{Operating ratio} = \frac{\text{cost of goods sold plus operating expenses}}{\text{Net sales}} \times 100$$

$$\text{Financial expense ratio} = \frac{\text{financial expenses}}{\text{Net sales}} \times 100$$

Expenses ratio

The expenses ratios should be compared over a period of time with the industry average as well as with the ratios of firms of similar type. A low expenses ratio is favourable.

The implication of a high ratio is that only a small percentage share of sales is available for meeting financial liabilities like interest, tax, dividend etc.

Return on assets (ROA)

This ratio measures the profitability of the total funds of a firm. It measures the relationship between net profits and total assets. The objective is to find out how efficiently the total assets have been used by the management.

Return on assets =

$$\frac{\text{net profit after taxes plus interest}}{\text{Total assets}} \times 100$$

Total assets exclude fictitious assets. As the total assets at the beginning of the year and end of the year may not be the same, average total assets may be used as the denominator.

Return on capital employed (ROCE)

This ratio measures the relationship between net profit and capital employed. It indicates how efficiently the long-term funds of owners and creditors are being used.

Return on capital employed =

$$\frac{\text{net profit after taxes plus interest}}{\text{Capital employed}} \times 100$$

CAPITAL EMPLOYED denotes shareholders funds and long-term borrowings.

To have a fair representation of the capital employed, average capital employed may be used as the denominator.

Return on shareholders equity

This ratio measures the relationship of profits to owner's funds. Shareholders fall into two groups i.e. preference shareholders and equity shareholders. So the variants of return on shareholders equity are

$$\text{Return on total shareholder's equity} = \frac{\text{net profits after taxes} \times 100}{\text{Total shareholders equity}}$$

- **TOTAL SHAREHOLDER'S EQUITY** includes preference share capital plus equity share capital plus reserves and surplus less accumulated losses and fictitious assets. To have a fair representation of the total shareholders funds, average total shareholders funds may be used as the denominator

Return on ordinary shareholders equity =
$$\frac{\text{net profit after taxes} - \text{pref. dividend}}{\text{Ordinary shareholders equity or net worth}} \times 100$$

ORDINARY SHAREHOLDERS EQUITY OR NET WORTH includes equity share capital plus reserves and surplus minus fictitious assets.

Earnings per share (EPS)

This ratio measures the profit available to the equity shareholders on a per share basis. This ratio is calculated by dividing net profit available to equity shareholders by the number of equity shares.

Earnings per share =

net profit after tax – preference dividend

Number of equity shares

Dividend per share (DPS)

This ratio shows the dividend paid to the shareholder on a per share basis. This is a better indicator than the EPS as it shows the amount of dividend received by the ordinary shareholders, while EPS merely shows theoretically how much belongs to the ordinary shareholders

Dividend per share =

$$\frac{\text{Dividend paid to ordinary shareholders}}{\text{Number of equity shares}}$$

Dividend payout ratio (D/P)

This ratio measures the relationship between the earnings belonging to the ordinary shareholders and the dividend paid to them.

Dividend pay out ratio =

$$\frac{\text{total dividend paid to ordinary shareholders}}{\text{Net profit after tax – preference dividend}} \times 100$$

Net profit after tax – preference dividend

OR

$$\text{Dividend pay out ratio} = \frac{\text{Dividend per share}}{\text{Earnings per share}} \times 100$$

Price earning ratio (P/E)

This ratio is computed by dividing the market price of the shares by the earnings per share. It measures the expectations of the investors and market appraisal of the performance of the firm.

$$\text{Price earning ratio} = \frac{\text{market price per share}}{\text{Earnings per share}}$$

Activity ratios

These ratios are also called efficiency ratios / asset utilization ratios or turnover ratios. These ratios show the relationship between sales and various assets of a firm. The various ratios under this group are:

- Inventory/stock turnover ratio
- Debtors turnover ratio and average collection period
- Asset turnover ratio
- Creditors turnover ratio and average credit period

Inventory /stock turnover ratio

This ratio indicates the number of times inventory is replaced during the year. It measures the relationship between cost of goods sold and the inventory level. There are two approaches for calculating this ratio, namely:

$$\text{Inventory turnover ratio} = \frac{\text{cost of goods sold}}{\text{Average stock}}$$

AVERAGE STOCK can be calculated as

$$\frac{\text{Opening stock} + \text{closing stock}}{2}$$

Alternatively

$$\text{Inventory turnover ratio} = \frac{\text{sales}}{\text{Closing inventory}}$$

Inventory /stock turnover ratio

A firm should have neither too high nor too low inventory turnover ratio. Too high a ratio may indicate very low level of inventory and a danger of being out of stock and incurring high 'stock out cost'. On the contrary too low a ratio is indicative of excessive inventory entailing excessive carrying cost.

Debtors turnover ratio and average collection period

This ratio is a test of the liquidity of the debtors of a firm. It shows the relationship between credit sales and debtors.

Debtors turnover ratio =

$$\frac{\text{Credit sales}}{\text{Average Debtors and bills receivables}}$$

Average collection period =

$$\frac{\text{Months/days in a year}}{\text{Debtors turnover}}$$

Debtors turnover ratio and average collection period

These ratios are indicative of the efficiency of the trade credit management. A high turnover ratio and shorter collection period indicate prompt payment by the debtor. On the contrary low turnover ratio and longer collection period indicates delayed payments by the debtor.

In general a high debtor turnover ratio and short collection period is preferable.

Asset turnover ratio

Depending on the different concepts of assets employed, there are many variants of this ratio. These ratios measure the efficiency of a firm in managing and utilising its assets.

Total asset turnover ratio = $\frac{\text{sales/cost of goods sold}}{\text{Average total assets}}$

Fixed asset turnover ratio = $\frac{\text{sales/cost of goods sold}}{\text{Average fixed assets}}$

Capital turnover ratio = $\frac{\text{sales/cost of goods sold}}{\text{Average capital employed}}$

Working capital turnover ratio = $\frac{\text{sales/cost of goods sold}}{\text{Net working capital}}$

Asset turnover ratio

Higher ratios are indicative of efficient management and utilisation of resources while low ratios are indicative of under-utilisation of resources and presence of idle capacity.

Creditors turnover ratio and average credit period

This ratio shows the speed with which payments are made to the suppliers for purchases made from them. It shows the relationship between credit purchases and average creditors.

Creditors turnover ratio =

credit purchases

Average creditors & bills payables

Average credit period = months/days in a year

Creditors turnover ratio

Creditors turnover ratio and average credit period

Higher creditors turnover ratio and short credit period signifies that the creditors are being paid promptly and it enhances the creditworthiness of the firm.