

## CHAPTER 10

# Ratio Analysis

### LEARNING OBJECTIVES

*After reading this chapter, you should be able to*

- calculate profitability, liquidity, turnover and solvency ratios
- critically discuss the strengths and weaknesses of ratio analysis.

### MEANING

Ratio analysis is a financial statement analysis tool based on accounting data. It ascertains numerical relationship between various accounting terms to analyse financial performance with respect to different parameters like profitability, solvency (long-term and short-term), turnover, etc. It facilitates both intra and inter-firm comparison and allows the stakeholders to take informed decisions. They cover key performance areas for any business enterprise.

### ADVANTAGES OF RATIOS

Ratio analysis offers following advantages:

- It aids financial statement analysis.
- It facilitates intra-firm comparison and help chart trends.
- Ratios are relative concepts and therefore support inter-firm comparison.
- Ratios help in simplifying accounting terms by providing answers in percentages and times. It is the simplest tool of financial analysis for a layman.
- It checks and highlights the performance of an enterprise on key parameters of liquidity, profitability and growth.
- It identifies the points of concern for management and aids in decision making.
- It can be used as a forecasting tool.

# Ratio Analysis

## MEANING AND FORMS

Ratio is a numerical relationship between one item and another. Ratios are expressed in various forms as stated below :

- (a) **Pure ratio** : It is the simple division of one item by another, e.g., Ratio of Current Assets to Current liabilities and is shown as : Current Assets/ Current Liabilities = 4,000/2,000, i.e., Current assets to Current liabilities ratio is 2 to 1.
- (b) **Rate** : It is ratio between two numerical facts, e.g., stocks turnover is 6 times a year or current assets are two times the current liabilities.
- (c) **Percentage** : It is a special type of rate which expresses the relation in hundredth, e.g., the return on equity capital is 15% or gross margin on sales is 40 per cent of net sales.

In short, a particular ratio may be expressed as a common fraction, decimals or in percentage form. Thus, if the total revenues of an accounting period amount to ₹ 1,00,000 and the total of operating expenses, non-operating expenses and taxes, are ₹ 80,000, the ratio of expenses to revenues may be expressed as given below :

$$80,000/1,00,000 = 8 : 10$$

(i) The expenses are 8/10 of the revenues, (ii) the expenses are 80 per cent of total revenues, (iii) the ratio of expenses to revenues is 8 : 10 or 4 : 5, (iv) there are expenses of ₹ 8 for earning revenue of ₹ 10.

## ADVANTAGES OF RATIOS

The accounting ratios offer the following advantages :

- (i) **Help in financial statements analysis** : It is easy to understand the financial position of a business enterprise in respect of short term solvency, capital structure position etc., with the help of various ratios. The users can also gain by knowing the profitability ratios of the firm.

- (ii) **Help in simplifying accounting figures :** The single figures in terms of absolute amounts such ₹ 10 lakhs income, ₹ 50 lakhs sales etc. are not of much use. But they become important when relationships are established, say for example, between gross profit and sales or net profits and capital employed and so on.
- (iii) **Help in calculating the operating efficiency of the business enterprise :** Ratios enable the users of financial information to determine operating efficiency of a business firm by relating the profit figure to the capital employed for a given period.
- (iv) **Help in locating weak points of the firm :** Ratio analysis would pin point the deficiency of various departments, or branches of a business unit even though the overall performance is satisfactory.
- (v) **Help in inter-firm and inter-period comparisons :** A firm can compare its results not only with other firms in the same industry but also its own performance over a period of time with the help of ratio analysis.
- (vi) **Help in forecasting :** Accounting ratios calculated and tabulated for a number of years enable the users of financial information to determine the future results on the basis of past trends.

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### SIGNIFICANCE OF RATIO ANALYSIS

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The ratio analysis is an important tool of financial analysis for different users of the financial or accounting information. Ratios present the facts on a comparative basis by relating one set of figures with other set of figures either in the same financial statement, e.g., income statement or balance sheet or figures of different financial statements, that is, income statement and the balance sheet.

**The importance of ratio analysis can be summarised by emphasising its impact on different users as given below:**

- (i) **Liquidity position :** The short-term creditors are more interested in the liquidity position of the firm in the sense that their money would be repaid on due dates. The ability of the firm to pay short-term obligations like interest on short term loan or the principal amount can be found by computing liquidity ratios, e.g., current ratio and quick ratio.
- (ii) **Long-term solvency :** This is required by long-term creditors, security analysts and the present and potential shareholders of the company. These persons can know with the help of capital structure ratios such as debt-equity ratio, leverage ratio, profitability ratios, etc. what sources of long-terms funds are employed, and what is their relative position, i.e., percentage of various sources of finance. They can also focus on the earning power of the company in order to find out the interest payment position and also the repayment of the principal amount.

- (iii) **Operating efficiency** : This aspect of ratio analysis is important for management which can determine how effectively the assets are being used. **Activity ratios** such as stock turnover, debtors turnover, fixed assets turnover etc., are all helpful in assessing the operational efficiency. In fact the solvency of the firm is dependent upon the sales income generated from the use of various assets. The management can use these ratios with the standard ratios by comparing the ratios of the current year with those of the past periods and by comparing the ratios of the firm with those of other firms in the same industry.
- (iv) **Overall profitability** : Different users of accounting information make use of specific ratios to meet or satisfy their requirements. But the management is always interested in the overall profitability and efficiency of the business enterprise. For example, it has to be careful about the ability of the firm to pay the short-term creditors as well as long-term creditors. Further, the firm has to ensure a reasonable rate of return to the shareholders and also the optimum utilisation of its assets.
- (v) **Trend analysis** : Ratio analysis is important not for the current period but what has happened in the past. It can be found whether the financial position has been improving or worsening or has remained constant over the years. **This is possible by making use of trend analysis of ratios for a number of years.** Trend analysis will guide the analyst to know whether the movement is favourable or unfavourable. For example, the profitability position of the firm may be favourable for the present, it has definitely declined when compared with the past.

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### LIMITATIONS OF RATIO ANALYSIS

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The ratio analysis is not a fool-proof method in financial statements analysis. In spite of many good points, it suffers from a number of limitations which arise from the nature of financial information itself. Some of the important limitations are given below :

1. **Ratios ignore qualitative factors** : The ratios are obtained from the figures expressed in money. In this way, qualitative factors, which may be important, are ignored. For instance, it is just possible that the financial position of a firm may be quite satisfactory in terms of money, yet it may not be desirable to extend credit because of inefficient management in the matter of payments on due dates.
2. **Trends and not the actual ratios** : The different ratios calculated from the financial statements of a business enterprise for one single year are of limited value. It would be more useful to calculate the important figures in respect of income, dividends, working capital etc. for a

- number of years. Such trends are more useful than absolute ratios.
3. **Defective accounting information :** The ratios are calculated from the accounting data in the financial statements. It means that defective information would give wrong ratios. Thus, the deliberate omission such as omitting purchases, would positively affect the ratios too.
  4. **Change in accounting procedures :** A comparison of results of two firms becomes difficult when we find that these firms are using different procedures in respect of certain items such as inventory valuation, treatment of intangible items like goodwill, capitalisation of certain expenditures like interest on the loan taken to buy an asset etc..
  5. **Variations in general operating conditions :** While interpreting the results based on ratio analysis, all business enterprises have to work within given general economic conditions, conditions of the industry in which the firms operate and the position of individual companies within the industry. For example, if the firm has been forced by the Government to sell its products at fixed prices, its comparison with other firms would become impossible.
  6. **Ratios are sometimes misleading :** Ratios must not be generally studied separately from the absolute figures, otherwise the results may be misleading. For example, if the output of one firm goes up from 4,000 units to 8,000 units, the ratio would show a 100% increase. On the other hand, if the second firm increases its output from 10,000 units to 15,000 units, the ratio would reflect an increase of only 50%. On the basis of ratios, we find that first firm is more active than second though in terms of absolute figures, the contribution of second firm is more than the first.
  7. **Ratios and price level changes :** The changes in the level of prices may affect the comparison of figures for distant years. Assuming the level of activity to be same for two periods, say 2000 and 2010, it can be shown that the ratio of the period, say, sales to fixed assets, would be different. The reason is that the volume of sales may go up in terms of rupee value due to increase in prices in 2010 while the value of fixed assets shall be arrived at after providing depreciation from 2000 to 2010.
  8. **Single ratio not sufficient :** It is very necessary to take into account the combined effect of the various ratios so that the results are correctly interpreted regarding the financial condition and earning performance of the business. Each ratio plays a part in the interpretation process.
  9. **The use of standard ratios :** The financial statements represent historical data and therefore the ratios based on them would only disclose what happened in the past. The utility of the ratios is increased

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Ratios  
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Liquidity  
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when they are compared with budgeted or standard ratios.

10. **Ratios only a first step :** Ratios are only a first step for analysis and interpretation of financial statements and must be supplemented by thorough investigation before conclusions can be drawn from them.

## CLASSIFICATION OF RATIOS

The classification of ratios is as follows:

1. Liquidity Ratios

- (a) Current ratio
- (b) Acid test ratio
- (c) Cash ratio

2. Activity Ratios

- (a) Capital turnover ratio
- (b) Asset turnover ratio
- (c) Net working capital turnover ratio
- (d) Inventory turnover ratio
- (e) Debtors turnover ratio

3. Profitability Ratios

(a) Related to investments

- (i) Earnings margin
- (ii) Return on capital employed
- (iii) Return on equity shareholders' fund
- (iv) Return on total assets

(b) Related to sales

- (i) Gross profit ratio
- (ii) Net profit ratio
- (iii) Operating ratio
- (iv) Operating profit ratio

4. Capital Structure/ Gearing Analysis/ Solvency Ratios

- (a) Debt equity ratio
- (b) Interest coverage ratio
- (c) Proprietary ratio

5. Market Strength Analysis

- (a) Earnings per share
- (b) Dividend per share
- (c) Gross dividend yield
- (d) Dividend cover
- (e) Payout ratio
- (f) Dividends to cash flow
- (g) Price earnings ratio
- (h) Net asset value per share
- (i) Cash flow per share

## LIQUIDITY RATIOS

Liquidity or short-term solvency analysis aims to determine the ability of a business to meet its financial obligations during the short-term and to maintain its short-term debt-paying ability. The aim of liquidity analysis for a company is to have adequate funds on hand to pay bills when they are due and to meet unexpected needs for cash. If a business enterprise cannot maintain its short-term debt paying ability, obviously it cannot maintain a long-term debt-paying ability or long-term solvency. Shareholders will not be satisfied with such a state of affairs of the company. Even a business enterprise on a very profitable course will find itself bankrupt if it fails to meet its obligations to short-term creditors.

Liquidity analysis mainly focuses on balance sheet relationships that indicate the ability of a business to liquidate current and non-current liabilities. The ratios that evaluate liquidity relate to working capital or some part of it, because it is out of working capital that debts are paid as they mature. The comparisons and ratios that evaluate liquidity relate to working capital or some part of it, because it is out of working capital that debts are paid as they mature. The comparisons and ratios related to evaluating liquidity or short-term solvency are as follows:

### **Current Ratio**

It is also referred to as working capital ratio and banker's ratio. Current ratio expresses the relationship of current assets and current liabilities. It is widely used as a broad indicator of a company's liquidity and short-term debt-paying ability. The current ratio formula is as follows:

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Current ratio is more dependable indicator of solvency than is working capital. For many years, the guideline for the minimum current ratio has been 2:1. The assumption is even if the value of current assets declines 50%, the firm can still pay its current liabilities. But nowadays there has been a decline in the liquidity of many firms. It can be said that in some industries, a current ratio substantially below 2 is adequate, while some other industries may require a ratio much larger than 2. In general, the shorter the operating cycle, the lower the normal current ratio. The longer the operating cycle, higher the normal current ratio. A higher current ratio enables a firm to pay-off current obligations and provides adequate margin of safety to the creditors.

A company's current ratio can be compared with the company's past current ratios and with the industry average as well. Such comparisons can help in determining if the current ratio is high or low, at this period of time. However, the comparisons do not indicate why the current ratio is high or low. Possible reasons for unsatisfactory current ratio can be found from an analysis of the individual accounts and items that make up the current assets and current liability.

**Example:** The following are the current assets and current liabilities in respect of the two companies, Company X and Company Y.

	Company X (₹)	Company Y (₹)
Current Assets	4,50,000	1,60,000
Current Liabilities	1,50,000	80,000

The current ratio will be as follows:

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

	Company X (₹)	Company Y (₹)
Current ratio	4,50,000/1,50,000 = 3.1	1,60,000/80,000 = 2.1

#### Acid Test ratio or Quick ratio

The current ratio is generally used to evaluate an enterprise's overall short-term solvency or liquidity position. The current ratio does not take into account the makeup or composition of current assets. For example, a rupee of cash or debtor is considered more readily available to meet obligations than the amount stuck in the form of inventory. The quick ratio addresses this issue and segregates near liquid assets from total current assets. Cash, marketable securities or short-term investments, receivables are included within the meaning of most liquid assets; inventory is excluded. The acid test ratio is as follows:

✓ Acid Test Ratio =  $\frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}}$

It may be preferable to have a better view of liquidity by excluding some other items in current assets that may not represent relatively current cash flow. Examples of items to be excluded are prepaids and miscellaneous items such as assets held for sale. This is considered as a more conservative manner of computing the acid test ratio and the formula of acid test ratio in this situation will be as follows:

✓ Acid Test Ratio =  $\frac{\text{Cash} + \text{Marketable Securities} + \text{Net receivables and Debtors}}{\text{Current Liabilities}}$

Inventory should be removed from current assets when computing the acid test ratio due to the reasons that inventory may be slow moving or possibly obsolete and parts of the inventory may have been pledged to specific creditors. For example, a winery has inventory that requires considerable time for aging and therefore a considerable time before sale. To include the wine inventory in the test computation would overstate the liquidity. There is also a valuation problem with inventory,

because it is stated as a cost figure that is likely to be materially different from a fair current valuation. In summary, inventory should be left out of the computation because of possible misleading liquidity indications.

The usual benchmark for acid test ratio is 1.00. However, some industries may find that a ratio less than 1.00 is adequate, while other need a ratio greater than 1.00. For example, a typical grocery store sells only for cash and therefore does not have receivables. This type of business can have an acid test substantially below the 1.00 guideline and still have adequate liquidity.

**Example:** A firm has the following current assets and current liabilities.

	₹
Debtors	5,000
Inventory	20,000
Cash	5,000
Total Current Assets	30,000
Total Current Liabilities	20,000

$$\begin{aligned} \text{Acid Test Ratio} &= \frac{\text{Quick Assets}}{\text{Current Liabilities}} \\ &= \frac{10,000}{20,000} = 0.5:1 \end{aligned}$$

#### Cash Ratio

Liquidity of a firm can be viewed from an extremely conservative point of view and the short-term liquidity of a company may be measured through cash ratio. The cash ratio relates cash and marketable securities to current liabilities. The cash ratio is computed as follows:

$$\text{Cash Ratio} = \frac{\text{Cash} + \text{Marketable Securities}}{\text{Current Liabilities}}$$

Cash ratio is not given much importance unless a firm is in deep financial trouble. It is not considered pragmatic to expect a business enterprise to have enough cash and marketable securities to cover current liabilities. However, in the case of very slow moving inventories and receivables and highly speculative companies, cash ratio is of great importance. A high cash ratio indicates that a business enterprise is not using its cash resources to best advantage. A low cash ratio reflects an immediate problem with paying bills.

(a) prices) have distortions and become defective. Sometimes, gains (reflected through ratios) over time in sales, net income and other key figures disappear when the accounting data are adjusted for change in price levels.

- Accounting ratios are not totally dependable and they must be used after giving due weightage to general economic conditions, industry situation, position of firms within the industry, mode of operations, size of firms, diversity of product which can make the business enterprises completely dissimilar and thus, affect the computation of accounting ratios
- The different methods of computation also influence the utility of accounting ratios. The different concepts used for determining numerator and denominator in a particular accounting ratio will not help in drawing reliable conclusions even in identical situations.

## PRACTICAL PROBLEMS

✓ **Problem 1.** The working capital of Herald Ltd. has deteriorated in recent years and currently has the following status:

Current Assets	Amount (₹)
Inventory	5,60,000
Trade Receivables	3,50,000
Cash at Bank	70,000
	<hr/>
	9,80,000

### Current Liabilities

Trade Payables

Outstanding Liabilities

4,90,000
2,10,000
<b>7,00,000</b>

- (a) Compute the current ratio and quick ratio.
- (b) An additional short-term bank loan of ₹ 50,000 is also under consideration. Calculate revised current ratio and quick ratio assuming the loan is received.
- (c) There is also a negotiation going on for discounting the debtors of ₹ 3,50,000 for ₹ 3,15,000 a collection agency for immediate cash. Also obsolete stocks worth ₹ 1,25,000 are being sold for ₹ 80,000. Of the cash to be realized by the two transactions, the current liabilities are to be reduced to ₹ 1,00,000, Calculate the current ratio after these transactions are put through.

**Solution:**

#### Current Ratio

$$(a) = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

$$= \frac{9,80,000}{7,00,000}$$

$$= 1.4$$

$$(b) = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

$$= \frac{9,80,000}{7,50,000}$$

$$= 1.3$$

$$(c) \text{Revised Inventory} = 5,60,000 - 1,25,000 = 4,35,000$$

$$\text{Revised Trade Receivables} = 3,50,000 - 3,50,000 = 0$$

$$\text{Revised Cash} = 70,000 + 3,15,000 + 80,000 - 1,10,000 = 3,55,000$$

$$\text{Revised Current Assets} = 4,35,000 + 0 + 3,55,000 = 7,90,000$$

$$\text{Revised Current Liabilities} = 4,90,000 + 1,00,000 = 5,90,000$$

#### Quick Ratio

$$= \frac{\text{Liquid Assets (Debtors + Cash) Trade Receivables}}{\text{Current Liabilities}}$$

$$= \frac{4,20,000}{7,00,000}$$

$$= 0.6$$

$$= \frac{\text{Liquid Assets}}{\text{Current Liabilities}}$$

$$= \frac{4,20,000}{7,50,000}$$

$$= 0.6$$

$$\text{New Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

$$= \frac{7,90,000}{5,90,000} = 1.34$$