33

ACCOUNTING RATIOS - II

You have learnt in the previous lesson that accounting ratios can be classified into four major groups viz. liquidity ratios, activity ratios, solvency ratios and profitability ratios. You have already learnt the meaning, computations and significance of liquidity and activity ratios. In this lesson, you will learn about the various solvency ratios and profitability ratios.

OBJECTIVES

After studying this lesson you will be able to :

- explain various types of accounting ratios i.e. solvency and profitability;
- calculate the various ratios on the basis of given information;
- describe the limitations of accounting ratios.

33.1 SOLVENCY RATIOS

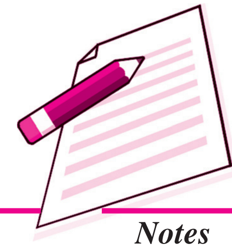
The term 'solvency' refers to the ability of a concern to meet its long term obligations. The long-term liability of a firm is towards debenture holders, financial institutions providing medium and long term loans and other creditors selling goods on credit. These ratios indicate firm's ability to meet the fixed interest and its costs and repayment schedules associated with its long term borrowings.

The following ratios serve the purpose of determining the solvency of the business firm.

- Debt equity Ratio
- Proprietary Ratio

Debt-equity Ratio

It is also otherwise known as external to internal equity ratio. It is calculated to know the relative claims of outsiders and the owners against the firm's assets. This ratio



establishes the relationship between the outsiders funds and the shareholders funds. Thus,

$$\text{Debt-equity Ratio} = \frac{\text{Outsiders' Funds}}{\text{Shareholders' Funds}}$$

The two basic components of the ratio are outsiders' funds and shareholders' funds. The outsiders' funds include all debts/liabilities to outsiders i.e. debentures, long term loans from financial institutions, etc. Shareholders' funds mean preference share capital, equity share capital, reserves and surplus and fictitious assets like preliminary expenses. This ratio indicates the proportion between shareholders' funds and the long-term borrowed funds. In India, this ratio may be taken as acceptable if it is 2 : 1. If the debt-equity ratio is more than that, it shows a rather risky financial position from the long term point of view.

Significance

The purpose of debt equity ratio is to derive an idea of the amount of capital supplied to the concern by the proprietors. This ratio is very useful to assess the soundness of long term financial position of the firm. It also indicates the extent to which the firm depends upon outsiders for its existence. A low debt equity ratio implies the use of more equity than debt.

Illustration 1

From the following, calculate the debt-equity ratio

	₹
Equity Shares Capital	1,00,000
General Reserve	45,000
Accumulated Profits	30,000
Debentures	75,000
Sundry trade creditors	40,000
Outstanding expenses	10,000

Solution :

$$\text{Debt-equity Ratio} = \frac{\text{Debt (Total Long term Loans)}}{\text{Equity (Shareholders Funds)}}$$

$$= \frac{₹75,000}{₹1,75,000} = 3 : 7$$

Working Notes : Shareholders' Fund = Equity Share Capital + Reserves + Accumulated Profits

(i) ₹ 1,00,000 + ₹ 45,000 + ₹ 30,000 = ₹ 1,75,000

(ii) Long term debt = Debentures = ₹ 75,000

Illustration 2

Calculate the debt-equity ratio from the following data :

Total Assets ₹1,20,000. Total debts ₹1,00,000 current liabilities ₹ 60,000.

Solution :

Calculation of debt-equity ratio

Long Term Debt = Total debt – current liabilities

= ₹ 1,00,000 – ₹ 60,000

= ₹ 40,000

Shareholders' Fund = Total Assets – total debt

= ₹ 1,20,000 – ₹ 1,00,000

= ₹ 20,000

$$\text{Debt Equity Ratio} = \frac{\text{Debt (Total Long term Loans)}}{\text{Equity (Shareholders Funds)}}$$

$$= \frac{₹45{,}000}{₹20{,}000} = 2$$

Proprietory Ratio

It is also known as equity ratio. This ratio establishes the relationship between shareholders' funds to total assets of the firm. The shareholders' funds is the sum of equity share capital, preference share capital, reserves and surpluses. Out of this amount, accumulated losses should be deducted. On the other hand, the total assets mean total resources of the concern. The ratio can be calculated as under:

$$\boxed{\text{Proprietory Ratio} = \frac{\text{Shareholders' Funds}}{\text{Total Assets}}}$$

Significance

Proprietary ratio throws light on the general financial position of the enterprise. This ratio is of particular importance to the creditors who can ascertain the proportion of shareholders' funds in the total assets employed in the firm. A high ratio shows that there is safety for creditors of all types. Higher the ratio, the better it is for concern.

A ratio below 50% may be alarming for the creditors since they may have to lose heavily in the event of company's liquidation on account of heavy losses.

Illustration 3

From the following calculate the proprietary ratio :

	₹
Equity share capital	1,00,000
Preference share capital	50,000
Reserves and surpluses	25,000
Debentures	60,000
Creditors	15,000
Total	2,50,000
Fixed assets	1,25,000
Current Assets	50,000
Investment	75,000
Total	2,50,000

Solution :

$$\text{Proprietary Ratio} = \frac{\text{Shareholders' Funds}}{\text{Total Assets}}$$

$$= \frac{\text{Equity Share Capital} + \text{Preference Share Capital} + \text{Reserve \& Surpluses}}{\text{Total Asset}}$$

$$= \frac{₹1,75,000}{₹2,50,000} = 0.7 \text{ or } 70\%$$

Interest Coverage Ratio

This ratio establishes the relationship between Net Profit before Interest and Tax and Interest on long-term debts. It is calculated as follows :

$$\text{Interest Coverage Ratio} = \frac{\text{Net Profit before Interest and Tax}}{\text{Interest on Long-term Debts}}$$

Illustration 4

X Ltd. has a 10% long-term loan of ₹ 20,00,000. Its net profit before interest and tax was ₹ 9,00,000. Calculate interest coverage ratio.

$$\text{Interest Coverage Ratio} = \frac{\text{Net Profit before Interest and Tax}}{\text{Interest on Long-term Debts}}$$

Notes

Net profit before interest and tax = 9,00,000

Interest on long term loan = $\frac{10}{100} \times 20,00,000 = 2,00,000$

$\therefore$ Interest Coverage ratio = $\frac{9,00,000}{2,00,000} = 4.5$ times

Significance

This ratio is very useful to the long term lending agencies like debenture holders and lenders of long term funds as it indicates the number of times the interest on long term funds is covered by profits. A high ratio is considered better for the lenders because it provides higher safety margin.

INTEXT QUESTIONS 33.1

Fill in the blanks with suitable word/words/figures :

(i) Debt equity ratio = ...

(i) .... ratio measures the long term obligation of a firm.

(iii) .... = $\frac{\text{Shareholders' Funds}}{\text{Total Assets}}$

(iv) Debt equity ratio = $\frac{2,00,000}{3,00,000}$ = ...

33.2 PROFITABILITY RATIOS

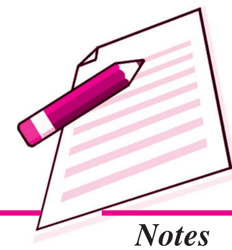
The main aim of an enterprise is to earn profit which is necessary for the survival and growth of the business enterprise. It is earned with the help of amount invested in business. It is necessary to know how much profit has been earned with the help of the amount invested in the business. This is possible through profitability ratios. These ratios examine the current operating performance and efficiency of the business concern. These ratios are helpful for the management to take remedial measures if there is a declining trend. The important profitability ratios are :

(i) Gross Profit Ratio

(ii) Net Profit Ratio

(iii) Operating Profit Ratio

(iv) Return on Investment Ratio



Notes

(i) Gross Profit Ratio

It expresses the relationship of gross profit to revenue from operations (net sales). It is expressed in percentage. It is computed as

$$\text{Gross Profit Ratio} = \frac{\text{Gross Profit}}{\text{Revenue from Operations (Net Sales)}} \times 100$$

where,

Net Sales = Total sales – (sales returns + excise duty)

Gross Profit = Revenue from operations – Cost of revenue from operations

Significance

Gross profit ratio shows the margin of profit. A high gross profit ratio is a great satisfaction to the management. It represents the low cost of revenue from operations. Higher the rate of gross profit, lower the cost of revenue from operations.

Illustration 5

From the following detail of a business concern ascertain the gross profit ratio:

Details	*2013* (₹)	*2014* (₹)
Revenue from operations (sales)	120,000	160,000
Gross profit	40,000	60,000

Solution :

2013 $\quad \text{Gross Profit Ratio} = \frac{₹\ 40,000}{₹\ 1,20,000} \times 100 = 33.33\%$

2014 $\quad \text{Gross Profit Ratio} = \frac{₹\ 60,000}{₹\ 1,60,000} \times 100 = 37.5\%$

Illustration 6

Calculate the gross profit ratio from the following data :

Sales ₹ 3,25,000 sales returns ₹ 25,000 and cost of revenue from operations ₹ 2,40,000.

Solution :

$$\text{Gross Profit Ratio} = \frac{\text{Gross Profit}}{\text{Revenue from Operations (Net Sales)}} \times 100$$

Gross Profit = Net sales – Cost of revenue from operations

$$= \quad 300{,}000 - 2{,}40{,}000 = 60{,}000$$

$$\text{Gross Profit Ratio} = \frac{₹\ 60{,}000}{₹\ 3{,}00{,}000} \times 100 = 20\%$$

Note : Net Sales = Sales - Sales return = 3,25,000 - 25,000 = ₹ 3,00,000

(ii) Net Profit Ratio

A ratio of net profit to revenue from operations (sales) is called Net profit ratio. It indicates sales margin on sales. This is expressed as a percentage. The main objective of calculating this ratio is to determine the overall profitability. The ratio is calculated as:

$$\boxed{\text{Net Profit Ratio} = \frac{\text{Net Profit}}{\text{Revenue from Operations (Net Sales)}} \times 100}$$

Significance

Net profit ratio determines overall efficiency of the business. It indicates the extent to which management has been effective in reducing the operational expenses. Higher the net profit ratio, better it is for the business.

Illustration 7

Calculate Net profit ratio from the following :

Net Profit	₹ 45,000
Sales	₹ 6,40,000
Sales Returns	₹ 40,000

Solution :

$$\text{Net Profit Ratio} = \frac{\text{Net Profit}}{\text{Revenue from Operations (Net Sales)}} \times 100$$

$$\text{Net Sales} = \text{Sales} - \text{Sales returns}$$

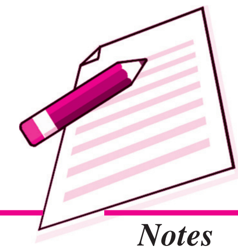
$$= ₹\ 640{,}000 - ₹\ 40{,}000 = ₹\ 600{,}000$$

$$\text{Net profit ratio} = \frac{₹\ 45{,}000}{₹\ 6{,}00{,}000} \times 100 = 7.5\%$$

Illustration 8

Calculate gross profit ratio and net profit ratio from the following figures.

Revenue from operations (Sales)	₹ 1,50,000
Cost of revenue from operations	₹ 1,20,000
Operating expenses	₹ 12,000



Notes

Solution :

$$\text{Gross Profit Ratio} = \frac{\text{Gross Profit}}{\text{Revenue from Operations (Net Sales)}} \times 100$$

$$\text{Gross Profit} = \text{Sales} - \text{Cost of revenue from operations}$$

$$= ₹\,150{,}000 - ₹\,120{,}000$$

$$= ₹\,30{,}000$$

$$\text{Gross Profit Ratio} = \frac{₹\,30{,}000}{₹1{,}50{,}000} \times 100 = 20\%$$

$$\text{Net Profit Ratio} = \frac{\text{Net Profit}}{\text{Revenue from Operations (Net Sales)}} \times 100$$

$$\text{Net Profit} = \text{Gross Profit} - \text{Operating Expenses}$$

$$= ₹\,30{,}000 - ₹\,12{,}000$$

$$= ₹\,18{,}000$$

$$\text{Net Profit Ratio} = \frac{₹\,18{,}000}{₹\,1{,}50{,}000} \times 100 = 7.5\%$$

(iii) Operating Profit Ratio

Operating profit is an indicator of operational efficiencies. It reveals only overall efficiency. It establishes relationship between operating profit and revenue from operation (net sales). This ratio is expressed as a percentage. It is calculated as:

$$\text{Operating Profit Ratio} = \frac{\text{Operating Profit}}{\text{Revenue from Operations (Net Sales)}} \times 100$$

$$\text{Operating Profit} = \text{Gross Profit} - (\text{Administration expenses} + \text{selling expenses})$$

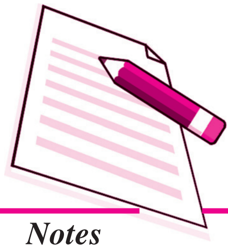
Significance

It helps in examining the overall efficiency of the business. It measures profitability and soundness of the business. Higher the ratio, the better is the profitability of the business. This ratio is also helpful in controlling cash.

Illustration 9

From the following details of a business concern ascertain the operating profit ratio

Details	*2013* ₹	*2014* ₹
Revenue from Operations (Sales)	60,000	80,000



Notes

Interest on Debentures	1,000	2,000
Net Profit	3,800	6,000

Solution :

2013

Net profit before interest = Net profit + Interest

= ₹ 3,800 + ₹ 1,000

= ₹ 4,800

Operating Profit Ratio $= \dfrac{\text{Operating Profit}}{\text{Revenue from Operations (Net Sales)}} \times 100$

Operating Profit Ratio $= \dfrac{₹\ 4{,}800}{₹\ 60{,}000} \times 100 = 8\%$

2014

Net Profit before Interest = ₹ 6,000 + ₹ 2,000

= ₹ 8000

Operating Profit Ratio $= \dfrac{\text{Operating Profit}}{\text{Revenue from Operations (Net Sales)}} \times 100$

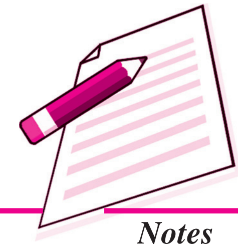
Operating Profit Ratio $= \dfrac{₹\ 8{,}000}{₹\ 80{,}000} \times 100 = 10\%$

Some firms take profit before tax but usually companies take profit after tax.

Illustration 10

Calculate operating profit ratio from the following data :

	₹
Revenue from Operation (Sales)	3,00,000
Gross profit	1,20,000
Administration expenses	35,000
Selling and distribution expenses	25,000
Income on investment	15,000
Loss by fire	9,000



Notes

Solution :

$$\text{Operating Profit Ratio} = \frac{\text{Operating Profit}}{\text{Revenue from Operations (Net Sales)}} \times 100$$

$$= \frac{₹\ 60{,}000}{₹\ 3{,}00{,}000} \times 100 = 20\%$$

Note : Operating Profit = Gross profit – (Administration expenses + Selling expenses)

$$= ₹\ 1{,}20{,}000 – (₹\ 35{,}000 + ₹\ 25{,}000)$$

$$= ₹\ 1{,}20{,}000 – ₹\ 60{,}000$$

$$= ₹\ 60{,}000$$

INTEXT QUESTIONS 32.2

Fill in the blanks with suitable word/words :

(i) Gross profit ratio = ... X 100

(ii) .... = $\dfrac{\text{Operating Profit}}{\text{Net Sales}} \times 100$

(iii) Name the ratios that relate to the profitability of a business concern ....

33.3 LIMITATIONS OF ACCOUNTING RATIOS

Accounting ratios are very significant in analysing the financial statements. Through accounting ratios, it will be easy to know the true financial position and financial soundness of a business concern. However, despite the advantages of ratio analysis, it suffers from a number of limitations. The following are the main limitations of accounting ratios.

- **Ignorance of Qualitative Aspect :** The ratio analysis is based on quantitative aspect. It totally ignores qualitative aspect which is sometimes more important than quantitative aspect.
- **Ignorance of Price Level Changes :** Price level changes make the comparison of figures difficult over a period of time. Before any comparison is made, proper adjustments for price level changes must be made.
- **No Single Concept :** In order to calculate any ratio, different firms may take different concepts for different purposes. Some firms take profit before charging interest and tax or profit before tax but after interest tax. This may lead to different results.

Notes

- **Misleading Results if based on Incorrect Accounting Data :** Ratios are based on accounting data. They can be useful only when they are based on reliable data. If the data are not reliable, the ratio will be unreliable.
- **No Single Standard Ratio for Comparison :** There is no single standard ratio which is universally accepted and against which a comparison can be made. Standards may differ from Industry to industry.
- **Difficulties in Forecasting :** Ratios are worked out on the basis of past results. As such they do not reflect the present and future position. It may not be desirable to use them for forecasting future events.

WHAT YOU HAVE LEARNT

- The term solvency ratio means ability of a concern to meet its long-term obligations. The solvency ratios are :

  Debt-equity ratio

  Proprietary ratio
- The purpose of debt equity ratio is to derive an idea of the amount of capital supplied to the concern by the proprietary.

$$\text{Debt Equity Ratio} = \frac{\text{Outsiders' Fund}}{\text{Shareholders' Fund}} \quad \text{or} \quad \frac{\text{Debt}}{\text{Equity}}$$

- Proprietary ratio establishes relationship between shareholders' funds to total assets of the firm

$$\text{Proprietary Ratio} = \frac{\text{Shareholders' Funds}}{\text{Total Assets}}$$

- Profitability ratio assesses the overall efficiency of the business concern.
- Important profitability ratios are :

$$\text{Gross Profit Ratio} = \frac{\text{Gross Profit}}{\text{Revenue from Operations (Net Sales)}} \times 100$$

$$\text{Net Profit Ratio} = \frac{\text{Net Profit}}{\text{Revenue from Operations (Net Sales)}} \times 100$$

$$\text{Operating Profit Ratio} = \frac{\text{Operating Profit}}{\text{Revenue from Operations (Net Sales)}} \times 100$$

- Limitations of accounting ratios are
  - ignorance of price level changes
  - ignorance of qualitative factors
  - no single concept
  - misleading result if based on incorrect accounting data
  - difficulties in forecasting

Notes

TERMINAL EXERCISE

1. Explain solvency ratios in brief.
2. What are profitability ratios? Explain the ratios in brief.
3. What are the limitations of ratio analysis?
4. What is meant by gross profit and net profit ratio?
5. From the following data, calculate (a) Gross profit ratio (b) Net profit ratio.

	₹
Revenue from operations (Sales)	25,20,000
Cost of revenue from operations	19,20,000
Net profit	3,60,000

6. Total assets ₹ 12,50,000, Total debt ₹ 10,00,000 current labilities ₹ 500,000. Calculate debt-equity ratio.
7. Following figures have been obtained from the statement of Profit and Loss of M/s Bunu Ltd. for the year 31st December, 2013.

	₹		₹
Opening Inventory	100000	Revenue from operations	560000
Purchases	350000	Closing Inventory	100000
Wages	9000	Administrative expenses	20000
Salary and administrative expense	89000	Interest on investment	10000
Non-operating expenses	30000	Profit on sale of investment	8000

You are required to calculate (a) Gross profit ratio (b) Net profit ratio (c) Operating profit ratio.

8. Following particulars pertaining to assets and liabilities of XYZ Ltd. are given:

Liabilities	*Amount (₹)*	*Assets*	*Amount (₹)*
Equity share capital	250000	Land and Building	450000
Preference share capital	200000	Plant	400000
Reserves	200000	Inventory	150000
Debentures	300000	Sundry debtors	100000
Current liabilities	200000	Cash	45000
		Prepaid expenses	5000

Calculate (a) debt equity ratio (b) proprietory ratio.

ANSWERS TO INTEXT QUESTIONS

33.1 (i) $\frac{\text{Outsiders' Fund}}{\text{Shareholders' Fund}}$ (ii) Solvency

(iii) Proprietary ratio (iv) 2 : 3

33.2 (i) $\frac{\text{Gross Profit}}{\text{Net Sales}}$ (ii) Operating profit ratio

(iii) Gross profit ratio, Net profit ratio, Return on investments, operating profit ratio

ANSWERS TO TERMINAL EXERCISE

5. (a) 23.8% (b) 14.29%
6. 2 : 1
7. (a) 35.89%, (b) 14.29% (c) 16.43%
8. (a) 0.46 : 1, (b) 56.52 : 1

ACTIVITY

Visit the office of a stock broker in the nearby market and ask annual report of two joint stock companies. Study the Banace Sheets of the two companies and compute the following ratios :

(a) Debt Equity Ratio (b) Gross Profit Ratio (c) Net Profit Ratio

Compare and comment on the profitability and solvency efficiency of the two companies.