

- LEARNING OBJECTIVES**
After studying this chapter, you will be able to :
- *Explain the meaning, objectives and limitations of analysis using accounting ratios;*
 - *Identify the various types of ratios commonly used ;*
 - *Calculate various ratios to assess solvency, liquidity, efficiency and profitability of the firm;*
 - *Interpret the various ratios calculated for intra-firm and inter-firm comparisons.*

Financial statements aim at providing financial information about a business enterprise to meet the information needs of the decision-makers. Financial statements prepared by a business enterprise in the corporate sector are published and are available to the decision-makers. These statements provide financial data which require analysis, comparison and interpretation for taking decision by the external as well as internal users of accounting information. The act is termed as financial statement analysis. It is regarded as an integral and important part of accounting. As indicated in the previous chapter, the most commonly used techniques of financial statement, analysis are comparative statements, common size statements, trend analysis, accounting ratios and cash flow analysis. The first three have been discussed in detail in the previous chapter. This chapter covers the technique of accounting ratios for analysing the information contained in financial statements for assessing the solvency, efficiency and profitability of the firms.

5.1 Meaning of Accounting Ratios

As stated earlier, accounting ratios are an important tool of financial statement analysis. A ratio is a mathematical number calculated as a reference to relationship of two or more numbers and can be expressed as a fraction, proportion, percentage, and a number of times. When the number is calculated by referring to two accounting numbers derived from

the financial statements, it is termed as accounting ratio. For example if the gross profit of the business is Rs. 10,000 and the sales are Rs. 1,00,000, it can be said that the gross profit is 10% ($10,000/1,00,000$) of the sales. This ratio is termed as gross profit ratio. Similarly, inventory turnover ratio may be 6 which implies that inventory turns into sales six times in a year.

It needs to be observed that accounting ratios exhibit relationship, if any between accounting numbers extracted from financial statements, they are essentially derived numbers and their efficacy depends a great deal upon the basic numbers from which they are calculated. Hence, if the financial statements contain some errors, the derived numbers in terms of ratio analysis would also present an erroneous scenerio. Further, a ratio must be calculated using numbers which are meaningfully correlated. A ratio calculated by using two unrelated numbers would hardly serve any purpose. For example, the furniture of the business is Rs. 1,00,000 and Purchases are Rs. 3,00,000. The ratio of purchases to furniture is 3 ($3,00,000/1,00,000$) but it hardly has any relevance. The reason is that there is no relationship between these two aspects.

5.2 Objectives of Ratio Analysis

Ratio analysis is indispensable part of interpretation of results revealed by the financial statements. It provides users with crucial financial information and points out the areas which require investigation. Ratio analysis is a technique. Which involves regrouping of data by application of arithmetical relationships, though its interpretation is a complex matter. It requires a fine understanding of the way and the rules used for preparing financial statements. Once done effectively, it provides a wealth of information which helps the analyst:

1. To know the areas of the business which need more attention;
2. To know about the potential areas which can be improved with the effort in the desired direction;
3. To provide a deeper analysis of the profitability, liquidity, solvency and efficiency levels in the business;
4. To provide information for making cross sectional analysis by comparing the performance with the best industry standards;
5. To provide information derived from financial statements useful for making projections and estimates for the future.

5.3 Advantages of Ratio Analysis

The ratio analysis if properly done improves the user's understanding of the efficiency with which the business is being conducted. The numerical relationships throw light on many latent aspects of the business. If properly analysed, the ratios make us understand various problem areas as well as the bright spots of the business. The knowledge of problem areas help management

take care of them in future. The knowledge of areas which are working better helps you improve the situation further. It must be emphasised that ratios are means to an end rather than the end in themselves. Their role is essentially indicative and that of a whistle blower. There are many advantages derived from the ratio analysis. These are summarised as follows:

1. *Helps understand efficacy of decisions:* The ratio analysis helps you understand whether the business firm has taken the right kind of operating, investing and financing decisions. It indicates how far they have helped in improving the performance.
2. *Simplify complex figures and establish relationships:* Ratios help in simplifying the complex accounting figures and bring out their relationships. They help summarise the financial information effectively and assess the managerial efficiency, firm's credit worthiness, earning capacity, etc.
3. *Helpful in comparative analysis:* The ratios are not be calculated for one year only. When many year figures are kept side by side, they help a great deal in exploring the trends visible in the business. The knowledge of trend helps in making projections about the business which is a very useful feature.
4. *Identification of problem areas:* Ratios help business in identifying the problem areas as well as the bright areas of the business. Problem areas would need more attention and bright areas will need polishing to have still better results.
5. *Enables SWOT analysis:* Ratios help a great deal in explaining the changes occurring in the business. The information of change helps the management a great deal in understanding the current threats and opportunities and allows business to do its own SWOT (Strength-Weakness-Opportunity-Threat) analysis.
6. *Various comparisons:* Ratios help comparisons with certain bench marks to assess as to whether firm, performance is better or otherwise. For this purpose, the profitability, liquidity, solvency, etc. of a business may be compared: (i) over a number of accounting periods with itself (Intra-firm Comparison/Time Series Analysis), (ii) with other business enterprises (Inter-firm Comparison/Cross-sectional Analysis), and (iii) with standards set for that firm/industry (comparison with standard (or industry) expectations).

5.4 Limitations of Ratio Analysis

Since the ratios are derived from the financial statements, any weakness in the original financial statements will also creep in the derived analysis in the form of ratio analysis. Thus, the limitations of financial statements also form the

limitations of the ratio analysis. Hence, to interpret the ratios, the user should be aware of the rules followed in the preparation of financial statements and also their nature and limitations. The limitations of ratio analysis which arise primarily from the nature of financial statements are as under:

1. *Limitations of Accounting Data:* Accounting data give an unwarranted impression of precision and finality. In fact, accounting data "reflect a combination of recorded facts, accounting conventions and personal judgements and the judgements and conventions applied affect them materially. For example, profit of the business is not a precise and final figure. It is merely an opinion of the accountant based on application of accounting policies. The soundness of the judgement necessarily depends on the competence and integrity of those who make them and on their adherence to Generally Accepted Accounting Principles and Conventions". Thus, the financial statements may not reveal the true state of affairs and so the ratios will also not give the true picture.
2. *Ignores Price-level Changes:* The financial accounting is based on stable money measurement principle. It implicitly assumes that price level changes are either non-existent or minimal. But the truth is otherwise. We are normally living in inflationary economies where the power of money declines constantly. A change in the price level makes analysis of financial statement of different accounting years meaningless because accounting records ignore changes in value of money.
3. *Ignore Qualitative or Non-monetary Aspects:* Accounting provides information about quantitative (or monetary) aspects of business. Hence, the ratios also reflect only the monetary aspects, ignoring completely the non-monetary (qualitative) factors.
4. *Variations in Accounting Practices:* There are differing accounting policies for valuation of stock, calculation of depreciation, treatment of intangibles, definition of certain financial variables, etc. available for various aspects of business transactions. These variations leave a big question mark on the cross sectional analysis. As there are variations in accounting practices followed by different business enterprises, a valid comparison of their financial statements is not possible.
5. *Forecasting:* Forecasting of future trends based only on historical analysis is not feasible. Proper forecasting requires consideration of non-financial factors as well.

Now let us talk about the limitations of the ratios. The various limitations are:

1. *Means and not the End:* Ratios are means to an end rather than the end by itself.

2. *Lack of ability to resolve problems:* Their role is essentially indicative and of whistle blowing and not providing a solution to the problem.
3. *Lack of standardised definitions:* There is a lack of standardised definitions of various concepts used in ratio analysis. For example, there is no standard definition of liquid liabilities. Normally, it includes all current liabilities, but sometimes it refers to current liabilities less bank overdraft.
4. *Lack of universally accepted standard levels:* There is no universal yardstick which specifies the level of ideal ratios. There is no standard list of the levels universally acceptable, and, in India, the industry averages are also not available.
5. *Ratios based on unrelated figures:* A ratio calculated for unrelated figures would essentially be a meaningless exercise. For example, creditors of Rs. 1,00,000 and furniture of Rs. 1,00,000 represent a ratio of 1:1. But it has no relevance to assess efficiency or solvency.

Hence, ratios should be used with due consciousness of their limitations while evaluatory the performance of an organisation and planning the future strategies for its improvement.

Test your Understanding - I

1. **State which of the following statements are True or False.**
 - (a) The only purpose of financial reporting is to keep the managers informed about the progress of operations.
 - (b) Analyses of data provided in the financial statements as is termed as financial analysis
 - (c) Long-term creditors are concerned about the ability of a firm to discharge its obligations to pay interest and repay the principal amount of term.
 - (d) A ratio is always expressed as a quotient of one number divided by another.
 - (e) Ratios help in comparisons of a firm's results over a number of accounting periods as well as with other business enterprises.
 - (f) One ratios reflect both quantitative and qualitative aspects.

5.5 Types of Ratios

There is a two way classification of ratios: (1) traditional classification, and (2) functional classification. The traditional classification has been on the basis of financial statements to which the determinants of ratios belong. On this basis the ratios are classified as follows:

1. *Income Statement Ratios:* A ratio of two variables from the income statement is known as Income Statement Ratio. For example, ratio of gross profit to sales known as gross profit ratio is calculated using both figures from the income statement.

2. *Balance Sheet Ratios:* In case both variables are from balance sheet, it is classified as Balance Sheet Ratios. For example, ratio of current assets to current liabilities known as current ratio is calculated using both figures from balance sheet.
3. *Composite Ratios:* If a ratio is computed with one variable from income statement and another variable from balance sheet, it is called Composite Ratio. For example, ratio of credit sales to debtors and bills receivable known as debtor turnover ratio is calculated using one figure from income statement (credit sales) and another figure from balance sheet (debtors and bills receivable).

Although accounting ratios are calculated by taking data from financial statements but classification of ratios on the basis of financial statements is rarely used in practice. It must be recalled that basic purpose of accounting is to throw useful light on the financial performance (profitability) and financial position (its capacity to raise money and invest them wisely) as well as changes occurring in financial position (possible explanation of changes in the activity level). As such, the alternative classification (functional classification) based on the purpose for which a ratio is computed, is the most commonly used classification which reach as follows:

1. *Liquidity Ratios:* To meet its commitments, business needs liquid funds. The ability of the business to pay the amount due to stakeholders as and when it is due is known as liquidity, and the ratios calculated to measure it are known as 'Liquidity Ratios'. They are essentially short-term in nature.
2. *Solvency Ratios:* Solvency of business is determined by its ability to meet its contractual obligations towards stakeholders, particularly towards external stakeholders, and the ratios calculated to measure solvency position are known as 'Solvency Ratios'. They are essentially long-term in nature, and
3. *Activity (or Turnover) Ratios:* This refers to the ratios that are calculated for measuring the efficiency of operation of business based on effective utilisation of resources. Hence, these are also known as 'efficiency ratios'.
4. *Profitability Ratios:* It refers to the analysis of profits in relation to sales or funds (or assets) employed in the business and the ratios calculated to meet this objective are known as 'Profitability Ratios'.

Exhibit - 1

ELDER PHARMACEUTICALS LTD.			
Profitability Ratios			
	2003-04	2004-05	2005-06
PBDIT/total income	14.09	15.60	17.78
Net profit/total income	6.68	7.19	10.26
Cash flow/total income	7.97	8.64	12.13
Return on Net Worth (PAT/Net worth)	16.61	10.39	14.68
Return on Capital Employed (PBDIT/Average capital employed)	15.40	15.33	16.17
Activity Ratios			
	2003-04	2004-05	2005-06
Debtors turnover (days)	104	87	80
Inventory turnover (days)	98	100	96
Working capital/total capital employed (%)	68.84	60.04	51.11
Interest/total income (%)	4.48	3.67	3.14
Leverage and Financial Ratios			
	2003-04	2004-05	2005-06
Debt-equity ratio	1.45	0.66	0.77
Current ratio	3.50	3.72	3.58
Quick ratio	2.45	2.40	2.39
Cash and equivalents/total assets (%)	12.76	14.48	7.93
Interest cover	3.15	4.25	4.69
Valuation Ratios			
	2003-04	2004-05	2005-06
Earnings per share	15.00	12.75	21.16
Cash earnings per share	18.78	15.58	24.85
Dividend per share	3.27	2.73	2.66
Book value per share	94.77	124.86	147.62
Price/Earning	8.64	15.03	13.40

5.6 Liquidity Ratios

Liquidity ratios are calculated to have indications about the short term solvency of the business, i.e. the firm's ability to meet its current obligations. These are analysed by looking at the amounts of current assets and current liabilities in the balance sheet. These include bank overdraft, creditors, outstanding capenses, bills payable, income received inadvance. The two ratios included in this category are Current Ratio and Liquid Ratio.

5.6.1 Current Ratio

Current ratio is the proportion of current assets to current liabilities. It is expressed as follows:

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

Current assets include cash in hand, bank balance, debtors, bills receivable, stock, prepaid expenses, accrued income, and short-term investments (marketable securities).

Current liabilities include creditors, bills payable, outstanding expenses, provision for taxation net of advance tax, bank overdraft, short-term loans, income received in advance, etc.

Illustration 1

Calculate current ratio from the following information:

	Rs.		Rs.
Stock	50,000	Cash	30,000
Debtors	40,000	Creditors	60,000
Bills Receivable	10,000	Bills Payable	40,000
Advance Tax	4,000	Bank Overdraft	4,000

Solution

$$\begin{aligned} \text{Current Assets} &= \text{Rs. } 50,000 + \text{Rs. } 40,000 + \text{Rs. } 10,000 + \text{Rs. } 4,000 + \text{Rs. } 30,000 \\ &= \text{Rs. } 1,34,000 \end{aligned}$$

$$\text{Current Liabilities} = \text{Rs. } 60,000 + \text{Rs. } 40,000 + \text{Rs. } 4,000 = \text{Rs. } 1,04,000$$

$$\text{Current Ratio} = \text{Rs. } 1,34,000 : \text{Rs. } 1,04,000 = 1.29 : 1.$$

Significance: It provides a measure of degree to which current assets cover current liabilities. The excess of current assets over current liabilities provides a measure of safety margin available against uncertainty in realisation of current assets and flow of funds. The ratio should be reasonable. It should neither be very high or very low. Both the situations have their inherent disadvantages. A very high current ratio implies heavy investment in current assets which is not a good sign as it reflects under utilisation or improper utilisation of resources. A low ratio endangers the business and puts it at risk of facing a situation where it will not be able to pay its short-term debt on time. If this problem persists, it may affect firms credit worthiness adversely. Normally, it is advocated to have this ratio as 2:1.

5.6.2 Quick Ratio

It is the ratio of quick (or liquid) asset to current liabilities. It is expressed as

$$\text{Quick ratio} = \text{Quick Assets} : \text{Current Liabilities} \quad \text{or} \quad \frac{\text{Quick Assets}}{\text{Current Liabilities}}$$

The quick assets are defined as those assets which are quickly convertible into cash. While calculating quick assets we exclude the closing stock and prepaid

expenses from the current assets. Because of exclusion of non-liquid current asset, it is considered better than current ratio as a measure of liquidity position of the business. It is calculated to serve as a supplementary check on liquidity position of the business and is therefore, also known as 'Acid-Test Ratio'.

Illustration 2

Calculate quick ratio from the information given in illustration 1.

Solution

$$\begin{aligned}
 \text{Quick Assets} &= \text{Current Assets} - \text{Stock} - \text{Advance Tax} \\
 \text{Quick Assets} &= \text{Rs. } 1,34,000 - (\text{Rs. } 50,000 + \text{Rs. } 4,000) = \text{Rs. } 80,000 \\
 \text{Current Liabilities} &= \text{Rs. } 1,04,000 \\
 \text{Quick ratio} &= \text{Quick Assets} : \text{Current Liabilities} \\
 &= \text{Rs. } 80,000 : \text{Rs. } 1,04,000 \\
 &= 1 : .77
 \end{aligned}$$

Significance: The ratio provides a measure of the capacity of the business to meet its short-term obligations without any flaw. Normally it is advocated to be safe to have a ratio of 1:1 as unnecessarily low ratio will be very risky and a high ratio suggests unnecessary deployment of resources in otherwise less profitable short-term investments.

Illustration 3

Calculate 'Liquid Ratio' from the following information:

Current Liabilities	Rs. 50,000
Current Assets	Rs. 80,000
Stock	Rs. 25,000
Prepaid Expenses	Rs. 5,000

Solution

$$\begin{aligned}
 \text{Liquid Assets} &= \text{Current Assets} - \text{Closing Stock} - \text{Prepaid Expenses} \\
 &= \text{Rs. } 80,000 - \text{Rs. } 25,000 - \text{Rs. } 5,000 = \text{Rs. } 50,000 \\
 \text{Liquidity Ratio} &= \text{Liquid Assets} : \text{Current Liabilities} \\
 &= \text{Rs. } 50,000 : \text{Rs. } 50,000 = 1 : 1.
 \end{aligned}$$

Illustration 4

X Ltd. has a current ratio of 3.5:1 and quick ratio of 2:1. If excess of current assets over quick assets represented by stock is Rs. 24,000, calculate current assets and current liabilities.

Solution

Current Ratio	=	3.5:1
Quick Ratio	=	2:1
Let Current Liabilities	=	x
Current Assets	=	3.5x
And Quick Assets	=	2x
Stock	=	Current Assets - Quick Assets
24,000	=	3.5x - 2x
24,000	=	1.5x
x	=	Rs.16,000
Current Assets	=	3.5x = 3.5 × Rs. 16,000 = Rs. 56,000.
<i>Verification :</i>		
Current Ratio	=	Current Assets : Current Liabilities
	=	Rs. 56,000 : Rs. 16,000
	=	3.5 : 1
Quick Ratio	=	Quick Assets - Current Liabilities
	=	Rs. 32,000 : Rs. 16,000
	=	2:1

Illustration 5

Calculate the current ratio from the following information :

Total Assets	Rs.3,00,000	Fixed Assets	Rs.1,60,000
Long-term Liabilities	Rs.80,000	Investments	Rs.1,00,000
Shareholders Fund	Rs.2,00,000	Fictitious Assets	Nil

Solution

Total Assets	=	Fixed Assets + Investments + Current Assets
Rs. 3,00,000	=	Rs. 1,60,000 + Rs. 1,00,000 + Current Assets
Current Assets	=	Rs. 3,00,000 - Rs. 2,60,000 = Rs. 40,000
Total Assets	=	Total Liabilities (including capital)
	=	Shareholders Funds + Long-term Liabilities + Current Liabilities
Rs. 3,00,000	=	Rs. 2,00,000 + Rs. 80,000 + Current Liabilities
Current Liabilities	=	Rs. 3,00,000 - Rs. 2,80,000 = Rs. 20,000
Current Ratio	=	Current Assets : Current Liabilities
	=	Rs. 40,000 : Rs. 20,000 = 2:1.

Do it Yourself

1. Current ratio = 4.5:1, quick ratio = 3:1. Inventory is Rs. 36,000. Calculate the current assets and current liabilities.
2. Current liabilities of a company are Rs. 5,60,000, current ratio is 5:2 and quick ratio is 2:1. Find the value of the stock.
3. Current assets of a company are Rs. 5,00,000. Current ratio is 2.5:1 and quick ratio is 1:1. Calculate the value of current liabilities, liquid assets and stock.

Illustration 6

The current ratio is 2:1. State giving reasons which of the following transactions would improve, reduce and not change the current ratio:

- (a) Repayment of current liability;
- (b) Purchased goods on credit;
- (c) Sale of an office typewriter (Book value – Rs. 4,000) for Rs. 3,000 only;
- (d) Sale of merchandise (goods) costing Rs. 10,000 for Rs. 11,000;
- (e) Payment of dividend.

Solution

The change in the ratio depends upon the original ratio. Let us assume that current assets are Rs. 50,000 and current liabilities are Rs. 25,000; and so the current ratio is 2:1. Now we will analyse the effect of given transactions on current ratio.

- (a) Assume that Rs. 10,000 of creditors is paid by cheque. This will reduce the current assets to Rs. 40,000 and current liabilities to Rs. 15,000. The new ratio will be 2.67 (Rs. 40,000/Rs.15,000). Hence, it has *improved*.
- (b) Assume that Rs. 10,000 goods are purchased on credit. This will increase the current assets to Rs. 60,000 and current liabilities to Rs. 35,000. The new ratio will be 1.71 (Rs. 60,000/Rs. 35,000). Hence, it has *reduced*.
- (c) Due to sale of a typewriter (a fixed asset) the current assets will increase upto Rs. 53,000 without any change in the current liability. The new ratio will be 2.12 (Rs. 53,000/Rs. 25,000). Hence, it has *improved*.
- (d) This transaction will decrease the stock by Rs. 10,000 and increase the cash by Rs. 11,000 thereby increasing the current assets by Rs. 1,000 without and change in the current liability. The new ratio will be 2.04 (Rs. 51,000/Rs. 25,000). Hence, it has *improved*.
- (e) Assume that Rs. 5,000 is given by way of dividend. It will reduce the current assets to Rs. 45,000 without any change in the current liability. The new ratio will be 1.8 (Rs. 45,000/Rs. 25,000). Hence, it has *reduced*.

5.7 Solvency Ratios

The persons who have advanced money to the business on long-term basis are interested in safety of their payment of interest periodically as well as the repayment of principal amount at the end of the loan period. Solvency ratios are calculated to determine the ability of the business to service its debt in the long run. The following ratios are normally computed for evaluating solvency of the business.

1. Debt equity ratio;
2. Debt ratio;
3. Proprietary ratio;
4. Total Assets to Debt Ratio;
5. Interest Coverage Ratio.

5.7.1 Debt-Equity Ratio

Debt Equity Ratio measures the relationship between long-term debt and equity. If debt component of the total long-term funds employed is small, outsiders feel more secure. From security point of view, capital structure with less debt and more equity is considered favourable as it reduces the chances of bankruptcy. Normally, it is considered to be safe if debt equity ratio is 2:1. It is computed as follows:

$$\text{Debt-Equity ratio} = \frac{\text{Long-term Debt's/}}{\text{Shareholders Fund or}} \quad \text{or} \quad \frac{\text{Long-term Debt}}{\text{Share holders Fund}}$$

$$\text{Where Shareholders Funds (equity)} = \frac{\text{Equity Share Capital} + \text{Reserves and Surplus} - \text{Fictitious Assets} + \text{Preference Share Capital}}$$

$$\text{Alternatively, it can be calculated as } \frac{\text{Non-fictitious Total Assets} - \text{Total External Liabilities.}}$$

$$\text{Long-term Funds} = \text{Debentures} + \text{Long-term Loans}$$

Significance: This ratio measures the degree of indebtedness of an enterprise and gives an idea to the long-term lender regarding extent of security of the debt. As indicated earlier, a low debt equity ratio reflects more security. A high ratio, on the other hand, is considered risky as it may put the firm into difficulty in meeting its obligations to outsiders. However, from the perspective of the owners, greater use of debt trading on equity may help in ensuring higher returns for them if the rate of earnings on capital employed is higher than the rate of interest payable. But it is considered risky and so, with the exception of a few business, the prescribed ratio is limited to 2:1. This, ratio is also termed as 'Leverage Ratio'.

Illustration 7

Calculate Debt Equity Ratio, from the following information :

Total external liabilities	Rs.5,00,000	Balance Sheet Total	Rs.10,10,000
Current liabilities	Rs.1,00,000	Fictitious Assets	Rs.10,000

Solution

Long-term Debt	= Total External Liabilities - Current Liabilities
	= Rs. 5,00,000 - Rs. 1,00,000 = Rs. 4,00,000
Total Non-fictitious Assets	= Total Assets - Fictitious Assets
	= Rs. 10,10,000 - Rs. 10,000 = Rs. 10,00,000
Shareholders Funds	= Non-fictitious Total Assets - Total liabilities
	= Rs. 10,00,000 - Rs. 5,00,000 = Rs. 5,00,000
Debt Equity Ratio	= Rs. 4,00,000/Rs. 5,00,000 = 4:5.

5.7.2 Debt Ratio

The Debt Ratio refers to the ratio of long-term debt to the total of external and internal funds (capital employed or net assets). It is computed as follows:

$$\text{Long-term Debt/Capital Employed (or Net Assets)}$$

Capital employed is equal to the long-term debt + shareholders' fund. Alternatively, it may be taken as net assets which are equal to the total non-fictional assets - current liabilities taking the data of Illustration 7, capital employed shall work out to Rs. 4,00,000 + Rs. 5,00,000 = Rs. 9,00,000. Similarly, Net Assets as Rs. 10,00,000 - Rs. 1,00,000 = Rs. 9,00,000 and the Debt Ratio as Rs. 4,00,000/Rs. 9,00,000 = 0.444.

Significance : Like debt equity ratio, it shows proportion of long-term debt in capital employed. Low ratio provides security to creditors and high ratio helps management in trading on equity. In the above case, the debt ratio is less than half which indicates reasonable funding by debt and adequate security of debt.

It may be noted that Debt Ratio can also be computed in relation to total assets. In that case, it usually refers to the ratio of total debt (long-term debt + current liabilities) to total assets, i.e. total of fixed and current assets (or shareholders funds + long-term debt + current liabilities), and is expressed as

$$\text{Debt Ratio} = \frac{\text{Total Debt}}{\text{Total Assets}}$$

5.7.3 Proprietary Ratio

Proprietary ratio expresses relationship of proprietor's (shareholders) funds to net assets and is calculated as follows :

Proprietary Ratio = Shareholders Funds/Capital employed (or net assets)

Based on data of Illustration 7, it shall be worked out as follows:

$$\text{Rs. } 5,00,000/\text{Rs. } 9,00,000 = 0.556$$

Significance: Higher proportion of shareholders funds in financing the assets is a positive feature as it provides security to creditors. This ratio can also be computed in relation to total assets in lead of net assets (capital employed) It may be noted that the total of Debt Ratio and Proprietary Ratio will be equal to 1. Take these ratio worked out on the basis of data of Illustration 7, the Debt Ratio is 0.444 and the Proprietary Ratio 0.556, the total is $0.444 + 0.556 = 1$. In terms of percentage it can be stated that the 44% of the capital employed is funded by debt and 56% by owners funds.

Illustration 8

From the following balance sheet of a company, calculate debt equity ratio.

Balance Sheet			
	Rs.		Rs.
Preference Share Capital	2,00,000	Plant and Machinery	5,00,000
Equity Share Capital	8,00,000	Land and Building	4,00,000
Reserves	1,10,000	Motor Car	1,50,000
Debentures	1,50,000	Furniture	50,000
Current liabilities	1,40,000	Stock	1,00,000
		Debtors	90,000
		Cash and Bank	1,00,000
		Discount on Issue of Shares	10,000
	14,00,000		14,00,000

Solution

For the proper understanding of these ratios, the balance sheet is reframed in vertical format below.

Balance Sheet

Sources of Funds:

Shareholders' Funds:

Preference Share Capital	Rs. 2,00,000	
Equity Share Capital	Rs. 8,00,000	
Reserves	Rs. 1,10,000	
Discount on Issue of Shares	Rs. <u>(10,000)</u>	Rs. 11,00,000
Long-term debt		
Debentures	Rs. <u>1,50,000</u>	Rs. 1,50,000

Capital Employed			Rs. 12,50,000
Application of funds:			
<i>Fixed Assets :</i>			
Plant and Machinery	Rs. 5,00,000		
Land and Building	Rs. 4,00,000		
Motor Car	Rs. 1,50,000		
Furniture	Rs. <u>50,000</u>	Rs. 11,00,000	
<i>Total Fixed Assets:</i>			
<i>Current Assets:</i>			
Stock	Rs. 1,00,000		
Debtors	Rs. 90,000		
Cash and Bank	Rs. 1,00,000		
Total Current assets	Rs. 2,90,000		
Less Current Liabilities:	Rs. 1,40,000		
Net Current Assets		Rs. 1,50,000	
Total Application of funds (Net Assets)			Rs. 12,50,000

Debt equity ratio	=	Long-term Debt/Equity
Debt ratio	=	Long-term Debt/Capital Employed
Proprietary Ratio	=	Shareholders Funds/Capital Employed

Debt equity ratio	=	Rs. 1,50,000/Rs. 11,00,000 = 0.136
Debt to total funds ratio	=	Rs. 1,50,000/Rs. 12,50,000 = 0.12
Proprietary Ratio	=	Rs. 11,00,000/Rs. 12,50,000 = 0.88

In case the debt ratio and proprietary ratio are based on total assets (Rs. 13,90,000), these shall work out as follows:

Debt Ratio	=	Total Debt/Total Assets
	=	Rs. 2,90,000/Rs. 13,90,000 = 0.209
Proprietary Ratio	=	Shareholders Funds/Total Assets
	=	Rs. 11,00,000/Rs. 13,90,000 = 0.791

5.7.4 Total Assets to Debt Ratio

This ratio measures the extent of the coverage of long-term debt by assets. It is calculated as

Total assets to Debt Ratio = Total assets/Long-term debt

Taking the data of Illustration on 8, this ratio will be worked out as follows:

Rs. 13,90,000/Rs. 1,50,000 = 9.27 times

The higher ratio indicates that asset have been mainly financed by owners funds, and the long-term debt is adequately covered by assets.

It is better to take the net assets (capital employed) instead of total assets for computing this ratio also. It will be observed that in that case, the ratio will be the reciprocal of the debt ratio.

Significance. This ratio primarily indicators the rate of external funds in financing the assets and the extent of coverage of their debt is covered by assets.

Illustration 9

From the following information, calculate Debt Equity Ratio, Debt Ratio Proprietary Ratio and Ratio of Total Assets to Debt.

Balance Sheet as on December 31, 2005

Preference Share Capital	Rs. 1,00,000	Fixed Assets	Rs. 4,00,000
Equity Share Capital	Rs. 3,00,000	Investments	Rs. 1,00,000
Reserves and Surplus	Rs. 1,10,000	Current Assets	Rs. 2,00,000
Secured Loans	Rs. 1,50,000	Preliminary Expenses	Rs. 10,000
Current liabilities	Rs. 50,000		
	Rs. 7,10,000		Rs. 7,10,000

Solution

Total Assets	=	Fixed Assets + Investment + Current Assets	
	=	Rs. 4,00,000 + Rs. 1,00,000 + Rs. 2,00,000	
	=	Rs. 7,00,000	
Net Assets	=	Total Non-fictitious Assets - Current Liabilities	
	=	Rs. 7,00,000 - Rs. 50,000 = Rs. 6,50,000	
Shareholders Funds	=	Preference Shares + Equity Shares	
	+ Reserves and Surplus - Preliminary Expenses		
	=	Rs. 1,00,000 + Rs. 3,00,000 + Rs. 1,10,000	
	=	Rs. 5,10,000 - Rs. 10,000 = Rs. 5,00,000	
Debt Equity Ratio	=	Rs. 1,50,000/Rs. 5,00,000	= 0.3
Debt Ratio	=	Rs. 1,50,000/Rs. 6,50,000	= 0.23
Long-term Debt	=	Rs. 1,50,000	
Proprietary Ratio	=	Rs. 5,00,000/Rs. 6,50,000	= 0.77%
Total Assets to Debt Ratio	=	Rs. 7,00,000/Rs. 1,50,000	= 4.67%
			= 1.25.

Illustration 10

The debt equity ratio of X Ltd. is 1:2. Which of the following would increase/decrease or not change the debt equity ratio?

- (i) Further issue of equity shares
- (ii) Cash received from debtors
- (iii) Sale of goods on cash basis
- (iv) Redemption of debentures
- (v) Purchase of goods on credit.

Solution

The change in the ratio depends upon the original ratio. Let us assume that external funds are Rs. 5,00,000 and internal funds are Rs. 10,00,000. It explains the debt equity ratio of 1:2. Now we will analyse the effect of given transactions on debt equity ratio.

- (a) Assume that Rs. 1,00,000 worth of equity shares are issued. This will increase the internal funds to Rs. 11,00,000. The new ratio will be 5:11 (5,00,000/11,00,000). Thus, it is clear that further issue of equity shares decreases the debt-equity ratio.
- (b) Cash received from debtors will leave the internal and external funds unchanged as this will only affect the current assets. Hence the debt-equity ratio will remain.
- (c) This will also leave the ratio *unchanged*.
- (d) Assume that Rs. 1,00,000 debentures are redeemed. This will decrease the long-term debt to Rs. 4,00,000. The new ratio will be 4:10 (4,00,000/10,00,000). Thus, any new issue of debenture will decrease the debt equity ratio.
- (e) This will also leave the ratio *unchanged*.

5.7.5 Interest Coverage Ratio

It is a ratio which deals with the servicing of interest on loan. It is a measure of security of interest payable on long-term debt. It expresses the relationship between profits available for payment of interest and the amount of interest payable. It is calculated as follows:

$$\text{Interest Coverage Ratio} = \frac{\text{Net Profit before Interest and Tax/}}{\text{Interest on long term debt}}$$

Significance: It reveals the number of times interest on long-term debt is covered by the profits available for interest. A higher ratio ensures safety of interest payment debt and it also indicates availability of surplus for shareholders.

Illustration 11

From the following details, calculate interest coverage ratio:

Net Profit after tax Rs. 60,000; 15% Long-term Debt 10,00,000; and Tax Rate 40%.

Solution

Net Profit after Tax	=	Rs. 60,000
Tax Rate	=	40%
Net Profit before tax	=	Net profit after tax*100/(100 - Tax rate)
	=	Rs. 60,000*100/(100 - 40)
	=	Rs. 1,00,000
Interest on Long Term Debt	=	15% of Rs. 10,00,000 = Rs. 1,50,000
Net profit before interest and tax	=	Net profit before tax + Interest
	=	Rs. 1,00,000 + Rs. 1,50,000 = Rs. 2,50,000
Interest Coverage Ratio	=	Net Profit before Interest and Tax/Interest on long term debt
	=	Rs. 2,50,000/Rs. 1,50,000
	=	1.67 times.

5.8 Activity (or Turnover) Ratios

The turnover ratios basically exhibit the activity levels characterised by the capacity of the business to make more sales or turnover. The activity ratios express the number of times assets employed, or, for that matter, any constituent of assets, is turned into sales during an accounting period. Higher turnover ratio means better utilisation of assets and signifies improved efficiency and profitability, and as such are known as efficiency ratios. The important activity ratios calculated under this category are :

1. Stock Turn-over;
2. Debtors (Receivable) Turnover;
3. Creditors (Payable) Turnover;
4. Investment (Net Assets) Turnover
5. Fixed Assets Turnover;
6. Working Capital Turnover.

5.8.1 Stock (or Inventory) Turnover Ratio

It determines the number of times stock is turned in sales during the accounting period under consideration. It expresses the relationship between the cost of goods sold and stock of goods. The formula for its calculation is as follows:

$$\text{Stock Turnover Ratio} = \text{Cost of Goods Sold} / \text{Average Stock}$$

Where average stock refers to arithmetic average of opening and closing stock, and the cost of goods sold means sales less gross profit.

Significance : It studies the frequency of conversion of stock of finished goods into sales. It is also a measure of liquidity. It determines how many times stock

is purchased or replaced during a year. Low turnover of stock may be due to bad buying, obsolete stock, etc. and is a danger signal. High turnover is good but it must be carefully interpreted as it may be due to buying in small lots or selling quickly at low margin to realise cash. Thus, it throws light on utilisation of stock of goods.

Test your Understanding - II

- (i) The following groups of ratios primarily measure risk
- A. liquidity, activity, and profitability
 - B. liquidity, activity, and common stock
 - C. liquidity, activity, and debt
 - D. activity, debt and profitability
- (ii) The _____ ratios are primarily measures of return.
- A. liquidity
 - B. activity
 - C. debt
 - D. profitability
- (iii) The _____ of a business firm is measured by its ability to satisfy its short-term obligations as they come due.
- A. activity
 - B. liquidity
 - C. debt
 - D. profitability
- (iv) _____ ratios are a measure of the speed with which various accounts are converted into sales or cash.
- A. Activity
 - B. Liquidity
 - C. Debt
 - D. Profitability
- (v) The two basic measures of liquidity are
- A. inventory turnover and current ratio
 - B. current ratio and liquid ratio
 - C. gross profit margin and operating ratio
 - D. current ratio and average collection period
- (vi) The _____ is a measure of liquidity which excludes _____, generally the least liquid asset.
- A. current ratio, accounts debtors
 - B. liquid ratio, accounts debtors
 - C. current ratio, inventory
 - D. liquid ratio, inventory

Illustration 12

From the following information, calculate stock turnover ratio :

Opening Stock	Rs. 18,000	Wages	Rs. 14,000
Closing Stock	Rs. 22,000	Sales	Rs. 80,000
Purchases	Rs. 46,000	Carriage Inwards	Rs. 4,000

Solution

Stock Turnover Ratio	=	Cost of Goods Sold/ Average Stock
Cost of Goods Sold	=	Opening Stock + Purchases - Closing Stock + Direct Expenses
	=	Rs. 18,000 + Rs. 46,000 - Rs. 22,000 + (Rs. 14,000 + Rs. 4,000)
	=	Rs. 60,000
Average Stock	=	(Opening Stock + Closing Stock) / 2
	=	(Rs. 18,000 + Rs. 22,000) / 2 = Rs. 20,000
Stock Turnover Ratio	=	Rs. 60,000 / Rs. 20,000
	=	3 Times.

Illustration 13

From the following information, calculate stock turnover ratio. Sales: Rs. 4,00,000, Average Stock : Rs. 55,000, Gross Loss Ratio : 10%

Solution

Sales	=	Rs. 4,00,000
Gross Loss	=	10% of Rs. 4,00,000 = Rs. 40,000
Cost of goods Sold	=	Sales + Gross Loss
	=	Rs. 4,00,000 + Rs. 40,000 = Rs. 4,40,000
Stock Turnover Ratio	=	Cost of Goods Sold/ Average Stock
	=	Rs. 4,40,000 / Rs. 55,000 = 8 times.

Illustration 14

A trader carries an average stock of Rs. 40,000. His stock turnover is 8 times. If he sells goods at profit of 20% on sales. Find out the profit.

Solution

Stock Turnover Ratio	=	Cost of Goods Sold/ Average Stock
	=	Cost of Goods Sold/Rs. 40,000
Cost of Goods Sold	=	Rs. 40,000 × 8
	=	Rs. 3,20,000
Sales	=	Cost of Goods Sold × 100/80
	=	Rs. 3,20,000 × 100/80
	=	Rs. 4,00,000
Gross Profit	=	Sales - Cost of Goods Sold
	=	Rs. 4,00,000 - Rs. 3,20,000
	=	Rs. 80,000.

Do it Yourself

- Calculate the amount of gross profit:

Average stock	=	Rs. 80,000
Stock turnover ratio	=	6 times
Selling price	=	25% above cost
- Calculate Stock Turnover Ratio:

Annual sales	=	Rs. 2,00,000
Gross Profit	=	20% on cost of Goods Sold
Opening stock	=	Rs. 38,500
Closing stock	=	Rs. 41,500

5.8.2 Debtors (Receivables) Turnover Ratio

It expresses the relationship between credit sales and debtors. It is calculated as follows :

$$\text{Debtors Turnover ratio} = \frac{\text{Net Credit sales}}{\text{Average Accounts Receivable}}$$

$$\text{Where Average Account Receivable} = \frac{(\text{Opening Debtors and Bills Receivable} + \text{Closing Debtors and Bills Receivable})}{2}$$

It needs to be noted that debtors should be taken before making any provision for doubtful debts.

Significance: The liquidity position of the firm depends upon the speed with which debtors are realised. This ratio indicates the number of times the receivables are turned over and converted into cash in an accounting period. Higher turnover means speedy collection from debtors. This ratio also helps in working out the average collection period, ratio calculated by dividing the days/months in a year by debtors turnover ratio.

Illustration 15

Calculate the Debtors Turnover Ratio from the following information:

Total sales	=	Rs. 4,00,000
Cash sales	=	20% of total sales
Debtors on 1.1.2004	=	Rs. 40,000
Debtors on 31.12.2004	=	Rs. 1,20,000

Solution

Average Debtors	=	(Rs. 40,000 + Rs. 1,20,000)/2 = Rs. 80,000
Net credit sales	=	Total sales - Cash sales
	=	Rs. 4,00,000 - Rs. 80,000 (20% of Rs. 4,00,000)
	=	Rs. 3,20,000
Debtors Turnover Ratio	=	Net Credit sales/ Average Debtors
	=	Rs. 3,20,000/Rs. 80,000
	=	4 Times.

5.8.3 Creditors (Payable) Turnover Ratio

Creditors turnover ratio indicates the pattern of payment of accounts payable. As accounts payable arise on account of credit purchases, it expresses relationship between credit purchases and accounts payable. It is calculated as follows :

Creditors Turnover ratio	=	Net Credit purchases/ Average accounts payable
Where Average account payable	=	(Opening Creditors and Bills Payable + Closing Creditors and Bills Payable)/2

Significance : It reveals average payment period. Lower ratio means credit allowed by the supplier is for a long period or it may reflect delayed payment to suppliers which is not a very good policy as it may affect the reputation of the business. The average period of payment can be worked out by days/months in a year by the turnover rate.

Illustration 16

Calculate the Creditor's Turnover Ratio from the following figures.

Credit purchases during 2005	=	Rs. 12,00,000
Creditors + Bills Payables) on 1.1.2005	=	Rs. 4,00,000
Creditors + Bills Payables) on 31.12.2005	=	Rs. 2,00,000

Solution

$$\begin{aligned}
 \text{Average Creditors} &= (\text{Rs. } 4,00,000 + \text{Rs. } 2,00,000) / 2 \\
 &= \text{Rs. } 3,00,000 \\
 \text{Creditors Turnover Ratio} &= \text{Net Credit purchases} / \\
 &\quad \text{Average accounts payable} \\
 &= \text{Rs. } 12,00,000 / \text{Rs. } 3,00,000 \\
 &= 4 \text{ times.}
 \end{aligned}$$

Illustration 17

From the following information, calculate -

- (i) Debtors Turnover Ratio
- (ii) Average Collection Period
- (iii) Payable Turnover Ratio
- (iv) Average Payment Period

Given :

	(Rs.)
Sales	8,75,000
Creditors	90,000
Bills Receivable	48,000
Bills Payable	52,000
Purchases	4,20,000
Debtors	59,000

Solution

$$\begin{aligned}
 \text{(i) Debtors Turnover Ratio} &= \frac{\text{Rs. } 8,75,000}{\text{Rs. } 59,000 + \text{Rs. } 48,000} \\
 &= 8.18 \text{ times}
 \end{aligned}$$

*This figure has not been divided by 2, in order to calculate an average, as the figures of debtors and bills receivables in the beginning of the year are not available. So when only year-end figures are available use the same as it is.

$$\begin{aligned}
 \text{(ii) Average Collection Period} &= \frac{365}{\text{Debtors Turnover Ratio}} \\
 &= \frac{365}{8.18} \\
 &= 45 \text{ days}
 \end{aligned}$$

$$\begin{aligned}
 \text{(iii) Payable Turnover Ratio} &= \frac{\text{Purchases}}{\text{Average Creditors}} \\
 &= \frac{\text{Purchases}}{\text{Creditors} + \text{Bills payable}} \\
 &= \frac{4,20,000}{90,000 + 52,000} \\
 &= \frac{4,20,000}{1,42,000} \\
 &= 3 \text{ times} \\
 \text{(iv) Average Payment Period} &= \frac{365}{\text{Payables Turnover Ratio}} \\
 &= \frac{365}{3} \\
 &= 122 \text{ days}
 \end{aligned}$$

5.8.4 Investment (Net Assets) Turnover Ratio

It reflects relationship between employed in the business. Higher turnover means better liquidity and profitability. It is calculated as follows :

$$\text{Investment (Net Assets) Turnover ratio} = \frac{\text{Net Sales}}{\text{Capital Employed}}$$

Capital turnover which studies turnover of capital employed (Net Assets) is analysed further by following two turnover ratios :

a) *Fixed Assets Turnover* : It is computed follows:

$$\text{Fixed asset turnover} = \frac{\text{Net Sales}}{\text{Net Fixed Assets}}$$

b) *Working Capital Turnover* : It is calculated as follows :

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

Significance : High turnover, capital employed, working capital and fixed assets is a good sign and implies efficient utilisation of resources. Utilisation of capital employed or, for that matter, any of its components is revealed by the turnover ratios. Higher turnover reflects efficient utilisation resulting in higher liquidity and profitability in the business.

Illustration 18

From the following information, calculate (i) Net Assets Turnover (ii) Fixed Assets Turnover and (iii) Working Capital Turnover Ratios :

	(Rs.)		(Rs.)
Preference Shares Capital	4,00,000	Plant and Machinery	8,00,000
Equity Share Capital	6,00,000	Land and Building	5,00,000
General Reserve	1,00,000	Motor Car	2,00,000
Profit and Loss Account	3,00,000	Furniture	1,00,000
15% Debentures	2,00,000	Stock	1,80,000
14% Loan	2,00,000	Debtors	1,10,000
Creditors	1,40,000	Bank	80,000
Bills Payable	50,000	Cash	30,000
Outstanding Expenses	10,000		

Sales for the year 2005 were Rs. 30,00,000.

Solution

Sales	=	Rs. 30,00,000
Capital Employed	=	Share Capital + Reserves and Surplus + Long-term Debt (or Net Assets) = (Rs.4,00,000 + Rs.6,00,000) + (Rs.1,00,000 + Rs.3,00,000) + (Rs.2,00,000 + Rs.2,00,000) = Rs. 18,00,000
Fixed Assets	=	Rs.8,00,000 + Rs.5,00,000 + Rs.2,00,000 + Rs.1,00,000 = Rs. 16,00,000
Working Capital	=	Current Assets - Current Liabilities = Rs.4,00,000 - Rs.2,00,000 = Rs. 2,00,000
Net Assets Turnover Ratio	=	Rs.30,00,000/Rs.18,00,000 = 1.67 times
Fixed Assets Turnover Ratio	=	Rs.30,00,000/Rs.16,00,000 = 1.88 times
Working Capital Turnover	=	Rs.30,00,000/Rs.2,00,000 = 15 times.

Test your Understanding - III

- (i) The _____ is useful in evaluating credit and collection policies.
- A. average payment period
 - B. current ratio
 - C. average collection period
 - D. current asset turnover
- (ii) The _____ measures the activity of a firm's inventory.
- A. average collection period
 - B. inventory turnover
 - C. liquid ratio
 - D. current ratio
- (iii) The _____ ratio may indicate the firm is experiencing stock outs and lost sales.
- A. average payment period
 - B. inventory turnover
 - C. average collection period
 - D. quick
- (iv) ABC Co. extends credit terms of 45 days to its customers. Its credit collection would be considered poor if its average collection period was
- A. 30 days
 - B. 36 days
 - C. 47 days
 - D. 57 days
- (v) _____ are especially interested in the average payment period, since it provides them with a sense of the bill-paying patterns of the firm.
- A. Customers
 - B. Stockholders
 - C. Lenders and suppliers
 - D. Borrowers and buyers
- (vi) The _____ ratios provide the information critical to the long-run operation of the firm
- A. liquidity
 - B. activity
 - C. solvency
 - D. profitability

5.9 Profitability Ratios

The profitability or financial performance is mainly summarised in Income statement. Profitability ratios are calculated to analyse the earning capacity of

the business which is the outcome of utilisation of resources employed in the business. There is a close relationship between the profit and the efficiency with which the resources employed in the business are utilised. The various ratios which are commonly used to analyse the profitability of the business are:

1. Gross Profit Ratio
2. Operating Ratio
3. Operating Profit Ratio
4. Net profit Ratio
5. Return on Investment (ROI) or Return on Capital Employed (ROCE)
6. Return on Net Worth (RONW)
7. Earnings per Share
8. Book Value per Share
9. Dividend Payout Ratio
10. Price Earning Ratio.

5.9.1 Gross Profit Ratio

Gross profit ratio as a percentage of sales is computed to have an idea about gross margin. It is computed as follows:

$$\text{Gross Profit Ratio} = \frac{\text{Gross Profit}}{\text{Net Sales}} \times 100$$

Significance: It indicates gross margin or mark-up on products sold. There is no standard norm for its comparison. It also indicates the margin available to cover operating expenses, non-operating expenses, etc. Change in gross profit ratio may result from change in selling price or cost of sales or a combination of both. A low ratio may indicate unfavourable purchase and sales policy. It must be interpreted carefully as valuation of stock also affects its computation. Higher gross profit ratio is always a good sign.

Illustration 19

Following information is available for the year 2005, calculate gross profit ratio:

	Rs.
Cash Sales	25,000
Credit	75,000
Purchases : Cash	15,000
Credit	60,000
Carriage Inwards	2,000
Salaries	25,000
Decrease in Stock	10,000
Return Outwards	2,000
Wages	5,000

Solution

Sales	=	Cash Sales + Credit Sales
	=	Rs.25,000 + Rs.75,000 = Rs. 1,00,000
Net Purchases	=	Cash Purchases + Credit Purchases - Return Outwards
	=	Rs.15,000 + Rs.60,000 - Rs.2,000 = Rs. 73,000
Cost of Sales	=	Purchases + (Opening Stock - Closing Stock) + Direct Expenses
	=	Purchases + Decrease in stock + Direct Expenses
	=	Rs.73,000 + Rs.10,000 + (Rs.2,000 + Rs.5,000)
	=	Rs.90,000
Gross Profit	=	Sales - Cost of Sales = Rs.1,00,000 - Rs.90,000
	=	Rs. 10,000
Gross Profit Ratio	=	Gross Profit/Net Sales × 100
	=	Rs.10,000/Rs.1,00,000 × 100
	=	10%.

5.9.2 Operating Ratio

It is computed to analyse cost of operation in relation to sales. It is calculated as follows:

$$\text{Operating Ratio} = (\text{Cost of Sales} + \text{Operating Expenses}) / \text{Net Sales} \times 100$$

Operating expenses include office expenses, administrative expenses, selling expenses and distribution expenses.

Cost of operation is determined by excluding non-operating incomes and expenses such as loss on sale of assets, interest paid, dividend received, loss by fire, speculation gain and so on.

5.9.3 Operating Profit Ratio

It is calculated to reveal operating margin. It may be computed directly or as a residual of operating ratio.

$$\text{Operating Profit Ratio} = 100 - \text{Operating Ratio}$$

Alternatively, it is calculated as under:

$$\text{Operating Profit Ratio} = \text{Operating Profit} / \text{Sales} \times 100$$

$$\text{Where Operating Profit} = \text{Sales} - \text{Cost of Operation}$$

Significance: Operating Ratio is computed to express cost of operations excluding financial charges in relation to sales. A corollary of it is 'Operating Profit Ratio'. It helps to analyse the performance of business and throws light on the operational efficiency of the business. It is very useful for inter-firm as well as intra-firm comparisons. Lower operating ratio is a very healthy sign.

Illustration 20

Given the following information:

	Rs.
Sales	3,40,000
Cost of Goods Sold	1,20,000
Selling expenses	80,000
Administrative Expenses	40,000

Calculate Gross Profit Ratio and Operation Ratio.

Solution

Gross Profit	=	Sales - Cost of goods sold	
	=	Rs. 3,40,000 - Rs. 1,20,000	
	=	Rs. 2,20,000	
Gross Profit Ratio	=	$\frac{\text{Gross Profit}}{\text{Sales}} \times 100$	
	=	$\frac{\text{Rs. 2,20,000}}{\text{Rs. 3,40,000}} \times 100$	
	=	64.71%	
Operating Expenses	=	Cost of goods sold + Selling Expenses + Administrative Expenses	
	=	Rs. 1,20,000 + 80,000 + 40,000	
	=	Rs. 2,40,000	
Operating Ratio	=	$\frac{\text{Operating Expenses}}{\text{Net Sales}} \times 100$	
	=	$\frac{\text{Rs. 2,40,000}}{\text{Rs. 3,40,000}} \times 100$	
	=	70.58%	

5.9.4 Net Profit Ratio

Net Profit Ratio is based on all inclusive concept of profit. It relates sales to net profit after operational as well as non-operational expenses and incomes. It is calculated as under:

$$\text{Net Profit Ratio} = \frac{\text{Net profit}}{\text{Sales}} \times 100$$

Generally, net profit refers to Profit after Tax (PAT).

Significance: It is a measure of net profit margin in relation to sales. Besides revealing profitability, it is the main variable in computation of Return on Investment. It reflects the overall efficiency of the business, assumes great significance from the point of view of investors.

Illustration 21

Gross profit ratio of a company was 25%. Its credit sales was Rs. 20,00,000 and its cash sales was 10% of the total sales. If the indirect expenses of the company were Rs. 50,000, calculate its net profit ratio.

Solution

Cash sales	=	Rs.20,00,000 × 10/90
	=	Rs.2,22,222
Hence, total sales are	=	Rs.22,22,222.
Gross profit = .25 × 22,22,222	=	Rs. 5,55,555
Net profit	=	Rs.5,55,555 – 50,000
	=	Rs.5,05,555
Net profit ratio	=	Net profit/sales × 100
	=	Rs.5,05,555/Rs.22,22,222 × 100
	=	22.75%.

5.9.5 Return on Capital Employed or Investment (ROCE or ROI)

It explains the overall utilisation of funds by a business enterprise. Capital employed means the long-term funds employed in the business and includes shareholders fund, debentures and long-term loans. Alternatively, capital employed may be taken as the total of non-factious assets current liabilities. Profit refers to the Profit before Interest and Tax (PBIT) for computation of this ratio. Thus, it is computed as follows:

$$\text{Return on Investment (or Capital Employed)} = \frac{\text{Profit before Interest and Tax/}}{\text{Capital Employed}} \times 100$$

Significance: It measures return on capital employed in the business. It reveals the efficiency of the business in utilisation of funds entrusted to it by shareholders, debenture-holders and long-term liabilities. For inter-firm comparison, return on capital employed which reveals overall utilisation of fund is considered good measure of profitability. It also helps in assessing whether the firm is earning a higher return on capital employed as compared to the interest rate paid.

5.9.6 Return on Shareholders' Fund

This ratio is very important from shareholders' point of view in assessing whether their investment in the firm generates a reasonable return or not. It should be higher than the return on investment otherwise it would imply that company's funds have not been employed profitably.

A better measure of profitability from shareholders point of view is obtained by determining return on total shareholders fund, it is also termed as Return on Net Worth (RONW) and is calculated as under :

$$\text{Return on Shareholders' Fund} = \frac{\text{Profit after Tax}}{\text{Shareholders Fund}}$$

5.9.7 Earnings Per Share

The ratio is defined as -

$$\text{EPS} = \text{Profit available for equity shareholders/ No. of Equity Shares}$$

In this context, earnings refer to profit available for equity shareholders which is worked out as Profit after Tax - Dividend on Preference Shares.

This ratio is very important from equity shareholders point of view and so also for the share price in the stock market. This also helps comparison with other firm's to ascertain its reasonableness and capacity to pay dividend.

5.9.8 Book Value Per Share

This ratio is calculated as -

$$\text{Book Value per share} = \text{Equity shareholders' funds/No. of Equity Shares}$$

Equity shareholder funds refer to Shareholders Funds - Preference Share Capital. This ratio is again very important from equity shareholders point of view as it gives an idea about the value of their holding and affects market price of the shares.

5.9.9 Dividend Payout Ratio

This refers to the proportion of earning that are distributed against the shareholders. It is calculated as -

$$\text{Dividend Payout Ratio} = \frac{\text{Dividend Per Share}}{\text{Earnings Per Share}}$$

This reflects company's dividend policy and growth in owner's equity.

5.9.10 Price Earning Ratio

The ratio is defined as -

$$\text{P/E Ratio} = \text{Market price of a Share/Earnings per Share}$$

For example, if the EPS of company X is Rs. 10 and market price is Rs. 100, the price earning ratio will be 10 (100/10). It reflects investors expectation about the growth in the firm's earnings and reasonableness of the market price of its shares. P/E ratios vary from industry to industry and company to company in the same industry depending upon investors perception of their future.

Illustration 22

From the following details, calculate Return on Investment :

Share Capital : Equity (Rs.10)	Rs. 4,00,000	Current Liabilities	Rs. 1,00,000
12% Preference	Rs. 1,00,000	Discount on Shares	Rs. 5,000
General Reserve	Rs. 1,89,000	Fixed Assets	Rs. 9,50,000
10% Debentures	Rs. 4,00,000	Current Assets	Rs. 2,34,000

Also calculate Return on Shareholders' Funds, EPS, Book value per share and P/E ratio if the market price of the share is Rs. 34 and the net profit after tax was Rs. 1,50,000, and the tax had amounted to Rs. 50,000.

Solution

Profit before interest and tax	=	Rs. 1,50,000 + Debenture interest + Tax
	=	Rs. 1,50,000 + Rs. 40,000 + Rs. 50,000
	=	Rs. 2,40,000
Capital Employed	=	Equity Share Capital + Preference Share Capital + Reserves + Debentures - Discount on Shares
	=	Rs. 4,00,000 + Rs. 1,00,000 + Rs. 1,89,000 + Rs. 4,00,000 - Rs. 5,000 = Rs. 10,84,000
Return on Investment	=	Profit before Interest and Tax/ Capital Employed × 100
	=	Rs. 2,40,000/Rs. 10,84,000 × 100
	=	22.14%
Return on Shareholders Fund	=	Profit after Tax/ Shareholder's Fund × 100
	=	Rs. 1,50,000/Rs. 6,84,000 × 100
	=	13.84%
EPS	=	Profit available for equity shareholders/ No. of Equity Shares
	=	Rs. 1,38,000/ 40,000 = Rs. 3.45
Profit available to equity shareholders	=	Profit after Tax - Preference Dividend
	=	Rs. 1,50,000 - Rs. 12,000 = Rs. 1,38,000
P/E Ratio = Market price of a share/ Earnings per share	=	34/3.45
	=	9.86 Times
Book Value per share	=	Equity Shareholders' funds / No. of Equity Shares
Hence, Book value per share	=	Rs. 5,84,000/40,000 shares = Rs. 14.6

It may be noted that various ratios are intimately correlated with each other. Sometimes, the combined information regarding two or more ratios is given and some missing figure is to be calculated. In such a situation, the formula of the ratios will help in working out the missing figures (See Illustration 23 and 24).

Exhibit - 2

UNICHEM LABORATORIES LTD.					
Key Ratios					
As on March 31	2002	2003	2004	2005	2006
ROCE %	29.40	25.80	27.20	27.90	27.80
RONW %	31.20	22.80	25.10	24.50	23.70
EVA (Rs. in millions) Economic Value Added	230.10	167.60	250.00	257.80	449.30
Per share Data					
EPS (Rs.)	36.30*	31.75*	12.98	13.22	23.84
Dividend	80 %	80 %	60 %	70 %	100 %
Book Value per share (Rs.)	115.70	138.50	44.30	53.55	83.50

Exhibit - 3

GRASIM INDUSTRIES LTD.											
Ratios & Statistics											
PBIDT Margin	(%)	24.0	28.7	28.9	24.7	20.8	20.2	17.3	17.9	20.0	22.9
Interest Cover (PBIDT-Tax/Interest)	(x)	12.55	9.61	7.88	5.60	4.48	3.56	2.84	2.28	2.56	2.57
ROACE (PBIT/Avg. CE)	(%)	18.5	23.1	20.9	16.2	12.9	13.5	10.5	10.1	13.1	15.0
RONE (PAT/Avg. NW)	(%)	18.6	22.3	23.7	12.9	11.7	14.4	8.6	6.6	10.4	13.5
Debt Equity Ratio	(x)	0.40	0.46	0.57	0.70	0.76	0.76	0.82	0.93	0.92	0.98
Dividend per Share	Rs./Sh.	20.00	16.00	14.00	10.00	9.00	8.00	7.00	6.75	6.75	6.50
Earning per Share	Rs./Sh.	94	97	85	40	33	41	25	18	32	38
Cash Earning per Share	Rs./Sh.	123	130	116	85	72	67	51	41	55	56
Book Value per Share	Rs./Sh.	543	472	393	324	295	271	303	285	320	296

Exhibit - 4**ASIAN PAINTS (INDIA) LTD.**

	APIL		AP Group (Consolidated)	
	<i>2004-05</i>	<i>2003-04</i>	<i>2004-05</i>	<i>2003-04</i>
PBDIT/Sales	16.8%	17.2%	14.4%	14.8%
PBT before EOJ/Sales	14.2%	14.0%	11.2%	10.9%
PAT/Sales	8.9%	8.7%	6.8%	6.5%
Return on Average Capital Employed (ROCE)	41.5%	37.7%	34.6%	31.4%
Return on Average Net Worth (RONW)	31.4%	29.3%	31.7%	28.8%
EPS (Rs.)	18.53	16.12	18.15	15.11
Debt: Equity	0.15:1	0.13:1	0.38:1	0.28:1
Interest Cover (PBIT/Interest)	101	46	28	17

*Capital Employed and Networth as at 31.03.2005 are after providing for implicit loss.

Illustration 23

Calculate current assets of a company from the following information:

Stock turnover ratio	=	4 times
Stock at the end is Rs. 20,000 more than the stock in the beginning.		
Sales Rs. 3,00,000 and gross profit ratio is 20% of sales.		
Current liabilities	=	Rs. 40,000
Quick ratio	=	.75

Solution

Cost of Goods Sold	=	Sales - gross profit
	=	Rs. 3,00,000 - (Rs. 3,00,000 × 20%)
	=	Rs. 3,00,000 - Rs. 60,000
	=	Rs. 2,40,000
Stock Turnover Ratio	=	Cost of Goods Sold / Average stock
	=	Cost of Goods Sold/Average stock
Average Stock	=	Cost of Goods Sold / 4
	=	Rs. 2,40,000/4 = Rs. 60,000
Average Stock	=	(Opening stock + Closing stock) / 2
Rs. 60,000	=	(Opening stock + Opening stock + Rs. 20,000) / 2
Rs. 60,000	=	Opening stock + Rs. 10,000
Opening Stock	=	Rs. 50,000
Closing Stock	=	Rs. 70,000
Liquid Ratio	=	Liquid assets/current liabilities
.75	=	Liquid assets/Rs. 40,000
Liquid Assets	=	Rs. 40,000 × .75 = Rs. 30,000
Current Assets	=	Liquid assets + Closing stock
	=	Rs. 30,000 + Rs. 70,000 = Rs. 1,00,000.

Illustration 24

The current ratio is 2.5:1. Current assets are Rs. 50,000 and current liabilities are Rs. 20,000. How much must be the decline in the current assets to bring the ratio to 2:1.

Solution

Current liabilities	=	Rs. 20,000
For a ratio of 2:1, the current assets must be 2 × 20,000	=	Rs. 40,000
Present level of current assets	=	Rs. 50,000
Necessary decline	=	Rs. 50,000 - Rs. 40,000
	=	Rs. 10,000.

Terms Introduced in the Chapter

- | | |
|-------------------------------|--------------------------------|
| 1. Ratio Analysis | 8. Equity (Shareholders Funds) |
| 2. Liquidity Ratios | 9. Return on Net Worth |
| 3. Solvency Ratios | 10. Average Collection Period |
| 4. Activity Ratios | 11. Receivables |
| 5. Profitability Ratios | 12. Turnover Ratios |
| 6. Return on Investment (ROI) | 13. Efficiency Ratios |
| 7. Quick Assets | 14. Dividend Payout |

Summary

1. *Financial Statement Analysis:* It is an integral part of the basic accounting to provide the necessary value addition to the users.
2. *Ratio Analysis:* An important tool of financial statement analysis is ratio analysis. Accounting ratios represent relationship between two accounting numbers.
3. *Objective of Ratio Analysis:* The objective of ratio analysis is to provide a deeper analysis of the profitability, liquidity, solvency and activity levels in the business. It is also to identify the problem areas as well as the strong areas of the business.
4. *Advantages of Ratio Analysis:* Ratio analysis offers many advantages including enabling financial statement analysis, helping understand efficacy of decisions, simplifying complex figures and establish relationships, being helpful in comparative analysis, identification of problem areas, enables SWOT analysis, and allows various comparisons.
5. *Limitations of Ratio Analysis:* There are many limitations of ratio analysis. Few are based because of the basic limitations of the accounting data on which it is based. The other set includes the limitation of the ratio analysis per set. In the first set are included factors like Historical Analysis, Ignores Price-Level Changes, Ignore Qualitative or Non-Monetary Aspects, Limitations of Accounting Data, Variations in Accounting Practices, and Forecasting. In the second set are included factor like means and not the end, lack of ability to resolve problems, lack of standardised definitions, lack of universally accepted standard levels, and ratios based on unrelated figures.
6. *Types of Ratios:* There are many types of ratios, viz. liquidity, solvency, activity and profitability ratios. The liquidity ratios include current ratio and acid test ratio. Solvency ratios are calculated to determine the ability of the business to service its debt in the long run instead of in the short run. They include debt equity ratio, total assets to debt ratio, proprietary ratio and times interest coverage ratio. The turnover ratios basically exhibit

the activity levels characterised by the capacity of the business to make more sales or turnover and include Stock Turnover, Debtors (Receivable) Turnover, Creditors (Payable) Turnover, Working Capital Turnover, Fixed Assets Turnover, and Current asset Turnover. Profitability ratios are calculated to analyse the earning capacity of the business which is the outcome of utilisation of resources employed in the business. The ratios include Gross Profit ratio, Operating ratio, Net-profit-ratio, Return on investment (Capital employed), Earnings per Share, Book Value per Share, Dividend per Share, and Price Earning ratio.

Question for Practice

A. Short Answer Questions

1. What do you mean by Ratio Analysis?
2. What are various types of ratios?
3. What relationships will be established to study:
 - a. Inventory Turnover
 - b. Debtor Turnover
 - c. Payables Turnover
 - d. Working Capital Turnover.
4. Why would the inventory turnover ratio be more important when analysing a grocery store than an insurance company?
5. The liquidity of a business firm is measured by its ability to satisfy its long-term obligations as they become due ? Comment.
6. The average age of inventory is viewed as the average length of time inventory is held by the firm or as the average number of day's sales in inventory. Explain.

B. Long Answer Questions

1. Who are the users of financial ratio analysis? Explain the significance of ratio analysis to them?
2. What are liquidity ratios? Discuss the importance of current and liquid ratio.
3. How would you study the Solvency position of the firm?
4. What are important profitability ratios? How are they worked out?
5. Financial ratio analysis are conducted by four groups of analysts: managers, equity investors, long-term creditors, and short-term creditors. What is the primary emphasis of each of these groups in evaluating ratios?
6. The current ratio provides a better measure of overall liquidity only when a firm's inventory cannot easily be converted into cash. If inventory is liquid, the quick ratio is a preferred measure of overall liquidity. Explain.

Numerical Questions

1. Following is the Balance Sheet of Rohit and Co. as on March 31, 2006

<i>Liabilities</i>	<i>Amount Rs.</i>	<i>Assets</i>	<i>Amount Rs.</i>
Share Capital	1,90,000	Fixed Assets	1,53,000
Reserves	12,500	Stock	55,800
Profit and Loss	22,500	Debtors	28,800
Bills Payables	18,000	Cash at Bank	59,400
Creditors	54,000		
	2,97,000		2,97,000

Calculate Current Ratio
(**Ans:** Current Ratio 2:1)

2. Following is the Balance Sheet of Title Machine Ltd. as on March 31, 2006.

<i>Liabilities</i>	<i>Amount Rs.</i>	<i>Assets</i>	<i>Amount Rs.</i>
Equity Share Capital	24,000	Buildings	45,000
8% Debentures	9,000	Stock	12,000
Profit and Loss	6,000	Debtors	9,000
Bank Overdraft	6,000	Cash in Hand	2,280
Creditor	23,400	Prepaid Expenses	720
Provision for Taxation	600		
	69,000		69,000

Calculate Current Ratio and Liquid Ratio.
(**Ans:** Current Ratio 8:1, Liquid Ratio .37:1)

3. Current Ratio is 3:5. Working Capital is Rs. 9,00,000. Calculate the amount of Current Assets and Current Liabilities.
(**Ans:** Current Assets Rs. 1,26,000 and Current Liabilities Rs. 36,000)
4. Shine Limited has a current ratio 4.5:1 and quick ratio 3:1; if the stock is 36,000, calculate current liabilities and current assets.
(**Ans:** Current Liabilities Rs. 1,08,000, current liabilities Rs. 24,000)
5. Current liabilities of a company are Rs. 75,000. If current ratio is 4:1 and liquid ratio is 1:1, calculate value of current assets, liquid assets and stock.
(**Ans:** Current Assts Rs. 3,00,000, Liquid Assets Rs. 75,000 and Stock Rs. 2,25,000)
6. Handa Ltd. has stock of Rs. 20,000. Total liquid assets are Rs. 1,00,000 and quick ratio is 2:1. Calculate current ratio.
(**Ans:** Current Ratio 2.4:1)
7. Calculate debt equity ratio from the following information:
- | | |
|---------------------|---------------|
| Total Assets | Rs. 15,00,000 |
| Current Liabilities | Rs. 6,00,000 |
| Total Debts | Rs. 12,00,000 |
- (**Ans:** Debt Equity Ratio 2:1.)

8. Calculate Current Ratio if:

Stock is Rs. 6,00,000; Liquid Assets Rs. 24,00,000; Quick Ratio 2:1.

(Ans: Current Ratio 2.5:1)

9. Compute Stock Turnover Ratio from the following information:

Net Sales	Rs. 2,00,000
Gross Profit	Rs. 50,000
Closing Stock	Rs. 60,000
Excess of Closing Stock over Opening Stock	Rs. 20,000

(Ans: Stock Turnover Ratio 3 times)

10. Calculate following ratios from the following information:

Ⓐ Current ratio (ii) Acid test ratio (iii) Operating Ratio (iv) Gross Profit Ratio

Current Assets	Rs. 35,000
Current Liabilities	Rs. 17,500
Stock	Rs. 15,000
Operating Expenses	Rs. 20,000
Sales	Rs. 60,000
Cost of Goods Sold	Rs. 30,000

(Ans: Current Ratio 2:1; Liquid Ratio 1.14:1; Operating Ratio 83.3%; Gross Profit Ratio 50%)

11. From the following information calculate:

Ⓐ Gross Profit Ratio (ii) Inventory Turnover Ratio (iii) Current Ratio (iv) Liquid Ratio (v) Net Profit Ratio (vi) Working capital Ratio:

Sales	Rs. 25,20,000
Net Profit	Rs. 3,60,000
Cost of Sales	Rs. 19,20,000
Long-term Debt	Rs. 9,00,000
Creditors	Rs. 2,00,000
Average Inventory	Rs. 8,00,000
Current Assets	Rs. 7,60,000
Fixed Assets	Rs. 14,40,000
Current Liabilities	Rs. 6,00,000
Net Profit before Interest and Tax	Rs. 8,00,000

(Ans: Gross Profit Ratio 23.81; Inventory Turnover Ratio 2.4 times; Current Ratio 2.6:1; Liquid Ratio 1.27:1; Net Profit Ratio 14.21%; Working Capital Ratio 2.625 times)

12. Compute Gross Profit Ratio, Working Capital Turnover Ratio, Debt Equity Ratio and Proprietary Ratio from the following information:

Paid-up Capital	Rs. 5,00,000
Current Assets	Rs. 4,00,000
Net Sales	Rs. 10,00,000
13% Debentures	Rs. 2,00,000
Current Liability	Rs. 2,80,000
Cost of Goods Sold	Rs. 6,00,000

(Ans: Gross Profit Ratio 40%; Working Capital Ratio 8.33 times; Debt Equity Ratio 2:5; Proprietary Ratio 25:49)

13. Calculate Stock Turnover Ratio if:

Opening Stock is Rs. 76,250, Closing Stock is 98,500, Sales is Rs. 5,20,000, Sales Return is Rs. 20,000, Purchases is Rs. 3,22,250.

(Ans: Stock Turnover Ratio 3.43 times)

14. Calculate Stock Turnover Ratio from the data given below:

Stock at the beginning of the year	Rs. 10,000
Stock at the end of the year	Rs. 5,000
Carriage	Rs. 2,500
Sales	Rs. 50,000
Purchases	Rs. 25,000

(Ans: Stock Turnover Ratio 4.33 times)

15. A trading firm's average stock is Rs. 20,000 (cost). If the stock turnover ratio is 8 times and the firm sells goods at a profit of 20% on sale, ascertain the profit of the firm.

(Ans: Profit Rs. 40,000)

16. You are able to collect the following information about a company for two years:

	2004	2005
Book Debts on Apr. 01	Rs. 4,00,000	Rs. 5,00,000
Book Debts on Mar. 30		Rs. 5,60,000
Stock in trade on Mar. 31	Rs. 6,00,000	Rs. 9,00,000
Sales (at gross profit of 25%)	Rs. 3,00,000	Rs. 24,00,000

Calculate Stock Turnover Ratio and Debtor Turnover Ratio if in the year 2004 stock in trade increased by Rs. 2,00,000.

(Ans: Stock Turnover Ratio 2.4 times, Debtors Turnover Ratio 4.53 times)

17. The following Balance Sheet and other information, calculate following ratios:

⊕ Debt Equity Ratio (ii) Working Capital Turnover Ratio (iii) Debtors Turnover Ratio

<i>Liabilities</i>	<i>Amount Rs.</i>	<i>Assets</i>	<i>Amount Rs.</i>
General Reserve	80,000	Preliminary Expenses	20,000
Profit and Loss	1,20,000	Cash	1,00,000
Loan @15%	2,40,000	Stock	80,000
Bills Payable	20,000	Bills Receivables	40,000
Creditors	80,000	Debtors	1,40,000
Share Capital	2,00,000	Fixed Assets	3,60,000
	7,40,000		7,40,000

(Ans: Debt Equity 12:19; Working Capital Turnover 1.4 times; Debtors Turnover 2 times)

18. The following is the summarised Profit and Loss account and the Balance Sheet of Nigam Limited for the year ended March 31, 2007 :

<i>Expenses/Losses</i>	<i>Amount Rs.</i>	<i>Revenue/Gains</i>	<i>Amount Rs.</i>
Opening Stock	50,000	Sales	4,00,000
Purchases	2,00,000	Closing Stock	60,000
Direct Expenses	16,000		
Gross Profit	1,94,000		
	4,60,000		4,60,000
Salary	48,000	Gross Profit	1,94,000
Loss on Sale of Furniture	6,000		
Net Profit	1,40,000		
	1,94,000		1,94,000

Balance Sheet of Nigam Limited as on March 31, 2007

<i>Liabilities</i>	<i>Amount Rs.</i>	<i>Assets</i>	<i>Amount Rs.</i>
Profit and Loss	1,40,000	Stock	60,000
Creditors	1,90,000	Land	4,00,000
Equity Share Capital	2,00,000	Cash	40,000
Outstanding Expenses	70,000	Debtors	1,00,000
	6,00,000		6,00,000

Calculate (i) Quick Ratio

(ii) Stock Turnover Ratio

(iii) Return on Investment

(Ans: Quick Ratio 7:13; Stock Turnover Ratio 3.74 times; Return on Investment 41.17%)

19. From the following, calculate (a) Debt Equity Ratio (b) Total Assets to Debt Ratio (c) Proprietary Ratio.

Equity Share Capital	Rs. 75,000
Preference Share Capital	Rs. 25,000
General Reserve	Rs. 50,000
Accumulated Profits	Rs. 30,000
Debentures	Rs. 75,000
Sundry Creditors	Rs. 40,000
Outstanding Expenses	Rs. 10,000
Preliminary Expenses to be written-off	Rs. 5,000

(Ans: Debt Equity Ratio 3:7; Total Assets to Debt Ratio 4:1; Proprietary Ratio 7:12)

20. Cost of Goods Sold is Rs. 1,50,000. Operating expenses are Rs. 60,000. Sales is Rs. 2,60,000 and Sales Return is Rs. 10,000. Calculate Operating Ratio.

(Ans: Operating Ratio 84%)

21. The following is the summarised transactions and Profit and Loss Account for the year ending March 31, 2007 and the Balance Sheet as on that date.

<i>Expenses/Losses</i>	<i>Amount Rs.</i>	<i>Revenue/Gains</i>	<i>Amount Rs.</i>
Opening Stock	5,000	Sales	50,000
Purchases	25,000	Closing Stock	7,500
Direct Expenses	2,500		
Gross Profit	25,000		
	57,500		57,500
Administrative Expenses	7,500	Gross Profit	25,000
Interest	1,500		
Selling Expenses	6,000		
Net Profit	10,000		
	25,000		25,000

<i>Liabilities</i>	<i>Amount Rs.</i>	<i>Assets</i>	<i>Amount Rs.</i>
Share Capital	50,000	Land and Building	25,000
Current Liabilities	20,000	Plant and Machinery	15,000
Profit and Loss	10,000	Stock	7,500
		Sundry Debtors	7,500
		Bills Receivables	6,250
		Cash in Hand and at Bank	8,750
		Furniture	10,000
	80,000		80,000

Calculate (i) Gross Profit Ratio (ii) Current Ratio (iii) Acid Test Ratio (iv) Stock Turnover Ratio (v) Fixed Assets Turnover Ratio.

(Ans: (i) Gross Profit Ratio 50%; (ii) Current Ratio 3:2; (iii) Acid Test Ratio 1.125:1; (iv) Stock Turnover Ratio 4 times; (v) Fixed Assets Turnover 1:1)

22. From the following information calculate Gross Profit Ratio, Stock Turnover Ratio and Debtors Turnover Ratio.

Sales	Rs. 3,00,000
Cost of Goods Sold	Rs. 2,40,000
Closing Stock	Rs. 62,000
Gross Profit	Rs. 60,000
Opening Stock	Rs. 58,000
Debtors	Rs. 32,000

(Ans: Gross Profit Ratio 20%; Stock Turnover Ratio 4 times; Debtors Turnover Ratio 9.4 times)

Project Work

Project 1

Make a comparative study of the ratios discussed in the chapter by going to the web site of two manufacturing companies of your choice. Your analysis must cover at least three latest years.

Project 2

Down load the latest financial statements of Reliance Industries Limited from their web site and make the profitability ratio analysis for last five years.

Answers to Test your Understanding

Test your Understanding - I

(a) F, (b) T, (c) T, (d) F, (e) T, (F) F

Test your Understanding - II

(i) D, (ii) B, (iii) B, (iv) A, (v) B, (vi) D

Test your Understanding - III

(i) C, (ii) B, (iii) A, (iv) C, (v) C, (vi) C