

UNIT II

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FINANCIAL STATEMENT ANALYSIS

Meaning of Financial statements

Accounting process involves recording, classifying and summarising various business transactions. The day-to-day transactions of a business are recorded in different subsidiary books. These transactions are posted into various ledger accounts and the balances are taken out at the end of a financial period. The aim of maintaining various records is to determine profitability of the enterprise from operations of the business and also to find out its financial position. Financial statements are the outcome of summarising process of accounting. Financial statements, essentially, are interim reports, presented annually and reflect a division of the life of an enterprise into more or less arbitrary accounting period more frequently a year.

Nature of Financial Statements

The financial statements are prepared on the basis of recorded facts. The recorded facts are those which can be expressed in monetary terms. The statements are prepared for a particular period, generally one year. The transactions are recorded in a chronological order, as and when the events happen. The accounting records and financial statements prepared from these records are based on historical costs. The financial statements, by nature, are summaries of the items recorded in the business and these statements are prepared periodically, generally for the accounting period.

The American Institute of Certified Public Accountants states the nature of financial statements as, “Financial Statements are prepared for the purpose of presenting a periodical review of report on progress by the management and deal with the status of investment in the business and the results achieved during the period under review. They reflect a combination of recorded facts, accounting principles and personal judgements.”

According to John N. Myer, “the financial statements are composed of data which are the result of a combinations of (1) recorded facts concerning the business transactions, (2) conventions adopted to facilitate the accounting technique, (3) postulates, or assumptions made to, and (4) personal judgements used in the application of the conventions and postulates.”

The following points explain the nature of financial statements :

- 1. Recorded Facts.** The term ‘recorded facts’ refers to the data taken out from the accounting records. The records are maintained on the basis of actual cost data. The original cost or historical cost is the basis of recording various transactions. 2.
- 2. Accounting Conventions.** Certain accounting conventions are followed while preparing financial statements. The convention of valuing inventory at cost or market

price, whichever is lower is followed. The valuing of assets at cost less depreciation principle for balance sheet purposes is followed. The use of accounting conventions makes financial statements comparable, simple and realistic.

3. Postulates. The accountant makes certain assumptions while making accounting records. One of these assumptions is that the enterprise is treated as a going concern. The other alternative to this postulate is that the concern is to be liquidated, this is untenable if management shows no intention to liquidate the concern. So, the assets are shown on a going concern basis.

4. Personal Judgements. Even though certain standard accounting conventions are followed in preparing financial statements but still personal judgement of the accountant plays an important part. For example, in applying the cost or market value whichever is less to inventory valuation, the accountant will have to use his judgement in computing the cost in a particular case. There are a number of methods for valuing stock viz., last in first out, first in first out, average cost method, standard cost, base stock method, etc. The accountant will use one of these methods for valuing materials. The selection of depreciation method is another example where judgement of the accountant will play an important role in choosing the most appropriate course of action.

Characteristics of Ideal Financial Statements

The financial statements are prepared with a view to depict financial position of the concern. A proper analysis and interpretation of these statements enables a person to judge the profitability and financial strength of the business. The financial statements should be prepared in such a way that they are able to give a clear and orderly picture of the concern. The ideal financial statements have the following characteristics:

1. Depict True Financial Position. The information contained in the financial statements should be such that a true and correct idea is taken about the financial position of the concern. No material information should be withheld while preparing these statements.

2. Effective Presentation. The financial statements should be presented in a simple and lucid way so as to make them easily understandable. A person who is not well versed with accounting terminology should also be able to understand the statements without much difficulty.

3. Relevance. Financial statements should be relevant to the objectives of the enterprise. This will be possible when the person preparing these statements is able to properly utilise the accounting information. The information which is not relevant to the statements should be avoided.

4. Attractive. The financial statements should be prepared in such a way that important information is underlined so that it attracts the eye of the reader.

5. Easiness. Financial statements should be easily prepared. The balances of different ledger accounts should be easily taken to these statements. The calculation work should be minimum possible while preparing these statements. The size of the statements should not be very large.

6. Comparability. The results of financial analysis should be comparable. The financial statements should be presented in such a way that they can be compared to the previous year's statements. The statement can also be compared with the figures of other concerns of the same nature. Sometimes budgeted figures are given along with the present figures,

The comparable figures will make the Statements more useful.

7. Analytical Representation. The information should be analysed in such a way that similar data is presented at the same place. A relationship can be established in similar type of information. This will be helpful in analysis and interpretation of data.

8. Brief. If possible, the financial statements should be presented in brief. The reader will be able to form an idea about the figures. On the other hand, if figures are given in details then it will become difficult to judge the working of the business.

9. Promptness. The financial statements should be prepared and presented at the earliest possible. Immediately at the close of the financial year, statements should be ready.

Various Financial Statements

Generally, following statements are prepared :

1. Income Statement (or Profit and Loss Account), Income statement is prepared to determine the operational position of the concern. It is a statement of revenues earned and the expenses incurred for earning that revenue. If there is excess of revenues over expenditures it will show a profit and if the expenditures are more than the income then there will be a loss. The income statement is prepared for a particular period, generally a year. The income statement may be prepared in the form of a Manufacturing Account to find out the cost of production, in the form of Trading Account to determine gross profit or gross loss, in the form of a Profit and Loss Account to determine net profit or net loss. A statement of Retained Earnings may also be prepared to show the distribution of profits.

2. Balance Sheet. The balance sheet is one of the important financial statements depicting the financial strength of the concern. It shows on the one hand the properties that it utilises and on other hand the sources of those properties. The balance sheet shows all the assets owned by the concern and all the liabilities and claims it owes to owners and outsiders. The balance sheet is prepared on a particular date.

3. Statement of Retained Earnings. A statement of retained earnings is also known as Profit and Loss Appropriation Account or Income Disposal Statement as it shows appropriations of earnings.

4. Funds Flow Statement. The funds flow statement is designed to analyse the changes in the financial condition of a business enterprise between two periods. The word 'Fund' is used to denote working capital. This statement will show the sources from which the funds are received and the uses to which these have been put. This statement enables the management to have an idea about the sources of funds and their uses for various purposes. This statement helps the management in policy formulation and performance appraisal.

5. Cash Flow Statement. A statement of changes in the financial position of a firm on cash basis is called Cash Flow Statement. It summarises the causes of changes in cash position of a business enterprise between dates of two balance sheets. A cash flow statement focuses attention on cash changes only. It describes the sources of cash and its uses.

6. Schedules. A number of schedules are prepared to supplement the information supplied in the balance sheet. The Schedules of Investments, Fixed Assets, Debtors, etc. are prepared to give details about these transactions. A banking company may prepare a

detailed schedule of 'Advances' so as to supplement the balance sheet information. All these schedules are used as part of financial statements.

Formats of Income Statement and Balance Sheet

Income Statement. The income statement or profit and loss account is prepared according to the nature of business. A trading concern will prepare trading and profit and loss account for finding out gross profit and net profit respectively. A manufacturing concern will first prepare manufacturing account for finding out the cost of production and then it will prepare trading and profit and loss account. In case of sole proprietary and partnership concerns there are no prescribed forms for income statement. The preparation of this Statement is not compulsory but desirable; In case of joint stock companies the preparation of income statement for every financial year is compulsory.

Format of Manufacturing account

Manufacturing Account
for the year ending _____

To Opening Stock : Raw Materials — Partly Manufactured Goods — „ Purchase of Raw Materials — „ Carriage Inwards — „ Manufacturing Wages — „ Factory Rent — „ Depreciation : Factory Building — Machinery — „ Repairs to Plant — „ Coal — „ Salary of Works Manager — _____ _____	By Cost of finished goods transferred to trading account — By Closing Stock : Raw Materials — Partly Manufactured Goods — _____ _____
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Format of Trading and Profit and loss account

Trading and Profit and Loss Account
for the year ending _____

To Opening Stock of Finished Goods — To Cost of finished goods transferred from Manufacturing Account — To Gross Profit c/d* — _____ To Gross Loss b/d* — To Salaries — To Office Rent — To Advertising — To Carriage Outward — To Discount Allowed — To Provision for Bad and Doubtful Debts — To Depreciation : Office Building — Furniture — To Net Profit—transferred to Capital Account — _____ _____	By Sales — „ Closing Stock of Finished Goods — „ Gross Loss c/d* — _____ „ Gross Profit b/d* — „ Discount Received — „ Net Loss transferred to Capital Account — _____ _____
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Format of Balance Sheet
 Balance Sheet of _____ Co.
 as on _____

	Schedule No.	Figures as at the end of current financial year	Figures as at the end of previous financial year
<i>I. Sources of Funds</i>			
1. Shareholders' Funds			
(a) Capital
(b) Reserves and Surpluses
2. Loans Funds			
(a) Secured Loans
(b) Unsecured Loans
TOTAL :			
<i>II. Application of Funds</i>			
1. Fixed Assets			
(a) Gross Block
(b) Less Depreciation
(c) Net Block
(d) Capital Work-in-Progress
2. Investments			
3. Current Assets, Loans and Advances			
(a) Inventories
(b) Sundry Debtors
(c) Cash and Bank Balances
(d) Other Current Assets
(e) Loans and Advances
<i>Less : Current Liabilities and Provisions</i>			
(a) Liabilities
(b) Provisions
<i>Net Current Assets</i>			
4. (a) Miscellaneous Expenditure to the extent not written off or adjusted			
(b) Profit and Loss Account (debit)
TOTAL :			

IMPORTANCE OF FINANCIAL STATEMENTS

The financial statements are mirror which reflects the financial position and operating strength or weakness of the concern. These statements are useful to management, investors, creditors, bankers, workers, government and public at large. The following major users of financial statements: (1) As a report of stewardship ;

- (2) As a basis for fiscal policy ;
- (3) To determine the legality of dividends ;
- (4) As guide to wise dividend action ;
- (5) As a basis for the granting of credit ;
- (6) As informative for prospective investors in an enterprise ;
- (7) As a guide to the value of investment already made;
- (8) As an aid to government supervision ;
- (9) As a basis for price or rate regulation ;
- (10) As a basis for taxation.

The utility of financial statements to different parties as follows :

- (1) **Management.** The financial statements are useful for assessing the efficiency of different cost centres. The management is able to exercise cost control through these statements. The efficient and inefficient spots are brought to the notice of the management. The management is able to decide the course of action to be adopted in future.
- (2) **Creditors.** The trade creditors are to be paid in a short period. This liability is met out of current assets. The creditors will be interested in current solvency of the concern.
- (3) **Bankers.** The banker is interested to see that the loan amount is secure and the customer is also able to pay the interest regularly. The banker will analyse the balance sheet to determine financial strength of the concern and profit and loss account will also be studied to find out the carping position. These statements also help the banker to determine the amount of securities it will ask from the customers as a cover for the loans.
- (4) **Investors.** The investors include both short-term and long-term investors. They are interested in the security of the principal amount of loan and regular interest payments by the concern. The investors will study the long-term solvency of the concern with the help of financial statements.
- (5) **Government.** The financial statements are used to assess tax liability of business enterprises. The government studies economic situation of the country from these statements. These statements enable the government to find out whether business is following various rules and regulations or not. These statements also become a base for framing and amending various laws for the regulation of business.
- (6) **Trade Associations.** These associations provide service and protection to the members. They may analyse the financial statements for the purpose of providing facilities to these members. They may develop standard ratios and design uniform system of accounts.
- (7) **Stock Exchange.** The stock exchanges deal in purchase and sale of securities of different companies. The financial statements enable the stock brokers to judge the financial position of different concerns. The fixation of prices for securities, etc., is also based on these statements.

LIMITATIONS OF FINANCIAL STATEMENTS

Though financial statements are relevant and useful for the concern, still they do not present a final picture of the concern. The utility of these statements is dependent upon a number of factors. The analysis and interpretation of these statements should be done very carefully, otherwise misleading conclusions may be drawn. The financial statements suffer from the following limitations.

(1) Only Interim Reports. These statements do not give a final picture of the concern. The data given in these statements is only approximate. The actual position can only be determined when the business is sold or liquidated. So financial statements do not give the final picture and they are at the most interim reports.

(2) Do not give Exact Position. The financial statements are expressed in monetary values, so they appear to give final and accurate position. The value of fixed assets shown in the balance sheet neither represents the value for which fixed assets can be sold nor the amount which will be required to replace these assets.

(3) Historical Costs: The financial statements are prepared based on historical cost or original cost. The value of assets decreases by passage of time and current changes are not taken into account. Hence financial statements do not give fair picture of concern.

4) Impact of Non-monetary Factors Ignored. There are certain factors which have a bearing on the financial position and operating results of the business but they do not become a part of these statements because they cannot be measured in monetary terms, Such factors may include the reputation of the management, credit worthiness of the concern, sources and commitments for purchases and sales, co-operation of the employees, etc, The financial statements only show the position of the financial accounting for a business and not the financial position.

(5) No Precision. The precision of financial statement data is not possible because the statements deal with matters which cannot be precisely stated, The data are recorded by conventional procedures followed over the years, Various conventions, postulates, personal judgements, etc, are used for developing the data.

ANALYSIS AND INTERPRETATION OF FINANCIAL STATEMENTS

The preparation of financial statements is not the end aim. The purpose of preparing these statements is to use them for decision making. The statements become a tool for future planning and forecasting, The analysis and interpretation of financial statements is to judge their meaning and significance. An opinion is formed in respect of the financial condition of the concern, The interpretation involves the explanation of financial facts in a simplified manner. The financial statement analysis is largely a study of relationships among various financial factors as shown by different statements, The analysis and interpretation of financial statements are:

Methods or Device of Analysis and Interpretation

The analysis and interpretation of financial statements is used to determine the financial position and results of operations. The various methods of analysis generally used are: **1) Comparative statements 2) Trend Analysis 3) Common-size statements 4) Funds analysis 5) Ratio analysis.**

(1) **COMPARATIVE STATEMENTS** - The comparative financial statements are statements of the financial position at different periods of time. The elements of financial position are shown in a comparative form so as to give an idea of financial position at two or more periods. Any statement prepared in a comparative form will be covered in comparative Statements. Two financial statements (balance sheet and income statement) are prepared in comparative form for financial analysis purposes. Not only the comparison of the figures of two periods but also the relationship between balance sheet and income statement enables an in depth study of financial position and operative results.

The two comparative statements are (i) Balance sheet, and (ii) Income statement.

COMPARATIVE BALANCE SHEET

The comparative balance sheet analysis is the study of the trend of the same items, group of items and computed items in two or more balance sheets of the same business enterprise on different dates.. The changes in periodic balance sheet items reflect the conduct of a business. The changes can be observed by a comparison of the balance sheet at the beginning and at the end of a period and these changes can help in forming an opinion about the progress of an enterprise. The comparative balance sheet has two columns for the data of original balance sheets. A third column is used to show increases or decreases in figures. The fourth column may be added for giving percentages of increases or decreases.

Ex. 1. The following are the Balance Sheets of a concern for the year 2018 and 2019. Prepare a Comparative Balance Sheet and study the financial position of the concern.

Liabilities	2018	2019	Assets	2018	2019
	Rs.	Rs.		Rs.	Rs.
Equity Share Capital	2,00,000	3,30,000	Fixed Assets		
Preference Share Capital	1,00,000	1,50,000	Less Depreciation	2,40,000	3,50,000
Reserves	20,000	30,000	Stock	40,000	50,000
Profit and Loss A/c	15,000	20,000	Debtors	1,00,000	1,25,000
Bank Overdraft	50,000	50,000	Bills Receivables	20,000	60,000
Creditors	40,000	50,000	Prepaid Expenses	10,000	12,000
Provision for Taxation	20,000	25,000	Cash in hand	40,000	53,000
Proposed Dividend	15,000	25,000	Cash at Bank	10,000	30,000
	<u>4,60,000</u>	<u>6,80,000</u>		<u>4,60,000</u>	<u>6,80,000</u>

Solution :

Comparative Balance Sheet
For the year ending 31st December

Assets	2018	2019	Increase or Decrease in amount	% increase or decrease
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Debtors	1,00,000	1,25,000	+25,000	+25.0
Bills Receivables	20,000	60,000	+40,000	+200.0
Prepaid Expenses	10,000	12,000	+ 2,000	+20.0
Total Current Assets	<u>2,20,000</u>	<u>3,30,000</u>	<u>1,10,000</u>	<u>+50.00</u>
Fixed Assets less depreciation	<u>2,40,000</u>	<u>3,50,000</u>	<u>1,10,000</u>	<u>+45.83</u>
Total Assets	<u>4,60,000</u>	<u>6,80,000</u>	<u>2,20,000</u>	<u>+47.82</u>
<i>Liabilities and Capital :</i>				
<i>Current Liabilities</i>				
Bank Overdraft	50,000	50,000	—	—
Creditors	40,000	50,000	+10,000	+25.0
Provision for taxation	20,000	25,000	+ 5,000	+25.0
Proposed dividend	15,000	25,000	+10,000	+66.7
Total Current Liabilities	<u>1,25,000</u>	<u>1,50,000</u>	<u>25,000</u>	<u>+20.0</u>
<i>Capital & Surpluses</i>				
Equity Share Capital	2,00,000	3,30,000	1,30,000	+65.0
Preference Share Capital	1,00,000	1,50,000	+50,000	+50.0
Reserves	20,000	30,000	+10,000	+50.0
Profit & Loss A/c	15,000	20,000	+5,000	+33.3
Total Liabilities side	<u>4,60,000</u>	<u>6,80,000</u>	<u>+2,20,000</u>	<u>47.82</u>

Interpretation

- (1) The working capital position of the company has improved a lot. In 2018 working capital (current assets - current liabilities) of the company was Rs. 95,000 and this figure was Rs. 1,80,000 in 2019 which is almost double. The liquidity position has also shown a good progress. All liquid assets have shown an increase in 2019. The cash position is also better in the later year. The current and liquid financial position of the company has considerably improved.
- (2) Fixed assets have increased by Rs. 1,10,000 in 2019 as compared to 2018. The long-term funds have increased at the same figure. The equity share capital and preference share capital have been issued in 2019 to the tune of Rs. 1,80,000. The company has financed all fixed assets out of long-term funds.
- (3) The reserves and profits have increased by 50% and 33% respectively. The company has increased both types of capital which will also require more profits to maintain previous rate of dividend.
- (4) The current financial position of the company is satisfactory.

Ex 2. The following are the Balance Sheets of a concern for the year 2018 and 2019. Prepare a Comparative Balance Sheet and study the financial position of the concern.

BALANCE SHEET					
As on 31st December					
Liabilities	1981 Rs.	1982 Rs.	Assets	1981 Rs.	1982 Rs.
Equity Share Capital	6,00,000	8,00,000	Land & Buildings	3,70,000	2,70,000
Reserves & Surpluses	3,30,000	2,22,000	Plant & Machinery	4,00,000	6,00,000
Debentures	2,00,000	3,00,000	Furniture & Fixtures	20,000	25,000
Long-term loans on Mortgage	1,50,000	2,00,000	Other fixed Assets	25,000	30,000
Bills Payable	50,000	45,000	Cash in hand and at bank	20,000	80,000
Sundry Creditors	1,00,000	1,20,000	Bills Receivables	1,50,000	90,000
Other Current liabilities	5,000	10,000	Sundry Debtors	2,00,000	2,50,000
			Stock	2,50,000	3,50,000
			Prepaid Expenses		2,000
	14,35,000	16,97,000		14,35,000	16,97,000

Solution

COMPARATIVE BALANCE SHEET OF A COMPANY
For the year ending December 31, 1981 and 1982

	Year ending 31 December		Increase/Decrease (Amounts) Rs.	Increase/Decrease (Percentages)
	1981 Rs.	1982 Rs.		
Assets				
Current Assets				
Cash in hand and at Bank	20,000	80,000	+60,000	+300%
Bills Receivables	1,50,000	90,000	-60,000	-40%
Sundry Debtors	2,00,000	2,50,000	+50,000	+25%
Stock	2,50,000	3,50,000	+1,00,000	+40%
Prepaid Expenses	—	2,000	+2,000	
Total Current Assets	6,20,000	7,72,000	+1,52,000	+24.52%
Fixed Assets				
Land & Buildings	3,70,000	2,70,000	-1,00,000	-27.03%
Plant & Machinery	4,00,000	6,00,000	+2,00,000	+50%
Furniture & Fixtures	20,000	25,000	+5,000	+25%
Other Fixed Assets	25,000	30,000	+5,000	+20%
Total Fixed Assets	8,15,000	9,25,000	+1,10,000	+13.49%
Total Assets	14,35,000	16,97,000	+2,62,000	+18.26%

Interpretation:

(1) The comparative balance sheet of the company reveals that during 1981 there has been an increase in fixed assets of Rs.1,10,000 to 13.49%, while long-term liabilities to outsiders have relatively increased by Rs.1,50,000 and equity share capital has increased by Rs. 2 lakhs, This fact depicts that the policy of the company is to purchase fixed assets from long-term sources of finance, thereby not affecting the working capital. .

(2) The current assets have increased by 1,52,000 i.e. 24.52% and cash has increased by Rs. 60,000. On the other hand, there has been an increase in inventories amounting to Rs. 1 lakh. The current liabilities have increased only by Rs. 20,000 i.e. 12.9%. This further confirms that the company has raised long-term finances even for the current assets and resulting into an improvement in the liquidity position of the company.

(3) Reserves and surpluses have decreased from Rs. 3,30,000 to Rs, 2,22,000 ie. 32.73% which shows that the company has utilised reserves and surpluses for the payment of dividends to shareholders either in cash or by the issue of bonus shares.

(4) The overall financial position of the company is satisfactory.

COMPARATIVE INCOME STATEMENT

The Income statement gives the results of the operations of a business. The comparative income statement gives an idea of the progress of a business over a period of time. The changes in absolute data in money values and percentages can be determined to analyse the profitability of the business. Like comparative balance sheet, income statement also has four columns. First two columns give figures of various items for two years. Third and fourth columns are used to show increase or decrease in figures in absolute amounts and percentages respectively.

Ex3. The income statements of a concern are given below: Rearrange the figures to compare and study the profitability position of the concern.

	1988 Rs. ('000)		1989 Rs. ('000)	
Net sales	785	900		
Cost of goods sold	450	500		
Operating Expenses :				
General and administrative expenses	70	72		
Selling expenses	80	90		
Non operating Expenses :				
Interest paid	25	30		
Income-tax	70	80		

Solution

COMPARATIVE INCOME STATEMENT
For the year ended 31st Dec. 1988 and 1989

	31st December		Increase (+) Decrease (-) (Amount) Rs. ('000)	Increase (+) Decrease (-) (Percentages)
	1988 Rs. ('000)	1989 Rs. ('000)		
Net Sales	785	900	+115	+14.6
Less Cost of goods sold	450	500	+50	+11
Gross Profit	335	400	+65	+19.40
Operating Expenses :				
General & Administrative Expenses	70	72	+2	+2.8
Selling Expenses	80	90	+10	+12.5
Total Operating Expenses	150	162	+12	+8
Operating Profit	185	238	+53	+28.65
Less Other deductions	25	30	+5	+20
Interest paid				
Net profit before tax	160	208	+48	+30
Less Income-tax	70	80	+10	+14.3
Net Profit after tax	90	128	+38	+42.22

Interpretation.

The comparative income statement reveals that there has been an increase in net sales of 14.65% while the cost of goods sold has increased nearly by 11%, thereby resulting in an increase in the gross profit of 19.4%. Although the operating expenses have increased by 8%, the increase in gross profit is sufficient to compensate for the increase in operating expenses and hence there has been an overall increase in operational profits amounting to Rs. 53,000 i.e. 28.65% in spite of an increase in financial expenses of Rs.5,000 for interest and Rs.10,000 for income-tax. There is an increase in net profits after tax amounting to Rs. 38,000 i.e. 42.22%. It may be concluded that there is a sufficient progress in the company and the overall profitability of the company is good.

Ex 4.

Following Income statements of a business are given. Rearrange them in a comparative form and interpret.

Income statements
For the year ending on 31st December 1981 and 1982

	1981 Rs.	1982 Rs.		1981 Rs.	1982 Rs.
To Cost of					
" goods sold	9,00,000	9,50,000	By Sales	15,25,000	17,00,000
Administrative expenses	93,250	95,980	" Interest and dividend	7,500	6,200
" Selling expenses	1,90,000	2,09,000	" Profit from sale of land	6,000	8,000
" Interest paid	8,000	7,000			
" Loss on sale of machinery	2,500	800			
" Income-tax	85,000	1,68,000			
Net Profit	2,59,750	2,83,420			
	15,38,500	17,14,200		15,38,500	17,14,200
	15,38,500	17,14,200		15,38,500	17,14,200

Solution.

Comparative Income statement

	1981	1982	Increase/ Decrease	Percentage Increase/ Decrease
	Rs.	Rs.	Rs.	
Sales	15,25,000	17,00,000	+1,75,000	+11.47
Less : Cost of Sales	9,00,000	9,25,000	+25,000	+2.77
Gross Profit	6,25,000	7,75,000	+1,50,000	+24.00
<i>Operating Expenses</i>				
Administrative Expenses	93,250	95,980	+ 2,730	+2.93
Selling Expenses	1,90,000	2,09,000	+ 19,000	+10.00
Total Operating Expenses	2,83,250	3,04,980	+ 21,730	+7.67
Operating Profit	3,41,750	4,70,020	+ 1,28,270	+37.503
<i>Non-operating Income</i>				
Interest and Dividend	7,500	6,200	— 1,300	— 17.33
Profit from Sale of Land	6,000	8,000	+ 2,000	+ 33.33
	13,500	14,200	+ 700	+ 5.18
Total Income (operating and non-operating)	3,55,250	4,84,220	+ 1,28,970	+ 36.3
<i>Non-operating Expenses</i>				
Loss on Sale of Machinery	2,500	800	— 1,700	— 68.00
Income-Tax	85,000	1,68,000	+ 83,000	+ 97.64
	87,500	1,68,800	+ 81,300	+ 92.9
Net Profit	2,67,750	3,15,420	+ 47,670	+17.80

Interpretation:

1. The increase in sales is to the extent of Rs. 1.75 lakh while cost of sales increased by a sum of Rs. 25,000. The increase in sales is much better and cost of sales has been kept under control. The gross profit has increased by 24% and it is a healthy sign.
2. The operating profit has increased by 37.53%. Whereas operating expenses increased by only 7.67%, the increase in operating expenses is just normal. The increase in selling expenses by Rs. 19,000 is justified as compared to the increase in sales i.e., Rs.1, 75,000.
3. Non-operating income has increased by a small figure of Rs. 700 while non-operating expenses here increased by Rs. 81,300. In non-operating expenses, income-tax has increased by Rs. 83,000.
4. The overall profitability is good.

(2) TREND ANALYSIS

The financial statements may be analysed by computing trends of series of information, This method determines the direction upwards or downwards and involves the computation of the percentage relationship that each statement item bears to the same item in base year, The information for a number of years is taken up and one year, generally the first year, is taken as a base year. The figures of the base year are taken as 100 and trend ratios for other years are calculated on the basis of base year. The analyst is able to see the trend of figures, whether upward or downward.

Ex 5. Calculate the trend percentages from the following figures of X Ltd., taking 2015 as the base and interpret them :

(Rs. in lakhs)

Year	Sales	Stock	Profit before tax
2015	1,881	709	321
2016	2,340	781	435
2017	2,655	816	458
2018	3,021	944	527
2019	3,768	1,154	672

Solution:

Trend Percentages (Base year 2015=100)

Year	Sales		Stock		Profit before tax	
	Amount (in lakhs)	Trend Percentage	Amount (in lakhs)	Trend Percentage	Amount (in lakhs)	Trend Percentage
2015	1,881	100	709	709	321	100
2016	2,340	124	781	781	435	136
2017	2,655	141	816	816	458	143
2018	3,021	161	944	944	527	164
2019	3,768	200	1,154	1154	672	209

Interpretation

- 1) The sales have continuously increased in all the years upto 2019. The percentage in 2019 is 200 as compared to 100 in 2015. The increase in sales is quite satisfactory.
- (2) The figures of stock have also increased from 2015 to 1983. The increase in stocks is more in 2018 and 2019 as compared to earlier years.
- (3) Profit before tax has substantially increased. In five years period it has more than doubled. The comparative increase in Profits is much higher in 2018 and 2019 as compared to 2017. The expansion of the firm is good and it has doubled its sales and profits in just five years' time. The profits have increased more than sales which show that there is a proper control over cost of goods sold. The overall performance of the concern is good.

COMMON-SIZE STATEMENT

The common-size statements, balance sheet and income statement are shown in analytical percentages. The figures are shown as percentages of total assets, total liabilities and total sales. The total assets are taken as 100 and different assets are expressed as a percentage of the total. Similarly, various liabilities are taken as a part of total liabilities. These statements are also known as component percentage or 100 per cent statements because every individual item is stated as a percentage of the total 100. The shortcomings in comparative statements and trend percentages where changes in items could not be compared with the

totals have been covered up. The analyst is able to assess the figures in relation to total values. The common-size statements may be prepared in the following way :

COMMON-SIZE BALANCE SHEET

Ex.6. Convert the following balance sheet into common size balance sheets and interpret the results.

Balance sheets
As on 31st December 1982 and 1983

(Amount in lakhs)					
Liabilities	1982 Rs.	1983 Rs.	Assets	1982 Rs.	1983 Rs.
Equity Share			Current Assets		
Capital	1000	1,200	Debtors	450	390
Capital Reserves	90	185	Cash	200	15
General Reserves	500	450	Stock	320	250
Sinking Fund	90	100	Investments	300	250
Debentures	450	650	<i>Fixed Assets :</i>		
Sundry creditors	200	150	Building less depreciation	800	1,400
Others	15	20	Land	198	345
			Furniture and Fixtures	77	105
	2,345	2,755		2,345	2,755

Solution:

COMMONSIZE BALANCE SHEETS
As on 31st December 1982 and 1983

Liabilities Rs.	1982 Rs.	1983 Rs.	Assets	1982 Rs.	1983 Rs.
<i>Current Liabilities</i>			<i>Current Assets</i>		
Sundry creditors	8.53	5.44	Debtors	19.19	14.16
Others	0.64	0.70	Cash	8.53	0.54
			Stock	13.65	9.07
Total	9.17	6.14	Total	41.37	23.77
<i>Fixed Liabilities</i>			Investments	12.80	9.07
Debentures	19.19	23.60	<i>Fixed Assets</i>		
Capital			Land	8.44	12.52
Equity Share			Building	34.11	50.82
Capital	42.64	43.58	Furniture and Fixtures	3.28	3.82
Capital Reserve	3.84	6.72			
General Reserves	21.32	16.33			
Sinking Fund	3.84	3.63			
	100.00	100.00		100.00	100.00

Interpretation.

1, Both current assets and current liabilities have decreased in 1983 as compared to 1982. The decrease in current assets is more than the decrease in current liabilities while current liabilities have decreased only by 3.03% whereas current assets have gone down from 41.37% to 23.77%. Though current assets fully cover current liabilities but this decrease is alarming. All current assets have gone down but cash has decreased to a considerable extent. It is only 0.54% in 1983 while it was 8.53% of total assets a year earlier. The concern is likely to face problems in meeting day to day expenses,

2. Fixed assets and fixed liabilities have both increased in 1983 but increase in fixed assets is more than the increase in fixed liabilities. The business has increased capital and debentures to finance the addition of fixed assets. Investments have also been sold to provide funds for purchasing fixed assets. All these sources put together are less than the increase in fixed assets and it is clear that current funds have also been used to purchase fixed assets. A right approach is to finance fixed assets by raising long-term funds and current assets should be kept for working capital purposes only. In this case the concern has not followed a proper financial policy.

3. The purchase of land and building shows that the concern has undertaken expansion plans and capacity will go up in the following years.

The overall financial position of the business is good at present but current assets especially cash need augmentation.

COMMON SIZE INCOME STATEMENT

The items in income statement can be shown as percentages of sales to show the relation of each item to sales. A significant relationship can be established between items of income statement and volume of sales. The increase in sales will certainly increase selling expenses and not administrative or financial expenses, In case the volume of sales increases to a considerable extent, administrative and financial expenses may go up. If case the sales are declining, the selling expenses should be reduced at once. So, a relationship is established between sales and other items in income statement and this relationship is helpful in evaluating operational activities of the enterprise.

Ex.7. Following are Income statements of a company for the year ending December 31,1981 and 1982.

	1981 (Rs. in '000)	1982 (Rs. in '000)
Sales	500	700
Miscellaneous Income	20	15
	<u>520</u>	<u>715</u>
<i>Expenses :</i>		
Cost of sales	325	510
Office expenses	20	25
Selling expenses	30	45
Interest	25	30
	<u>400</u>	<u>610</u>
Net Profit	120	105
	<u>520</u>	<u>715</u>

Solution:

Common-Size Income Statement
For the years ending December 1981 and 1982

	1981		1982	
	('000) Rs.	%	('000) Rs.	%
Sales	500	100.00	700	100.00
Less : Cost of sales	325	65.00	510	72.86
Gross Profit	<u>175</u>	<u>35.00</u>	<u>190</u>	<u>27.14</u>
<i>Operating Expenses :</i>				
Office expenses	20	4.00	25	3.58
Selling expenses	30	6.00	45	6.42
Total Operating Expenses	<u>50</u>	<u>10.00</u>	<u>70</u>	<u>10.00</u>
Operating Profit	125	25.00	120	17.14
+ Miscellaneous Income	20	4.00	15	2.14
Total Income	<u>145</u>	<u>29.00</u>	<u>135</u>	<u>19.28</u>
Less : Non-operating expenses :				
Interest	25	5.00	30	4.28
Net Profit	<u>120</u>	<u>24.00</u>	<u>105</u>	<u>15.00</u>

Interpretation

- (1) The sales and gross profit has increased in absolute figures in 1982 as compared to 1981 but the percentage of gross profit to sales has gone down in 1982.
- (2) The increase in cost of sales as a percentage of sales has brought the profitability down from 35% to 27.14%.
- (3) Operating expenses have remained the same in both the years but non-operating expenses have decreased as a percentage in 1982. A slight decrease in non-operating expenses in the latter year could not help to improve profits.
- (4) Net profits have decreased both in absolute figures and as a percentage in 1982 as compared to 1981.
- (5) The overall profitability has decreased in 1982 and the reason is a rise in cost of sales. The company should take immediate steps to control its cost of sales, otherwise the company will be in trouble.

(3) RATIO ANALYSIS

Financial statements are prepared primarily for decision making. They play a dominant role in setting the framework of managerial decisions, but the information provided in the financial Statements is not an end in itself as no meaningful conclusions can be drawn from these statements alone. However, the information provided in the financial statements is of immense use in making decisions through analysis and interpretation of financial statements. Financial analysis is the process of identifying the financial strengths and weaknesses of the firm by properly establishing relationship between the items of the balance sheet and the profit and loss account.' There are various methods or techniques used in analysing financial statements, such as comparative statements, schedule of changes in working capital, common-size percentages, funds analysis, trend analysis and ratio analysis. The ratio analysis is the most powerful tool of financial analysis.

Meaning of Ratio – A ratio is an expression of the quantitative relationship between two numbers. A ratio is a simple arithmetical expression of the relationship of one number to another. It may be defined as the indicated quotient of two mathematical expressions. In a simple language ratio is one number expressed in terms of another and can be worked out by dividing one number to the other.

INTERPRETATION OF THE RATIOS

The interpretation of ratios is an important factor. Though calculation of ratios is also important but it is only a clerical task whereas interpretation needs skill, intelligence and foresightedness. The impact of factors such as price level changes, change in accounting policies, window dressing etc should also be kept in mind when attempting to interpret ratios. A single ratio in itself does not convey much of the sense. To make ratios useful, they have to be further interpreted.

Use and Significance of Ratio Analysis - The ratio analysis is one of the most powerful tools of financial analysis. It is used as a device to analyse and interpret the financial health of enterprise. A financial analyst analyses the financial statements with various tools of analysis before commenting upon the financial health or weaknesses of an enterprise. It is with the help of ratios that the financial statements can be analysed more clearly and decisions made from such analysis.

The use of ratios is not confined to financial managers only. There are different parties interested in the ratio analysis for knowing the financial position of a firm for different purposes. The supplier of goods on credit, banks, financial institutions, investors, shareholders and management all make use of ratio analysis as a tool in evaluating the financial position and performance of a firm for granting credit, providing loans or making investments in the firm. With the use of ratio analysis one can measure the financial condition of a firm and can point out whether the condition is strong, good, questionable or poor. The conclusions can also be drawn as to whether the performance of the firm is improving or deteriorating. Thus, ratios have wide applications and are of immense use today.

Managerial Uses of Ratio Analysis

1) Helps in decision-making. Financial statements are prepared primarily for decision-making. But the information provided in financial statements is not an end in itself and no meaningful conclusion can be drawn from these statements alone. Ratio analysis helps in making decision from the information provided in these financial statements.

(2) Helps in financial forecasting and planning. Ratio Analysis is of much help in financial forecasting and planning, Planning is looking ahead and the ratios calculated for a number of years work as a guide for the future. Meaningful conclusions can be drawn for future from these ratios. Thus, ratio analysis helps in forecasting and planning.

(3) Helps in communicating. The financial strength and weakness of a firm are communicated in a more easy and understandable manner by the use of ratios. The information contained in the financial statements is conveyed in a meaningful manner to the one for whom it is meant. Thus, ratios help in communication and enhance the value of the financial statements.

4) Helps in co-ordination. Ratios even help in co-ordination which is of utmost importance in effective business management. Better communication of the efficiency and weakness of an enterprise results in better co-ordination in the enterprise.

(5) Helps in control. Ratio analysis also helps in making effective control of the business. Standard ratios can be based upon proforma financial statements and variances or deviations, if any, can be found by comparing the actuals with the standards so as to take a corrective action at the right time.

(6) Other Uses. There are so many other uses of the ratio analysis. It is an essential part of the budgetary control and standard costing. Ratios are of immense importance in the analysis and interpretation of financial statements as they bring out the strength or weaknesses of a firm.

Utility to Shareholders/Investors

An investor in the company will like to assess the financial position of the concern where he is going to invest. His first interest will be the security of his investment and then a return in the form of dividend or interest. The investor will feel satisfied only if the concern has sufficient amount of assets. Long-term solvency ratios will help him in assessing financial position of the concern. Profitability ratios, on the other hand, will be useful to determine profitability position. Ratio analysis will be useful to the investor in making up his mind whether present financial position of the concern warrants further investments or not.

Utility to Creditors

The creditors or suppliers extend short-term credit to the concern. They are interested to know whether financial position of the concern warrants their payments at a specified time or not. The concern pays short term creditors out of its current assets. If the current assets are quite sufficient to meet current liabilities then the creditor will not hesitate in extending credit facilities. Current and acid-test ratios will give an idea about the current financial position of the concern.

Utility to Employees

The employees are also interested in the financial position of the concern especially profitability. Their wage increases and amount of fringe benefits are related to the volume of profits earned by the concern.

Utility to Government

Government is interested to know the overall strength of the industry. Various financial statements published by industrial units are used to calculate ratios for determining short-term, long-term and overall financial position of the concerns. Profitability indexes can also be prepared with the help of ratios. Government may base its future policies on the basis of industrial information available from various units.

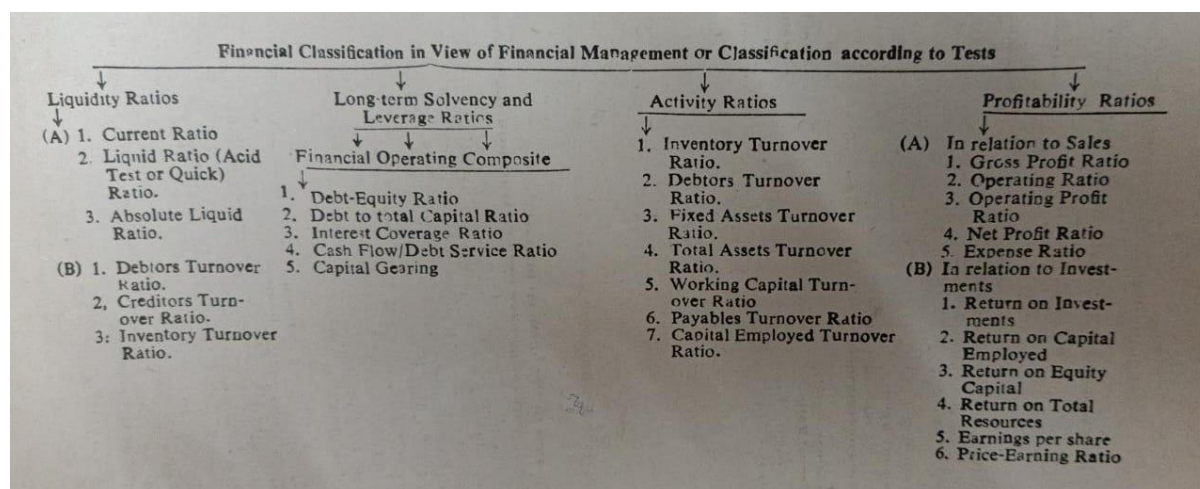
LIMITATIONS OF RATIO ANALYSIS

The ratio analysis is one of the most powerful tools of financial management. Though ratios are simple to calculate and easy to understand, they suffer from some serious limitations:

- (1) **Limited use of a Single Ratio.** A single ratio, usually, does not convey much of a sense. To make a better interpretation a number of ratios have to be calculated which is likely to confuse the analyst than help him in making any meaningful conclusion.
- (2) **Lack of Adequate Standards.** There are no well accepted standards or rules of thumb for all ratios which can be accepted as norms. It renders interpretation of the ratios difficult.
- (3) **Inherent Limitations of Accounting.** Like financial statements, ratios also suffer from the inherent weaknesses of accounting records such as their historical nature. Ratios of the past are not necessarily true indicators of the future.
- (4) **Change of Accounting Procedure.** Change in accounting procedure by a firm often makes ratio analysis misleading, e.g., change in the evaluation of methods of inventories from FIFO to LIFO increase the cost of sales and reduces considerably the value of closing stocks which makes stock turnover ratio to be lucrative and an unfavourable gross profit ratio.
- (5) **Window Dressing.** Financial statements can easily be Window-dressed to present a better picture of its financial and profitability position to outsiders. Hence, one has to be very careful in making a decision from ratios calculated from such financial Statements, But it may be very difficult for an outsider to know about the window dressing made by a firm,
- (6) **Personal Bias.** Ratios are only means of financial analysis and not an end in itself. Ratios have to be interpreted and different people may interpret the same ratio in different ways.
- (7) **Uncomparable.** Not only industries differ in their nature but also the firms of the similar business widely differ in their size and accounting procedures, etc. It makes comparison of ratios difficult and misleading.
- (8) **Absolute figures Distortive.** Ratios devoid of absolute figures may prove distortive as ratio analysis is primarily a quantitative analysis and not a qualitative analysis.
- (9) **Price Level Changes.** While making ratio analysis, no consideration is made to the changes in price levels and this makes the interpretation of ratios invalid.
- (10) **Ratios no Substitutes,** Ratio analysis is merely a tool of financial statements. Hence, ratios become useless if separated from the statements from which they were computed.

CLASSIFICATION OF RATIOS

Ratios maybe classified as follows:



ANALYSIS OF SHORT-TERM FINANCIAL POSITION OR TEST OF LIQUIDITY

The short-term creditors of a company like suppliers of goods on credit and commercial banks providing short-term loans, are primarily interested in knowing the company's ability to meet its current or short-term obligations as and when these become due. The short-term obligations of a firm can be met only when there are sufficient liquid assets. It is very important to have a proper balance in regard to the liquidity of the firm. Two types of ratios can be calculated for measuring short-term financial position or short-term solvency of a firm.

(A) Liquidity Ratios (B) Current Assets Movement or Efficiency Ratios.

(A) **Liquidity Ratios** - Liquidity refers to the ability of a concern to meet its current obligations as and when these become due. The short-term obligations are met by realising amounts from current, floating or circulating assets. The current assets should either be liquid or near liquidity. These should be convertible into cash for paying obligations of short-term nature. The sufficiency or insufficiency of current assets should be assessed by comparing them with short term (current) liabilities, If current assets can pay off current liabilities, then liquidity position will be satisfactory. On the other hand, if current liabilities may not be easily met cut of current assets then liquidity position will be bad. The bankers, suppliers of goods and other short-term creditors are interested in the liquidity of the concern, They will extend credit only if they are sure that current assets are enough to pay

out the obligations. To measure the liquidity of a firm, the following ratios are calculated :

(i) Current Ratio

(ii) Quick or Acid Test or Liquid Ratio

(iii) Absolute Liquid Ratio or Cash Positions Ratio,

(i) Current Ratio - Current ratio may be defined as the relationship between current assets and current liabilities. It is calculated by dividing the total of current assets by total of the current liabilities.

Thus, **Current Ratio = Current Assets/ Current Liabilities (OR)**

Current Ratio = Current Assets : Current Liabilities

The two basic components of this ratio are: current assets and current liabilities. Current assets include cash and those assets which can be easily converted into cash within a short period of time generally, one year, such as marketable securities, bills receivables, sundry debtors, inventories, work-in-progress, etc. Prepaid expenses should also be included in current assets because they represent payments made in advance which will not have to be paid in near future. Current Liabilities are those obligations which are payable within a short period of generally one year and include outstanding expenses, Bills payables, sundry creditors, accrued expenses, short advances etc.

Interpretation of Current Ratio

A relatively high current ratio is an indication that the firm is liquid and has the ability to pay its current obligations in time and when they become due. On the other hand, a relatively low current ratio represents that the liquidity position of the firm is not good and the firm shall not be able to pay its current liabilities in time without facing difficulties. A ratio equal or near to the rule of thumb of 2:1, ie, current assets double the current liabilities, is considered to be satisfactory.

Ex 8. Calculate: (a) Current Assets (b) Quick Assets (c) Inventory
Current ratio is 1.5:1; Quick ratio is 1:1; Current Liability: Rs. 50,000.

SOLUTION

Current Ratio = Current Assets / Current Liabilities

1.5 = Current assets/ 50,000

(a) Current Assets = 50,000 x 1.5 = Rs. 75,000

(b) Quick Assets = 50,000 x 1.02 Rs. 50,000

(c) Inventory = Current Assets - Quick Assets
= Rs. 75,000 -Rs. 50,000 = Rs. 25,000.

Ex.9. Calculate current ratio from the following information :

(In Rs)	(In Rs)
Stock - 60,000	Sundry Creditors 20,000
Sundry Debtors - 70,000	Bills Payable - 15,000
Cash Balances - 20,000	Tax Payable - 18,000
Bills Receivables - 30,000	Outstanding Expenses 7,000
Prepaid Expenses - 10,000	Bank Overdraft 25,000
Land and Building - 1,00,000	Debentures 75,000
Goodwill - 50,000	

Solution :

Current Ratio = Current Assets/ Current Liabilities

Current Assets =Rs. 60,000+Rs. 70,000+Rs. 20,000 +Rs. 30,000+ Rs. 10,000 = Rs. 1,90,000

Current Liabilities = Rs. 20,000+-Rs. 15,000+-Rs. 18,000 Rs. 7000 = Rs. 85,000
= Rs 85,000

Current Ratio = Rs. 1,90,000 / Rs 85,000 = 2.24

(ii) Quick or Acid Test or Liquid Ratio

Quick Ratio, also known as Acid Test or Liquid Ratio, is a more rigorous test of liquidity than the current ratio. The term ‘liquidity’ refers to the ability of a firm to pay its short-term obligations as and when they become due. Quick ratio may be defined as the relationship between Quick/liquid assets and current or liquid liabilities. An asset is said to be liquid if it can be converted into cash within a short period without loss of value. In that sense, cash in hand and cash at bank are the most liquid assets. Inventories and Prepaid expenses are also excluded from the list of quick liquid assets because they are not expected to be converted into cash. The quick ratio can be calculated by dividing the total of the quick assets by total current liabilities.

Quick/Liquid or Acid Test Ratio = Quick or Liquid Assets / Current Liabilities

Quick assets can also be calculated as: Current Assets - (Inventories + Prepaid Expenses).

Interpretation of Quick Ratio

Usually, a high acid test ratio is an indication that the firm is liquid and has the ability to meet its current or liquid liabilities in time and on the other hand a low quick ratio represents that the firm's liquidity position is not good. As a rule of thumb or as a convention quick ratio of 1:1 is considered satisfactory. It is generally thought that if quick assets are equal to current liabilities then the concern may be able to meet its short-term obligations.

Ex.10.

Calculate Quick Ratio:

(In Rs)	(In Rs)
Bank Loan – 1,00,000	Stock in trade – 1,35,000
Sundry Creditors - 1,50,000	Sundry Debtors 72,000 (Less; Provision for D.Debts 2,000) = 70,000

Bills Payable – 20,000	Cash in hand – 15,000
Creditors for expenses – 10,000	Cash at bank – 1,10,000
6% Debentures – 2,00,000	Short term Investments – 1,50,000
Plant – 3,00,000	Prepaid Insurance – 5,000

Solution:

Quick/Liquid or Acid Test Ratio = Quick or Liquid Assets / Current Liabilities
 Quick Assets = Rs. 70,000+Rs. 15,000+Rs. 1,10,000 +Rs. 1,50,000 = Rs. 3,45,000
 Current Liabilities=Rs. 1,50,000 +Rs. 20,000+Rs. 10,000 =Rs. 1,80,000
 Quick Ratio= Quick Assets / Current Liabilities
 = Rs. 3,42,000 / Rs. 1,80,000 =1.916

(iii) Absolute Liquid Ratio

Although receivables, debtors and bills receivable are generally more liquid than inventories, yet there may be doubts regarding their realisation into cash immediately or in time. Hence, some authorities are of the opinion that absolute liquid ratio should also be calculated together with current ratio and acid test ratio so as to exclude even receivables from the current assets and find out the absolute liquid assets.

Absolute Liquid Ratio = Absolute Liquid Assets / Current Liabilities

Absolute Liquid Assets include cash in hand and at bank and marketable securities or temporary investments. The acceptable norm for this ratio is 50% or .5.

Absolute Liquid Assets= Marketable Securities+Cash in Hand +Cash at Bank

Ex.11. Calculate Absolute Liquid Ratio from the following information :

(In Rs)	(In Rs)
Goodwill - 50,000	Cash at Bank 30,000
Plant – 4,00,000	Inventories - 75,000
Trade Investments – 2,00,000	Bank overdraft – 70,000
Marketable Securities – 1,50,000	Sundry Creditors – 60,000
Bills Receivable – 40,000	Bills Payable – 90,000
Cash in hand – 45,000	Outstanding Expenses – 30,000

Solution :

Absolute Liquid Ratio= Absolute Liquid Assets / Current Liabilities
 Absolute Liquid Assets= Marketable Securities+Cash in Hand +Cash at Bank
 =Rs. 1,50,000+Rs. 45,000 + Rs. 30,000 =Rs, 2,25,000
 Current Liabilities = Bank Overdraft+ Sundry Creditors +Bills Payable+ Outstanding Expenses
 Absolute Liquid Ratio= Rs. 2,50,000 / Rs. 2,25,000 ==0.9
 The ratio of 0.9 is quite satisfactory because it is much higher than the rule of thumb ie. 0.5.

CURRENT ASSETS MOVEMENT OR EFFICIENCY/ ACTIVITY RATIOS

Funds are invested in various assets in a business to make sales and earn profits. The efficiency with which assets are managed directly affect the volume of sales. The better the management of assets, the larger is the amount of sales and the profits. Activity ratios measure the efficiency or effectiveness with which a firm manages its resources or assets. 'These ratios are also called ratios because they indicate the speed with which assets are converted or turned over into sales. Depending upon the purpose, a number of turnover ratios can be calculated as debtor's turnover, creditor's turnover, stock turnover, capital turnover, etc.

Inventory Turnover or Stock Turnover Ratio

Inventory Turnover ratio indicates the number of times the stock has been turned during the period and evaluates the efficiency with which the firm is able to manage its inventory.

(a) Inventory Turnover Ratio = Cost of Goods sold / Average Inventory at Cost

Average Inventory is calculated by adding the stock in the beginning and at the end of the period and dividing it by two.

$$\text{Average inventory} = (\text{Opening stock} + \text{Closing stock}) / 2$$

$$\text{Inventory Turnover Ratio} = \text{Net Sales} / \text{Average Inventory at Cost}$$

$$\text{Inventory Turnover Ratio} = \text{Net Sales} / \text{Average Inventory at Selling Price}$$

$$\text{Inventory Turnover Ratio} = \text{Net Sales} / \text{Inventory}$$

$$\text{Inventory Conversion Period} = \text{Days in a year} / \text{Inventory Turnover Ratio (or)}$$

$$\text{Inventory Conversion Period} = 365 / \text{Inventory Turnover Ratio}$$

Interpretation of Inventory Turnover Ratio - Inventory turnover ratio measures the velocity of conversion of stock into sales. Usually, a high inventory turnover/Stock velocity indicates efficient management of inventory because more frequently the stocks are sold, the lesser amount of money is required to finance the inventory. A low inventory turnover ratio indicates an inefficient management of inventory, a low inventory turnover implies over-investment in inventories, dull business, poor quality of goods, stock accumulations, accumulation of obsolete and slow moving goods and low profits as compared to total investments. The norms may be different for different firms depending upon the nature of industry and business conditions. However, a study of the comparative or trend analysis of inventory turnover is still useful for financial analysis.

(ii) Debtors or Receivable Turnover Ratio and Average Collection - A concern may sell goods on cash as well as on credit. Credit is one of the important elements of sales promotion. The volume of sales can be increased by following a liberal credit policy. Trade debtors are expected to be converted into cash within a short period and are included in

current assets. Hence, the liquidity position of a concern to pay its short-term obligations in time depends upon the quality of its trade debtors. Two kinds of ratios can be computed to evaluate the quality of debtors.

(a) Debtors/Receivables Turnover or Debtors Velocity

Debtors turnover ratio indicates the velocity of debt collection of a firm. In simple words, it indicates the number of times average debtors (Receivables) are turned over during a year:

Debtors (Receivables) Turnover/velocity

= Net Credit Annual Sales /Average Trade Debtors

= No. of Times

Trade Debtors=Sundry Debtors + Bills Receivables and Accounts Receivables Average

Trade Debtors = (Opening Trade Debtors + Closing Trade Debtors)/ 2.

Note. Debtors should always be taken at gross value. No provision for bad and doubtful debts be deducted from them.

But when the information about opening and closing balances of trade debtors and credit sales is not available, then the debtors turnover ratio can be calculated by dividing the total sales by the balance of debtors (inclusive of bills receivables) given.

Debtors Turnover Ratio= Total Sales / Debtors

Interpretation of Debtors Turnover /Velocity

Debtors velocity indicates the number of times the debtors are turned over during a year. Generally, the higher the value of debtors turnover the more efficient is the management of debtors/ sales or more liquid are the debtors, Similarly, low debtors turnover implies inefficient management of debtors/sales and less liquid debtors. But a precaution is needed while interpreting a very high debtors turnover ratio because a very high ratio may imply a firm's inability due to lack of resources to sell on credit thereby losing sales and profits. There is no 'rule of thumb' which may be used as a norm to interpret the ratio as it may be different from firm to firm, depending upon the nature of business. This ratio should be compared with ratios of other firms doing similar business and a trend may also be found to make a better interpretation of the ratio,

(b) **Average Collection Period Ratio** - The average collection period represents the average number of days for which a firm has to wait before its receivables are converted into cash. The ratio can be calculated as follows :

(i) **Average Collection Period Average = [Trade Debtors (Drs+B/R)] / Sales per day**

Sales per day= Net Sales/No. of working days (or)

$$\text{Average Collection Period} = [\text{Average Trade Debtors} / \text{Net Sales}] / \text{No. of working days}$$

$$= (\text{Average Trade Debtors} \times \text{No. of working days}) / \text{Net Sales}$$

If the period is in months:

$$= (\text{Average Trade Debtors} \times \text{No. of Months}) / \text{Net Sales}$$

$$\text{Average Collection Period} = (\text{Average Trade Debtors} \times \text{No. of Months}) / \text{Net Sales (or)}$$

$$\text{Average Collection Period} = \text{No. of Working Days} / \text{Debtors Turnover Ratio}$$

$$= \text{No. of days}$$

$$\text{Average trade Debtors} = (\text{Opening debtors} + \text{Closing debtors}) / 2$$

Interpretation of Average Collection Period Ratio

The average collection period ratio represents the average number of days for which a firm has to wait before its receivables are converted into cash. It measures the quality of debtors. Generally, the shorter the average collection period the better is the quality of debtors as a short collection period implies quick payment by debtors. Similarly, a higher collection period implies an inefficient collection performance which in turn adversely affect the liquidity or short-term paying capacity of a firm out of its current liabilities. There is no 'rule of thumb' or 'standard' which may be used as a norm while interpreting this ratio as the ratio may be different from firm to firm depending upon its credit policy, nature of business and business conditions.

Ex.12., Dryson Ltd. provides the following information :

	Rs.
Cash sales during the year	1,50,000
Credit sales during the year	2,70,000
Returns Inward	20,000
Total Debtors in the beginning	55,000
Total Debtors at the end	45,000
Provision for bad and doubtful debts	5,000

Calculate : (i) Debtors Turnover Ratio (ii) Average Collection Period
Take 360 days in a year and all returns are from credit sales.

Solution:

(i) Debtors Turnover Ratio = Net Credit Annual Sales / Average Trade Debtors
 Net Credit Annual Sales = Rs. 2,70,000 - Rs. 20,000 = Rs. 2,50,000
 Average Trade Debtors = (Rs. 55,000 + Rs. 45,000) / 2
 Debtors Turnover Ratio = Rs. 250,000 / Rs. 50,000 = 5 times

(ii) Average Collection Period
 = (Average Trade Debtors x No. of days in a year) / Net Credit Annual Sales
 = (Rs. 50,000 x 360) / Rs. 2,50,000 = 72 days

Alternatively,

Average Collection Period = No. of days in a year / Debtors Turnover Ratio
 = 360/5 = 72 days.

(iii) Creditors, Payables Turnover Ratio

In the course of business operations, a firm has to make credit purchases and incur short-term liabilities. A supplier of goods, ie creditor, is naturally interested in finding out how much time the firm is likely to take in repaying its trade creditors.

(a) Creditors/Payable Turnover Ratio

Creditors/Payable Turnover Ratio

$$= \text{Net Credit Annual Purchases} / \text{Average Trade Creditors}$$

Average Payment Period Ratio

$$= [\text{Average Trade Creditors (Creditors+Bills Payable)}] / \text{Average}$$

Average Daily Purchases = Annual Purchases / No. of Working Days in a Year (or)

Average Payment Period

$$= [\text{Trade Creditors} \times \text{No. of Working Days}] / \text{Net Annual Purchases}$$

(or) Average Payment Period = No. of Working Days / Creditors Turnover Ratio

(in case information about credit purchases is not available total purchases may be assumed to be credit purchases).

Interpretation of Average Payment Period Ratio

The average payment period ratio represents the average number of days taken by the firm to pay its creditors. Generally, lower the ratio, the better is the liquidity position of the firm and higher the ratio, less liquid is the position of the firm. To make correct interpretation of this ratio, a comparative analysis of different firms in the same industry and the trend may be found for various years.

Ex.13.

Calculate (i) Creditors turnover Ratio and (ii) Average Payment Period,

	2018	2019
	Rs	Rs
Annual Credit Purchases	6,80,000	7,50,000
Creditors on January 1	80,000	60,000
Creditors on December 31	60,000	90,000

Take 360 days in a year.

Solution

Year	2018	2019
Average Creditors	(Rs. 80,000 + Rs. 60,000) / 2 = Rs.70,000	(Rs.60,000 + Rs.90,000)/2 = Rs.75,000
(i) Creditors Turnover Ratio = Net Annual Credit Purchases/ Average Trade Creditors	Rs. 6,80,000/ Rs.70,000 = 9.71 times	Rs. 7,50,000/ Rs.75,000 = 10 times
(ii) Average Payment Period = No. of working days /Creditors Turnover Ratio	=360/9.71 =37 days	360/10 days
Alternatively, Average Payment Period = (Average Trade Creditors* No. of working day)/ Net Annual Credit Purchases	= (Rs.70,000/ 360) / Rs, 6,80,000 = 37days	= (Rs.75,000*360)/ Rs.7,50,000 = 36 days

(iv) Working Capital Turnover Ratio

Working Capital of a concern is directly related to sales. The current assets like debtors, bills receivables, cash, stock etc. change with the increase or decrease in sales. The working capital is taken as;

$$\text{Working Capital} = \text{Current Assets} - \text{Current Liabilities}$$

Working Capital turnover ratio indicates the velocity of the utilisation of net working capital. This ratio indicates the number of times the working capital is turned over in the course of a year. This ratio measures the efficiency with which the working capital is being used by a firm. A higher ratio indicates efficient utilisation of working capital and a low ratio indicates otherwise. But a very high working capital turnover ratio is not a good situation for any firm and hence care must be taken while interpreting the ratio. This ratio can at best be used by making of comparative and trend analysis for different firms in the same industry and for various periods. This ratio can be calculated as:

$$\text{Working Capital Turnover Ratio} = \frac{\text{Cost of Sales}}{\text{Average Working Capital}}$$

$$= \frac{(\text{Opening Working Capital} + \text{Closing Working Capital})}{2}$$

If the figure of cost of sales is not given, then the figure of sales can be used instead. On the other hand if opening working capital is not disclosed, then working capital at the year-end will be used. In that case the ratio will be:

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

Ex.14. Find out working capital turnover Ratio:

Cash Rs.10,000; Bills Receivables Rs.5,000; Sundry Debtors Rs.25,000; Stocks Rs.20,000; Sundry Creditors Rs.30,000; Cost of sales Rs.1,50,000

Solution:

Working Capital Turnover Ratio = Cost of Sales / Net Working Capital

Current assets = Rs. 10,000 + 5,000 + 25,000 + 20,000 = Rs. 60,000

Current liabilities = Rs. 30,000

Net working capital = CA-CL = Rs. 60,000 – Rs.30,000 = Rs. 30,000

So, Working Capital Turnover Ratio = Rs.1,50,000 /30,000 = 5 times.

Ex 15. From the following information is given about M/s, SB. Ltd:

(i) Stock turnover ratio = 6 times (ii) Gross profit ratio = 20% on sales (iii) Sales for 1989 = Rs, 3,00,000 (iv) Closing stock is Rs, 10,000 more than the opening stock (v) Opening creditors = Rs. 20,000 (vi) Closing creditors = Rs, 30,000 (vii) Trade debtors at the end = Rs, 60,000 (viii) Net Working Capital = Rs, 50,000 .

Find out: (a) Average Stock (b) Purchases (c) Creditors Turnover Ratio (d) Average Payment Period (e) Average Collection Period (f) Working Capital Turnover Ratio.

Solution:

Cost of goods sold = Sales - Gross Profit
= Rs. 3,00,000 - (20% of sales) = Rs. 3,00,000 - Rs. 60,000 = Rs. 2,40,000

(a) Average Stock = Cost of goods sold / Average stock

6 = Rs. 2,40,000 / Average stock

Average Stock = Rs. 2,40,000 / 6 = Rs. 40,000

(b) Purchases

Cost of goods sold = Opening stock + Purchases - Closing stock, or

Purchases = Cost of goods sold + Closing Stock - Opening Stock

Average Stock = (Opening Stock + Closing Stock) / 2

Since, Closing stock is Rs. 10,000 more than the Opening stock,

Rs. 40,000 = [Opening Stock + (Rs. 10,000 + Opening Stock)] / 2

Rs. 80,000 = 2 Opening stock + Rs. 10,000

Opening stock = 70,000 / 2 = Rs. 35,000

Closing Stock = 35,000 + 10,000 = Rs. 45,000

Purchases = Rs. 2,40,000 + Rs. 45,000 - Rs. 35,000 = Rs. 2,50,000

(c) Creditors Turnover Ratio = Net Annual Credit Purchases / Average Trade Creditors All purchases are taken as credit purchases.

Creditors Turnover Ratio = Rs. 2,50,000 / [(Rs. 20,000 + Rs. 30,000) / 2]

= Rs. 2,50,000 / Rs. 25,000 = 10 times.

(d) Average Payment Period

= (Average Trade Creditors x No. of Working Days) / Net Annual Purchases

= Rs. 25,000 / Rs. 2,50,000 = 36.5 days or 37 days

e) Average Collection Period

= (Average Trade Debtors x No. of Working Days) / Net Annual Sales

= (60,000 x 365) / 3,00,000 = 73 days

(f) Working Capital Turnover Ratio = Cost of Goods Sold / Net Working Capital

= Rs. 2,40,000 / Rs. 50,000 = 4.8 times.

ANALYSIS OF LONG-TERM FINANCIAL, POSITION OR TESTS OF SOLVENCY

The term 'solvency' refers to the ability of a concern to meet its long term obligations. The long-term indebtedness of a firm includes debenture holders, financial institutions providing medium and long-term loan and other creditors selling goods on instalment basis. The short-term creditors of a firm are primarily interested in knowing the firm's ability to meet its short term obligations; the debenture holders and other long-term creditors are primarily interested in knowing the firm's ability to pay regularly interest on long-term borrowings. Repayment of the principal amount at the maturity and the security of their loans. Accordingly, long-term solvency ratios indicate a firm's ability to meet the fixed interest and costs and repayment schedules associated with its long-term borrowings.

The following ratios serve the purpose of determining the solvency of the concern :

(i) Debt-Equity Ratio. (ii) Funded Debt to Total Capitalisation Ratio. (iii) Proprietary Ratio or Equity Ratio. (iv) Solvency Ratio or the Ratio of Total liabilities to Total Assets, (v) Fixed Assets to Net Worth Ratio or Ratio of Fixed Assets to Proprietor's Funds, (vi) Fixed Assets to Total Long-term Funds or Fixed Assets ratio.,(vii) Ratio of Current Assets to Proprietors' Funds.(viii) Debt Service Ratio or Interest Coverage Ratio. (ix) Cash to Debt Service Ratio.

(i) **Debt Equity Ratio:** Debt-Equity Ratio, also known as External-Internal Equity. Ratio is calculated to measure the relative claims of outsiders (ie., shareholders) against the firm's assets. This ratio indicates the 'relationship between the external equities or the outsiders funds and the internal equities or the shareholders' funds, thus :

Debt-Equity Ratio = Outsiders' Funds /Shareholders' Funds

or Debt to Equity Ratio= External Equities / Internal Equities

The two basic components of the ratio are outsiders' funds, i.e., external equities and shareholders' funds, i.e., internal equities. The outsiders' funds include all debts/liabilities to outsiders, whether long-term or short-term or whether in the form of debentures, bonds, mortgages or bills. The shareholders' funds consist of equity share capital, preference share capital, capital reserves, revenue reserves and reserves representing accumulated profits and surpluses like reserves for contingencies, sinking fund, etc. The accumulated losses and deferred expenses, if any, should be deducted from the total to find out shareholders' funds. When the accumulated losses and deferred expenses are deducted from the shareholders' funds, it is called net worth and the ratio may be termed as debt to net worth ratio.

Long-term Debt to Shareholders' funds (Debt-Equity ratio)

= Long-term Debt / Shareholders' funds

Ex 16.From the Balance sheet, calculate the following ratios:

Liabilities	Rs.	Assets	Rs.
2,000 Equity Shares of Rs. 100 each	2,00,000	Fixed Assets	4,00,000
1,000, 9%, Preference Shares of Rs. 100 each	1,00,000	Current Assets	2,00,000
1,000, 10%, Debentures of Rs. 100 each	1,00,000		
Reserves : General Reserve	50,000		

Reserve for contingencies	50,000		
Current liabilities	1,00,000		
	6,00,000		6,00,000

Solution:

(a) Debt-Equity Ratio = Outsider's Funds/ Shareholder's Funds

$$= 1,00,000 \text{ (Debentures)} + 1,00,000 \text{ (Current liabilities)} / (2,00,000 + 1,00,000 + 50,000 + 50,000)$$

$$= \text{Rs. } 2,00,000 / \text{Rs. } 4,00,000 = 1:2$$

(b) Debt-Equity Ratio (excluding current liabilities), i.e., ratio of long-term debt to shareholders' funds

$$= \text{Long-term debt} / \text{Shareholders' funds} = 1,00,000 / 4,00,000 = 1:4$$

Interpretation of Debt-Equity Ratio

The debt-equity ratio is calculated to measure the extent to which debt financing has been used in a business. The ratio indicates the proportionate claims of owners and the outsiders against the firm's assets. As a general rule, there should be an appropriate mix of owners' funds and outsiders' funds in financing the firm's assets. The interpretation of this ratio depends primarily upon the financial policy of the firm and upon the firm's nature of business. A ratio of 1: 1 may be usually considered to be a satisfactory ratio although there cannot be any 'rule of thumb' or standard norm for all types of businesses. In some businesses, a high ratio of 2: 1 or even more may even be considered satisfactory. Generally speaking, a low ratio (debt being low in comparison to shareholders' funds) is considered as favourable from the long-term creditors' point of view because a high proportion of owners funds provided a larger margin of safety for them. A high debt-equity ratio which indicates that the claims of outsiders (creditors) are greater than those of owners, may not be considered by the creditors because it gives a lesser margin of safety for them at the time of liquidation of the firm. Thus, interpretation of the ratio depends upon the purpose of analysis, the financial policy and the nature of business of the firm.

(ii) Funded Debt to Total Capitalisation Ratio : This ratio establishes a link between the long-term funds raised from outsiders and total long-term funds available in the business. The two words used in this ratio are i) Funded Debt, and (ii) Total Capitalisation.

$$\text{Funded debt} = \text{Debentures} + \text{Mortgage loans} + \text{Bonds} + \text{Other long-term loans.}$$

Total Capitalisation = Equity Share Capital + Preference Share Capital + Reserves and surplus + Other undistributed reserves + Debentures + Mortgage Loans + Bonds + Other long-term loans.

Funded debt is that part of total capitalisation which is financed by outsiders.

Funded Debt to Total Capitalisation Ratio

$$= (\text{Funded Debt} / \text{Total Capitalisation}) \times 100$$

Though there is no 'rule of thumb' but still the lesser the reliance on outsiders the better it will be. If this ratio is smaller, better it will be, upto 50% or 55% this ratio may be tolerable and not beyond.

Ex 17.

The following figures relate to the liabilities side of a company :

Rs. 50,000 Equity Shares of Rs. 10 each fully paid Rs.5,00,000; 20,000 9% Preference Shares of Rs, 10 each fully Rs.2,00,000; General Reserve Rs. 50,000 ; Share Premium Rs.25,000 ; Profit and Loss Account Rs.1,25,000; 7½% Debentures Rs.1,40,000 Mortgage Loans Rs.60,000 ; Sundry Creditors Rs.1,29,000; Bills Payable Rs.74,500; Total Rs.

13,03,500 Find out: Funded Debt to Total Capitalisation Ratio (ii) Comment on this ratio.

Solution:

(i) Funded Debt to Total Capitalisation Ratio = (Funded Debt / Total Capitalisation) x 100

Funded Debt = 7½% Debentures + Mortgage loans

$$= \text{Rs.}1,40,000 + \text{Rs.}2,00,000 = \text{Rs.}2,00,000$$

Total Capitalisation = Proprietors Funds+ Funded Debt or,

= Equity Share Capital + Preference Capital + General Reserve + Share premium

+ P&L a/c + 7½% Debentures + Mortgage Loans.

$$= \text{Rs.}5,00,000 + \text{Rs.}2,00,000 + \text{Rs.}59,000 + \text{Rs.}25,000 + \text{Rs.}1,25,000 + \text{Rs.}1,40,000$$

$$+ \text{Rs.}60,000 = \text{Rs.}11,00,000.$$

$$\text{Funded Debt to Total Capitalisation} = (\text{Rs.}2,00,000 / \text{Rs.}11,00,000) \times 100 = \text{Rs.}18.18\%.$$

(ii) The ratio of 18.18%, is quite low. The company has not relied much on outside sources for raising long-term funds. There is enough scope for the company to raise long-term loans from outsiders.

(iii) Proprietary Ratio or Equity Ratio: A variant to the debt-equity ratio is the proprietary ratio which is also known as Equity Ratio or Shareholders' to Total Equities Ratio or Net worth to Total Assets Ratio. This ratio establishes the relationship between shareholders' funds and total assets of the firm. The ratio of proprietors' funds to total funds (proprietors+ outsiders' funds or total funds or total assets) is an important ratio for

determining long-term solvency of a firm. The components of this ratio are 'Shareholders' Funds or Proprietors' Funds and Total Assets. The Shareholders' funds are Equity Share Capital, Preference. Share Capital, undistributed profits, reserves and surpluses. Out of this amount, accumulated losses should be deducted. The total assets on the other hand denote total resources of the concern, The ratio can be calculated as under :

Proprietary Ratio or Equity Ratio = Shareholder's Funds /Total Assets

If shareholder's funds are Rs. 4,00,000 and total assets are Rs 6,00,000. Proprietary Ratio or Equity Ratio = Rs. 4,00,000 / Rs.6.00,000 = 2:3 This ratio can also be represented in percentage which indicates the percentage of owner's capital to total capital of the firm as follows :

Proprietary Ratio = (4,00,000 / 600,000) x 100 = 66.67%

Interpretation of Equity Ratio

As equity ratio represents the relationship of owner's funds to total assets, higher the ratio or the share of the shareholders in the total capital of the company, better is the long-term solvency position of the company. This ratio indicates the extent to which the assets of the company can be lost without affecting the interest of creditors of the company.

(iv) Solvency Ratio or the Ratio of Total Liabilities to Total Assets

This ratio is small variant of equity ratio and can be simply calculated as 100 - Equity ratio, i.e., continuing the example taken for the equity ratio, solvency ratio = 100 - 66.67 or say 33.33% . The ratio indicates the relationship between the total liabilities to outsiders to total assets of a firm and can be calculated as follows :

Solvency Ratio= Total Liabilities to Outsiders / Total Assets

If the total liabilities to outsiders are Rs. 2,00,000 and total assets are Rs. 6,00,000, then Solvency Ratio = (2,00,000/ 6,00,000) x 100 = 33.33%.

Generally, lower the ratio of total liabilities to total assets more satisfactory or stable is the long-term solvency position of a firm.

Ex.17.

P ltd gives you the following balance sheet for the year ending December 31, 2018.

BALANCE SHEET

Liabilities	Rs.	Assets	Rs.
Equity Capital 20,000 shares of Rs. 10 each	2,00,000	Goodwill	50,000
Preference Capital 50,000 shares of Rs, 20 each	100,000	Plant & Machinery	2,50,000
Reserve Fund	50,000	Furniture & Fittings	70,000
Dividend Equalisation' Fund	60,000	Trade Investments	1,50,000
Profit and Loss A/c	40,000	Cash	20,000

5% Debentures	1,50,000	Sundry Debtors	1,25,000
7% Mortgage Loan	70,000	Bills Receivables	65,000
Sundry Creditors	50,000	Advance Tax	20,000
Bank Overdraft	30,000		
	7,50,000		7,50,000

Calculate the following ratios :

- Debt-Equity Ratio.
- Funded Debt to Total Capitalisation
- Proprietary Ratio.
- Solvency Ratio.
- Fixed Assets to Net-Worth Ratio.
- Current Assets to Proprietors' Funds Ratio.

SOLUTION ;

(a) Debt-Equity Ratio = Outsiders' Funds / Shareholders' Funds

Outsiders' Funds = Rs. 1,50,000 + Rs.70,000 + Rs.50,000 + Rs. 30,000 = Rs. 3,00,000 .

Shareholders' Funds = Rs. 2,00,000 + Rs. 1,00,000 + Rs. 50,000 + Rs. 60,000 + Rs. 40,000 = Rs. 4,50,000

Debt-Equity Ratio = Rs. 3,00,000 / Rs. 4,50,000 = 0.67. Equity

(b) Funded Debt to Total Capitalisation = Funded Debt / Total Capitalisation

Funded Debt =Rs. 1,50,000+Rs. 70,000 = Rs. 2,20,000

Total Capitalisation = Rs. 2,00,000 + Rs.1,00,000 + Rs. 50,000 + Rs. 60,000 + Rs. 40,000 + Rs.1,50,000 + Rs. 70,000 = Rs. 6,70,000

Funded Debt to Total Capitalisation = Rs.2,20,000 / Rs. 6,70,000 = 0.33.

(c) Proprietary Ratio = Shareholder's Funds/ Total Assets

= Rs. 4,50,000/ Rs. 7,50,000 = 0.6

(d) Solvency Ratio = Total Liabilities to Outsiders/ Total Assets

= Rs. 3,00,000/ Rs. 7,50,000 = 0.4 – 0.6=0.4

e) Fixed Assets to Net Worth Ratio = Fixed Assets/Net Worth

Net worth is equivalent to shareholders funds.

Fixed Assets = Rs. 50,000 + Rs. 2,50,000 + Rs. 70,000 = Rs. 3,70,000

Fixed Assets to Net Worth Ratio = Rs. 3,70,000 / Rs.4,50,000 = 0.82.

Proprietors' funds are equivalent to shareholders funds .

Current Assets = Rs. 20,000 + Rs. 1,25,000 + Rs. 65,000 + Rs. 20,000 = Rs. 2,30,000 Rs.

Current Assets to Proprietary Funds Ratio = 2,30,000 / Rs. 4,50,000 = 0.56

Note : Trade investments have not been included in fixed assets because these amounts are invested in outside securities.

ANALYSIS OF PROFITABILITY OR PROFITABILITY RATIOS

The primary objective of a business undertaking is to earn profits. Profit earning is considered essential for the survival of the business. A business enterprise can discharge its obligations to the various segments of the society only through earning of profits. Profits are thus a useful measure of overall efficiency of a business. Profits to the management are the test of efficiency and a measurement of control ; to owners, a measure of worth of their investments ; to the creditors, the margin of safety ; to employees, a source of fringe benefits ; to Government, a measureo tax-paying capacity and the basis of legislative action ; to

customers, a hint to demand for better quality and price cuts; to an enterprise, less cumbersome source of finance for growth and existence and finally to the country, profits are an index of economic progress. Profitability ratios are calculated to measure the overall efficiency of the business. Generally, profitability ratios are calculated either in relation to sales or in relation to investment. The various profitability ratios are discussed below:

(A) GENERAL PROFITABILITY RATIOS The following ratios are known as general profitability ratios : (i) Gross Profit Ratio (ii) Operating Ratio (iii) Operating Profit Ratio (iv) Expenses Ratio (v) Net Profit Ratio.

(i) Gross Profit Ratio - Gross profit ratio measures the relationship of gross profit to net sales and is usually represented as a percentage. Thus, it is calculated by dividing the gross profit by sales:

$$\text{Gross Profit Ratio} = (\text{Gross Profit} / \text{Net Sales}) \times 100$$
$$= [(\text{Sales} - \text{Cost of Goods Sold}) / \text{Sales}] \times 100$$

The two basic components of the gross profit ratio are sales and cost of goods sold since gross profit is simply the excess of net sales over cost of goods sold. Net sales can be found by deducting sales returns or returns inwards, if any, out of the sales. If we deduct gross profit ratio from 100, we obtain the ratio of the cost of goods sold to sales, thus :

$$\text{Ratio of Cost of goods Sold to Sales} = 100 - \text{Gross Profit Ratio} = 100 - 20\% = 80\%$$

Interpretation of Gross Profit Ratio

The gross profit ratio indicates the extent to which selling 'prices of goods per unit may decline without resulting in losses on operations of a firm. It reflects the efficiency with which a firm produces its products. As the gross profit is found by deducting cost of goods sold from the net sales, higher the gross profit. ratio (G/P ratio) better the result. There is no standard norm for gross profit ratio and it may vary from business to business but the gross profit should be adequate to cover the operating (administrative and office expenses, selling and distribution expenses) and to provide for fixed charges, dividends and accumulation of reserves. A low gross profit ratio, generally, indicates high cost of goods sold due to unfavourable purchasing policies, lesser sales, lower selling prices, excessive competition, over-investment in plant and machinery, etc.

(ii) Operating Ratio - Operating ratio establishes the relationship between cost of goods sold and other Operating expenses on the one hand and the sales on the other. In other words, it measures the cost of operations per rupee of sales. The ratio is calculated by dividing operating costs with the net sales and is generally represented as a percentage.

$$\text{Operating Ratio} = (\text{Operating Cost} / \text{Net Sales}) \times 100$$
$$= [(\text{Cost of goods sold} + \text{Operating expenses}) / \text{Net Sales}] \times 100$$

The two basic elements of this ratio are operating cost and net sales. Operating cost can be found by adding operating expenses to the cost of goods. Operating expenses consist of :

(a) Administrative and office expenses like rent, salaries to staff, insurance, directors' fees, etc.

(b) Selling and distribution expenses like advertisement, salaries of salesmen, etc.

Interpretation of Operating Ratio

Operating ratio indicates the percentage of net sales that is consumed by operating cost. Obviously, higher the operating ratio, the less favourable it is because it would have a small margin (operating profit) to cover interest, income-tax, dividend and reserves. There is no rule of thumb for this ratio as it may differ from firm to firm depending upon the nature of its business and its capital structure. However, 75 to 85 per cent may be considered to be a good ratio in case of a manufacturing undertaking. To get a better idea of the ratio, either a trend should be found by calculating Operating ratio for a number of years or a comparison of one firm should be made with another in a similar business or in the same industry.

(iv) Operating Profit Ratio - This ratio is calculated by dividing operating profit by sales. Operating profit is calculated as :

Operating Profit = Net Sales - Operating Cost or
= Net Sales - (Cost of goods sold + Administrative and Office expenses + Selling and Distributive Expenses)

Operating Profit can also be calculated as :

Operating Profit = Net Profit + Non-operating Expenses - Non-operating income
So, Operating Profit Ratio = [Operating Profit/ Sales] x 100

This ratio can also be calculated as: Operating Profit Ratio = 100 - Operating Ratio

(iv) Expenses Ratios - Expenses ratios indicate the relationship of various expenses to net sales. The operating ratio reveals the average total variations in expenses. But some of the expenses may be increasing while some may be falling. Hence, expense ratios are calculated by dividing each item of expenses or groups of expenses with the net sales to analyse the cause of variation of the operating ratio. The ratio can be calculated for each individual item of expenses or a group of items of a particular type of expense like cost of sales ratio, administrative expenses ratio, selling expense ratio, material consumed ratio, etc. The lower the ratio, the greater is the profitability and higher the ratio, lower is the profitability. While interpreting the ratio, it must be remembered that for a fixed expense like rent, the ratio will fall if the sales increase and for a variable expense, the ratio in proportion to sales shall remain nearly the same.

Particular Expense Ratio = (Particular Expense/ Net Sales) x 100

Individual or specific expense ratio may be calculated as :

(i) **Cost of goods sold ratio** = (Cost of goods sold/ Sales) x 100

(ii) **Administrative & Office Expenses Ratio**

= (Administrative & Office Expenses / Sales) x 100

(iii) **Selling & Distributive Expenses Ratio**

= (Selling & Distributive Expenses/ Sales) x 100

(iv) **Non-Operating Expenses Ratio** = (Non-Operating Expenses/ Sales) x 100

(v) **Net Profit Ratio** - Net Profit ratio establishes a relationship between net profit (after taxes) and sales, and indicates the efficiency of the management in manufacturing, selling, administrative and other activities of the firm. This ratio is the overall measure of firm's profitability and is calculated as ;

(i) **Net Profit Ratio** = (Net Profit after tax / Net Sales) x 100

(ii) **Net Operating Profit** = (Net Operating Profit Ratio /Net Sales) x 100

The two basis elements of the ratio are net profits and sales. The net profits are obtained after deducting income-tax and, generally, non-operating incomes and expenses are excluded from the net profits for calculating this ratio, Higher the ratio, the better is the profitability. But while interpreting the ratio it should be kept in mind that the performance of profits must also be seen in relation to investments or capital of the firm and not only in relation to sales.

Ex.18. The following is the revenue statement of a company for the year ending 31st. December, 2019 :

Sales	Rs. 6,00,000
Less: Cost of goods sold	Rs. 4,00,000
Gross Profit	Rs. 2,00,000
Less : Operating Expenses	Rs. 1,20,000
Operating Profit	Rs. 80,000
Add : Non-operating income	Rs. 12,000
	Rs. 92,000
Less : Non-operating expenses	Rs. 4,000
Net Profit	Rs. 88,000

Calculate:

(a)Gross Profit Ratio (b) Operating Ratio

(c)Operating Profit Ratio (d) Net Profit Ratio.

SOLUTION

(a) Gross Profit Ratio = (Gross Profit/ Net Sales) x 100

= (Rs. 2,00,000 / Rs, 6,00,000) x100 = 33.33%

(b)Operating Ratio = [(Cost of goods sold + Operating expenses)/ Net Sales] x 100

= [(Rs. 4,00,000 + Rs. 1,20,000)/ Rs. 6,00,000] = (Rs.5,20,000/Rs.6,00,000) x 100
= 86.67%

(c) Operating Profit Ratio = (Operating Profit / Net Sales) x100

Operating Profit Ratio = 100 - Operating Ratio = 100 - 86.67 = 13.33%.

(d) Net Profit Ratio = (Net Profit /Net Sales) x 100

= (Rs. 88,000/ Rs, 6,00,000) = 14.67%

(B) OVERALL PROFITABILITY RATIOS

Profits are the measure of overall efficiency of a business. The higher the profits, the more efficient is the business considered. Changes in total profits may although indicate changes in efficiency but they will not indicate true state of efficiency of the business or profitability unless profits are related with the size of investments, Thus, overall profitability or efficiency of a business can be measured in terms of profits related to investments made in the business. Following are the important overall profitability ratios or measure of Return on Investments.

(i) Return on Shareholders' Investment or Net Worth - Return on shareholders' investment, popularly known as ROI or Return on shareholder/proprietors' funds is the relationship between net profits (after interest & tax) and the proprietors' funds. Thus,

Return on Shareholders' Investment

$$= \frac{\text{[Net Profit (after interest \& tax)]}}{\text{Shareholders' Funds}}$$

The ratio is generally calculated as a percentage by multiplying the above with 100.

The two basic components of this ratio are net profit and shareholders' funds. Shareholders' funds include equity share capital, preference share capital, free reserves such as share premium, revenue reserve, capital reserve, retained earnings and surpluses less accumulated losses, if any. Net profits are visualised from the viewpoint of owners, i.e., shareholders. Thus, net profits are arrived at after deducting interest on long-term borrowings and income-tax, because those will be the only profits available for Shareholders.

To sum up:

Shareholders' investment = Equity Share capital + Preference Share capital + Reserve & surplus - (accumulated losses, if any)

Net Profit = Net profits after payment of interest and taxes.

Interpretation and Significance of R O.I.

This ratio is one of the most important ratios used for measuring the overall efficiency of a firm. As the primary objective of business is to maximise its earnings, this ratio indicates the extent to which this primary objective of business is being achieved, This ratio is of great importance to the present and prospective shareholders as well as the management of the company. As this ratio reveals how well the resources of a firm are being used, higher the ratio, better are the results.

(ii) Return on Equity Capital - Ordinary shareholders are more interested in the profitability of a company and the performance of a company should be judged on the basis of return on equity capital of the company. Return on equity capital, which is the relationship between profits of a company and its equity capital, can be calculated as:

Return on Equity Capital = [Net Profit after tax—Preference Dividend] / [Equity Share Capital (Paid-up)]

A small variation of the above ratio is to calculate return on shareholders' total equity which is equal to the paid-up equity share capital plus reserves & surplus plus share premium minus accumulated losses, if any.

(iii) Earnings per Share (E.P.S) - Earnings per share is a small variation of return on equity capital and is calculated by dividing the net profit after taxes and preference dividend by the total number of equity shares. Thus,

E.P.S. = (Net Profit after tax - Preference Dividend) / No. of Equity Shares

The earnings per share is a good measure of profitability and when compared with E.P.S. of similar other companies, it gives a view of the comparative earnings or earning power of a firm. E P.S. calculated for a number of years indicates whether or not earning power of the company has increased.

(iv) Return on Capital Employed - Return on capital employed establishes the relationship between profits and the capital employed. It is the is most widely used to measure the overall profitability and efficiency of a business,

The term 'capital employed' refers to the total of investments made in a business and can be defined in a number of ways. The three most widely used definitions of this term are :

(a) Gross Capital Employed (b) Net Capital Employed (c) Proprietors' Net Capital Employed.

(a) Gross Capital Employed. The term 'gross capital employed' usually comprises the total assets, fixed as well as current assets used in a business.

Gross Capital Employed=Fixed Assets +Current Assets

(b) Net Capital Employed, The term 'net capital employed' comprises the total assets used in a business less its current liabilities.

Net Capital Employed= Total Assets-Current Liabilities.

(c) Proprietors' Net Capital Employed. Proprietors' net capital employed means shareholders' funds or investments in the business. This term is the same as return on shareholders' investment and it has been discussed in detail in previous pages.

Proprietors' Net Capital Employed

= Fixed Assets + Current Assets - Outside Liabilities (both-long-term and short-term)

Average Capital Employed - Average capital may be found by deducting one-half of profit earned during the year from the capital employed at the end or one half of the profit

may be added to the capital employed in the beginning. The difference between the capital employed in the beginning and at the end is equal to the amount of profit earned during the year, Average capital may be calculated as follows :

(a) Average Capital Employed

$$= (\text{Opening Capital employed} + \text{Closing Capital employed}) / 2$$

(b) Average Capital Employed

$$= \text{Closing Capital employed} - 1/2 \text{ of profit earned during the year.}$$

(c) Average Capital Employed

$$= \text{Opening capital employed} + 1/2 \text{ of profit earned during the year.}$$

Computation of Profits for Return on Capital Employed

Return on Gross Capital Employed = (Adjusted Net Profits / Gross Capital Employed) x 100

Return on Net Capital Employed = (Adjusted Net Profits / Net Capital Employed) x 100.

Ex 19.

The following is the balance sheet of S.Ltd on 31st December 2019.

Liabilities	Rs.	Assets	Rs.
Equity share capital		Plant and Machinery	1,00,000
Reserve Fund		Investments	75,000
6% Debentures		Stock	40,000
Sundry Creditors		Sundry Debtors	30,000
Profit and Loss A/c :		Bills Receivables	40,000
Previous year	Rs.1,000	Bank Balance	30,000
Current year	Rs. 24,000	Patents (worthless)	7,500
		Preliminary Expenses	2,500
	3,25,000		3,25,000

The directors intend to transfer a sum of Rs. 5,000 out of current year's profits to provisions for tax. The investment is related to business activities,

You are required to calculate : (i) Gross Capital Employed. (ii) Net Capital Employed. (iii) Average Net Capital Employed. (iv) Return on Net Capital Employed.

SOLUTION

Computation of Capital Employed

(i) Gross Capital Employed

= Plant and Machinery 1,00,000 + Investments 75,000 + Stock 40,000 + Sundry Debtors 30,000 + Bills Receivables 40,000 + Bank Balance 30,000 = Rs. 3,15,000

(ii) Net Capital Employed = Gross Capital Employed - Current Liabilities

Gross Capital Employed Rs, 3,15,000

Less : Sundry Creditors 30,000

Provision for taxation 5,000

Rs.35,000

Net Capital Employed 2,80,000

(iii)Average Net Capital Employed = Net Capital Employed + 1/2 of current year's profit

= Rs, 2,80,000 — Rs. 12,000 = Rs, 2,68,000

(iv)Return on Net Capital Employed = Profit / Net Capital Employed

Profit = Current year's Profit + Interest on debentures = Rs. 24,000 + Rs. 4,800 = Rs. 28,800

= Rs. 28,800 / Rs. 2,80,000 =10.29%

Return on Net Capital Employed = 10.29%

Notes (a) Investment is inside the business so it is taken for capital employed.

(b) Interest on debentures is added back to profit.

ANALYSIS OF CAPITAL STRUCTURE OR LEVERAGE RATIOS

The term 'capital structure' refers to the relationship between various long-term forms of financing such debentures (long term) preference share capital and equity share capital including reserves and surplus. Financing the firm's assets is a very crucial problem in every business and as a general rule there should be a proper mix of debt and equity capital in financing the firm's assets. Leverage or capital structure ratios are calculated to test the long term financial position of a firm. Following ratios are generally calculated to analyse the capital structure of a firm.

(i)Capital Gearing Ratio - The term 'capital gearing' is used to describe the relationship between equity share capital including reserves and surpluses to preference share capital and other fixed interest-bearing loans. If preference share capital and other fixed interest bearing loans exceed the equity share capital including reserves, the firm is said to be highly geared. The firm is said to be in low gear if preference share capital and other fixed interest-bearing loans are less than equity capital and reserves.

Capital Gearing Ratio

= **Equity Share Capital+ Reserves & Surplus preference Capital + Long-term debt bearing fixed interest.**

Leverage may be classified as (a) Financial leverage. (b) Operating leverage.

(a) **Financial Leverage or Trading on Equity** - The use of long term fixed interest bearing debt and preference share capital along with equity share capital is called financial leverage or trading on equity. It is owners' equity (equity share capital and reserves) which is used as a basis to raise loans and that is way it is called trading on equity. Financial leverage can be calculated as :

Financial Leverage = Earnings Before Interest & Tax (EBIT) = Earnings Before Interest & Tax - Interest & preference dividend

(b) **Operating Leverage** - It is obtained by dividing contribution, i.e., sales minus variable cost, by the EBIT, ie., earnings before interest and tax.

Thus, Operating Leverage = Contribution/ Earnings Before Interest and Tax

Ex.20. Calculate the following ratios and comment:

(a) Liquidity Ratio (b) Solvency Ratios (c) Profitability Ratios

Balance Sheet of P Ltd
As on December 31, 2019.

Liabilities	Rs.	Assets	Rs.
Equity share capital	40,000	Goodwill	24,000
Capital Reserve	8,000	Fixed Assets	56,000
8% Loan on Mortgage	32,000	Stocks 12,000	
Creditors	16,000	Debtors 12,000	
Bank Overdraft	4,000	Investments (short-term)	4,000
Taxation : - Current	4,000	Cash in hand	12,000
Future	4,000		
Profit and Loss Account: Profit for 1981 (after-tax and interest on fixed deposits) 24,000			
Less :			
(i) Transfer to Reserves 8,000			
(ii) Dividends 4,000	12,000		
	1,20,000		1,20,000

Sales for the Year amounted to; Rs. 2,40,000.

(A)Liquidity Ratio.

(i) **Current Ratio = Current Assets : Current Liabilities**

= (12,000 + 12,000 + 4,000 + 12,000) : (16,000 + 4,000 + 4,000 (current))
= 40000 ; 24000 = 1.66: 1.

(ii)**Quick Ratio = Quick Assets : Current Liabilities**

= 28,000: 24,000 = 167:1

(iii) Absolute Liquidity Ratio = Absolute Liquid Assets : Current Liabilities

$$= 16,000 : 24,000 = 0.66: 1$$

(B) Solvency Ratios : (i) Debt-Equity ratio (ii) Proprietary ratio (iii) Solvency ratio. (2)

(i) Debt-equity ratio = Outsiders' funds / Shareholders funds

$$= (32,000 + 4,000 + 4,000 + 16,000) / (40,000 + 8,000 + 4,000 + 12,000)$$

$$= 56,000/64,000 = 0.87$$

(ii) Proprietary Ratio = Shareholders' Funds : Total Assets

$$= 64,000 : 1,20,000 = 0.53: 1$$

(iii) Solvency Ratio = Total Liabilities to Outsiders: Total Assets

$$= 56,000 : 1,20,000 = .47:1$$

(C) Profitability Ratios : . Following Profitability Ratios are calculated ; _ ” (i) Net Profit Ratio (ii) Return on Capital Employed (iii) Return on Shareholders' Funds (iv) Return on Equity Capital.

(i) Net Profit Ratio = (Net Profit after tax/ Net Sales) x 100

$$= (24,000 / 2,40,000) x 100$$

(ii) Return on Gross-Capital Employed = (26,560 / 92 ,000) = 28.88%. (iii) Return on Shareholders' Funds

= (Net Profit after interest and tax/ Shareholders' Funds) x 100

$$= (24,000/ 64,000) x 100 = 37.5%.$$

(iv) Return on Equity Capital = (Profit after tax and interest/ Equity Share Capital) x 100

$$= (24,000 / 40,000) x 100 = 60%.$$

