Accounting Ratios

Meaning of Accounting Ratios

Objective

After going through this lesson, you shall be able to understand the following concepts.

- Meaning of Accounting Ratios
- Meaning and Objectives of Ratio Analysis
- Advantages and Disadvantages of Ratio Analysis
- Classification of Accounting Ratios

Meaning of Accounting Ratios

In general sense, ratio is defined as a relationship between two or more related variables expressed in mathematical terms. It is calculated by dividing one variable by another variable. The Accounting Ratios also mean the same. As in accountancy, the ratios are calculated on the basis of the information extracted from the financial statements, so these are termed as Accounting Ratios. With the help of the Accounting Ratios, accounting users can conduct meaningful comparisons and make unambiguous conclusions.

Quoting the words of J. Betty, "The term accounting ratio is used to describe significant relationship between figures shown in a balance sheet, in a profit and loss account, in a budgetary control system or in any part of the accounting organisation".

It should not be noted that Accounting Ratios is computed for two or more related financial variables. These cannot be calculated for unrelated variables. This is because the ratios between unrelated variables do not reveal any cause and effect relationship, thus, such ratios hardly serve any purpose.

Ratio Analysis

In the previous chapters, we learnt about financial analysis and various tools of analysing financial statements such as Comparative Financial Statements, Common Size Statements and Trend Analysis. Ratio Analysis is also one of such techniques used for analysing financial statements. It describes the relationship between various items of Balance Sheet and Income Statements. It helps in ascertaining profitability, operational efficiency, solvency, etc. of a firm. It may be expressed as a fraction, proportion, percentage and in times. It enables the management and owners to implement various budgetary controls by assessing qualitative relationship among different financial variables. Ratio Analysis also provides vital information to various accounting users regarding the financial position and viability and performance of a firm. It also lays down the basic framework for decision making and policy designing by the management.

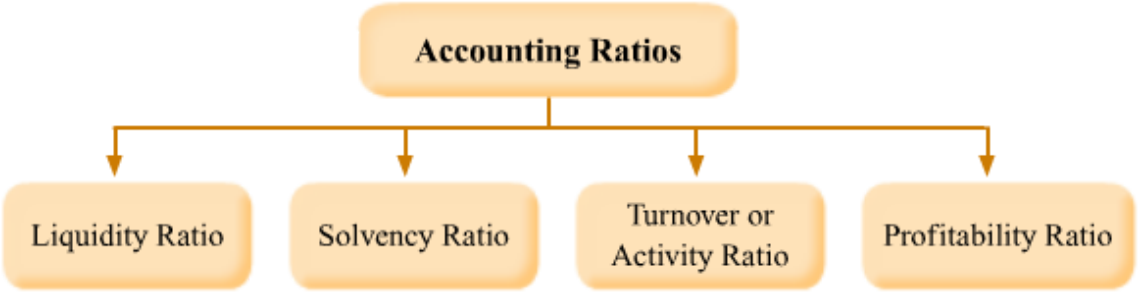
Objectives of Ratio Analysis

Ratio Analysis is a technique of analysing and interpreting the financial statements. The below mentioned are the some objectives of Ratio Analysis.

1. It expresses accounting data in a meaningful and simplified manner.
2. It describes the relationship between various items of Balance Sheet and Income Statements.
3. It helps in better understanding of the financial strengths and weakness of any organisation.
4. It helps us in ascertaining profitability, operational efficiency, solvency, etc. of an organisation.
5. It facilitates in conducting comparisons- inter-firm and intra-firm comparisons. It also lays down the basic framework for decision making and policy designing by management.
6. It enables budgetary controls by assessing qualitative relationship among different financial variables.

Classification of Accounting Ratio- As per Functional Classification

As per the Functional Classification, the classification of Accounting Ratios is presented diagrammatically below.



Types of Accounting Ratios	**Importance and Objectives**
1. *Liquidity Ratios*	Represents the ***short-term solvency*** of a firm.
2. *Solvency Ratios*	Represents the ***long-term solvency*** of a firm.
3. *Turnover or Activity Ratios*	Represents the ***operational efficiency and efficacy*** of a firm. These ratios are basically related to sales or cost of goods sold.
4. *Profitability Ratios*	Represents the ***earning capacity*** of a firm. It is calculated to assess the ***financial performance and the financial viability*** of a business.

Advantages of Ratio Analysis

The given below are the various advantages of Ratio Analysis.

a. ***Helps in Analysing the Financial Position***- Ratio Analysis is extremely helpful in analysing the financial statements of an organisation. It helps in better understanding of the financial strengths or weaknesses of the organisations. Ratio Analysis enables the outside users such as creditors, shareholders, investors, etc. to know about the ability of a company to meet its future

obligations.

b. ***Helps in Simplifying the Financial Statements***- Ratio Analysis presents the information of the financial statements in a simplified manner. The complicated and elaborated data contained in the financial statements are presented in an intelligible manner with the help of ratios. Also, the changes in the financial conditions of an organisation can be briefly presented with the help of it. It makes the accounting data to be easily understood by its users.

c. ***Helps in Comparative Analysis***- Ratio Analysis not only helps in assessing the current year's performance of a company but also helps in assessing the past years' performance. It means that the performance of two accounting periods can be easily be compared with the help of ratios.

d. ***Helps in Forecasting***- The Ratio Analysis helps in assessing the performance of the past years, therefore, it is of great help in forecasting and preparing the plans for future. By referring the previous year's ratio, an organisation can draft its future plans. Thus, Ratio Analysis can be used as a basis for laying down a basic framework for decision making in future.

e. ***Helps in Locating the Inefficiencies***- The Ratio Analysis is of great importance in finding out the areas of financial strengths as well as financial weakness of an organisation. With the help of ratios, an organisation can find out the area of weakness even in the overall good performance of a business. It in turn enables a business to take the remedial steps and give proper attention to improve such weak areas.

f. ***Helps in Inter-firm and Intra-firm Comparisons***- Inter-firm comparisons imply comparing the performance and efficiency of a firm with that of the other firms in the same industry. On the other hand, intra-firm comparisons imply comparing the performance of various departments or units of the same firm. Ratio Analysis helps in facilitating such comparisons by providing relevant and adequate data.

g. ***Helps in Determining Solvency***- The outside users such as creditors, investors, shareholders, etc. are always interested in knowing whether the firm's liquidity position is strong or not. The firm with strong liquidity position is able to repay its loans or debts on time. Ratio Analysis helps in revealing the solvency position of a firm, thereby, helps the external users to correctly evaluate the solvency position of a firm.

Limitations of Ratio Analysis

Apart from the above-mentioned advantages of Ratio Analysis, there are some limitations also. Such limitations are discussed below.

1. ***Incorrect or False Result***- The Accounting Ratios are calculated on the basis of information extracted from the financial statement of an organisation. Therefore, the correctness, reliability and accuracy of the Accounting Ratios is largely depends on the correctness and efficacy of the financial statements. Thus, the ratio calculated on the basis of incorrect accounting data would also be incorrect.

2. ***Ignores Qualitative and Non-Monetary Aspects***- Ratio Analysis does not take into consideration the qualitative data or information. It ignores the non-monetary facts such as, market position of the business, employees' qualification and efficiencies, etc. which may be important for a firm. The ratios are based only on the quantitative factors or items i.e. the factors which can be

measured or expressed in terms of money.

3. ***Variations in Accounting Policies***- The various firms uses the different accounting policies for preparation of their financial statements. It is not possible that all the firms follow the same accounting policy for valuation of their stock or same method of depreciation, etc. Therefore, the adoption of different accounting policies by the different firms leads to difference in the final results. Thus, the performances of the two firms following the different accounting policies can not be compared with the help of the ratios.

4. ***Ignores Changes in the Price level***- With the passage of time there is a change in the price level. The accounting records or data takes the figures of different years on nominal values and not in real terms (i.e. not taking price change into considerations). Thus, the ratios calculated on the basis of this data also ignore the change in the price level, which reduces the adequacy or usefulness of Accounting Ratios.

5. ***Costly Technique***- Ratio Analysis is a costly technique. Therefore it is not suitable for small organisations. It can be used by the big organisations as it can not be afforded by the small firms.

6. ***Window Dressing***- Window dressing implies showing a false position of the firm to hide its weaknesses by representing the better position. It affects the ratio because to cover up the bad financial position or to conceal the relevant facts some companies may manipulate their accounting data.

7. ***Lack of Standard Ratio***- It is very difficult to have a standard ratio because of the ever changing financial and economic scenario. Therefore, the user of information can not rely on a single ratio.

Liquidity Ratios

Objective

After going through this lesson, you shall be able to understand the following concepts.

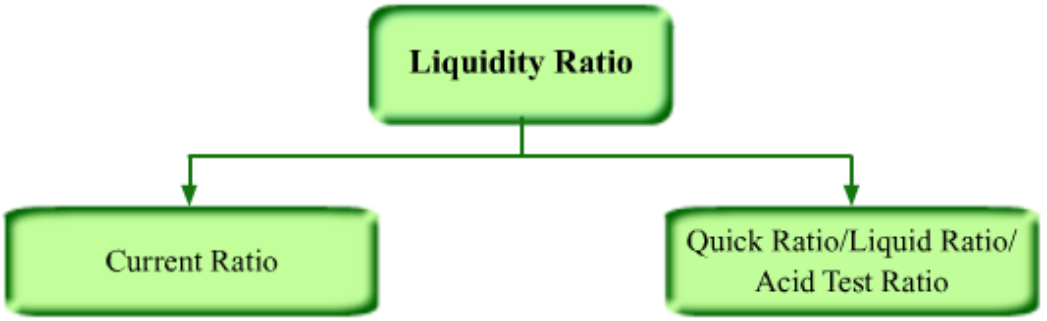
- Liquidity Ratios
- Types of Liquidity Ratios
- Difference between Current Ratio and Quick Ratio

Liquidity Ratios

Liquidity means that the assets can be easily converted into cash in no time and without incurring any significant loss. For example, compared to land and building, stock of finished goods can be easily converted into cash and that too in lesser time. Liquidity Ratios helps the accounting users to determine the short-term solvency of a business. That is, with the help of Liquidity Ratios, it can be assessed that how quickly a firm can pay-back its short-term obligations. A high Liquidity Ratio implies higher potential of a company to meet its short-term obligations on time.

Types of Liquidity Ratios

The two types of Liquidity Ratios are explained diagrammatically below.



I. *Current Ratio*

It expresses the relationship between a firm's resources and its short-term obligations. That is, it indicates a firm's ability to repay its short-term obligations. It is represented as a fraction of current assets and current liabilities. The formula for computing Current Ratio is:

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

This ratio is expressed in <u>Fraction</u>

Current Assets are those assets that can be easily converted into cash within a short period of time such as cash in hand, cash at bank, marketable securities, debtors, stock, etc.

Current Assets =	*Cash in Hand* *+ Cash at Bank* *+ Marketable Securities* *+ Debtors (after deducting provisions)* *+ Inventories (Stock of Finished Goods, Stock of Raw Materials and Work in Progress)* *+ Bill Receivables (after deducting provisions, if any)* *+ Prepaid Expenses* *+ Advance Payments* *+ Accrued Incomes* *+ Loose Tools* *+ Trade Receivables* *+ Fixed Deposits with Bank* *+ Loans and Advances against Salary* *+ Short-Term Investments, etc.*
OR	**OR**
Current Assets =	*Total Assets – Fixed Assets*
OR	**OR**

Current Assets =	Working Capital + *Current Liabilities*

Current Liabilities are those liabilities that are to be repaid within a period of one year such as bank overdraft, bills payable, provision for tax, outstanding expenses, etc.

Current Liabilities =	*Bank Overdraft* *+ Bills Payable* *+ Creditors* *+ Provision for Tax* *+ Outstanding Expenses* *+ Short-term Loans and Borrowings* *+ Unclaimed Dividend* *+ Income Received in Advance* *+ Expenses Payable* *+ Trade Payables, etc.*
OR	**OR**
Current Liabilities =	*Total Debts – Long-term Debts*
OR	**OR**
Current Liabilities =	*Current Assets – Working Capital*

Significance or Importance of Current Ratio

The given below are the importance of Current Ratio.

a. It helps in assessing the firm's ability to meet its current liabilities on time.
b. The excess of current assets over current liabilities provide a sense of safety and security to the creditors.
c. A higher current ratio indicates the poor investment policies of the management and low current ratio indicates shortage of working capital and lack of liquidity.
d. It reveals that how many times the current assets are over its current liabilities.
e. The ideal current ratio is 2:1. This implies that a firm has current assets twice of the current liabilities. It means that the firm has high potential to convert its current assets to meet its current liabilities (or short-term obligations).

Note: If a firm has Current Ratio less than the ideal ratio of 2 : 1, then it implies that the firm has lack of liquidity and is facing shortage of working capital. The shortage of working capital implies that the firm cannot smoothly carry-on its regular production activities. On the other hand, a higher Current Ratio implies that the firm's has huge amount of cash in hand or at bank, which indicates improper management of funds. Also, a high Current Ratio may indicate piling-up of inventories and stocks. Thus, neither a low Current Ratio nor a high Current Ratio depicts favourable conditions for a firm. That is, why the Current Ratio of 2 : 1 is regarded as an ideal ratio.

***Example*:** A company had current assets of Rs 4,05,000 and current liabilities of Rs 1,89,000. Ascertain the Current Ratio.

Solution

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

$$\text{Current Ratio} = \frac{4,05,000}{1,89,000} = 2.14:1$$

***Example*:** From the following information calculate current ratio.

Particulars	Amount Rs
Stock	10,000
Sundry Debtors	12,000
Prepaid Expenses	6,200
Building	40,000
Bills Payable	2,000
Profit and Loss A/c	20,000
Bank Overdraft	5,000
Sundry Creditors	2,400

Solution:

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

Current Assets = Stock + Sundry Debtors + Prepaid Expenses

= 10,000 + 12,000 + 6,200 = Rs 28,200

Current Liabilities = Bills Payable + Bank Overdraft + Creditors

= 2,000 + 5,000 + 2,400 = Rs 9,400

$$\text{Current Ratio} = \frac{28,200}{9,400} = 3:1$$

Example: The following is the extract of the financial statement of a company.

Particulars	Amount (Rs)

Fixed Assets	5,00,000
Investment	2,00,000
Shareholders' Fund	4,00,000
Long-term Loans	4,00,000
Total of Balance Sheet	10,00,000

Based on this information, ascertain Current Ratio.

Solution

Current Assets = Total of the Balance Sheet – (Fixed Assets + Investment)
= 10,00,000 – (5,00,000 + 2,00,000) = Rs 3,00,000

Current Liabilities = Total of the Balance Sheet – (Shareholders' Fund + Long-term Loans)
= 10,00,000 – (4,00,000 + 4,00,000) = Rs 2,00,000

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{3,00,000}{2,00,000} = 1.5:1$$

Example: Current Assets of the firm were Rs 9,00,000 before making a payment to the creditors of Rs 3,00,000. After the payment, the Current Ratio becomes 3:1. Find the amount of Current Liabilities before and after payment made to the creditors and also ascertain Working Capital.

Solution

Let the Current Liabilities after payment of creditors $= x$

$$\text{Current Ratio (after payment to creditors)} = \frac{\text{Current Assets} - \text{Payment to Creditors}}{\text{Current Liabilities after Payments to Creditors}} = \frac{3}{1}$$

$$\Rightarrow \frac{9,00,000 - 3,00,000}{x} = \frac{3}{1}$$

$$\text{or, } 3x = 9,00,000 - 3,00,000$$

$$x = \text{Rs } 2,00,000$$

Current Liabilities after payment to creditors = Rs 2,00,000

Current Liabilities before payment to creditors $= x + 3,00,000$

$= 2,00,000 + 3,00,000 = \text{Rs } 5,00,000$

Current Assets after payment to creditors = 9,00,000 – 3,00,000 = Rs 6,00,000

Working Capital = Current Assets – Current Liabilities (*after payment to creditors*)
= 6,00,000 – 2,00,000 = Rs 4,00,000

Example: The Balance Sheet of a firm shows Current Assets of Rs 5,00,000 and Current Liabilities of Rs 3,00,000. The management decided to maintain the Current Ratio at 2:1. How much amount of trade creditors are to be paid to maintain the current desirous Current Ratio? Also find out the amount of current assets and current liabilities are required to maintain the desired Current Ratio.

Solution

$$\text{Current Ratio } (existing) = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{5,00,000}{3,00,000} = 5:3$$

Desirous Current Ratio = 2:1

Let the payment of trade creditors in order to maintain desired Current Ratio = x

Current Assets after payment to trade creditors (in cash) = $5,00,000 - x$

Current Liabilities after payment to trade creditors = $3,00,000 - x$

$$\text{Current Ratio } (Desired) = \frac{\text{Current Assets} - x}{\text{Current Liabilities} - x} = \frac{2}{1}$$

$$\Rightarrow \frac{5,00,000 - x}{3,00,000 - x} = \frac{2}{1}$$

$$\Rightarrow x = 1,00,000$$

So, the amount paid to the trade creditors is Rs 1,00,000

Current Assets after payment of trade creditors = $5,00,000 - 1,00,000$ = Rs 4,00,000

Current Liabilities after payment to trade creditors = $3,00,000 - 1,00,000$ = Rs 2,00,000

II. *Quick Ratio or Liquid Ratio or Acid Test Ratio*

Unlike Current Ratio, Quick Ratio explains the relationship between liquid assets and current liabilities of a firm. It indicates whether the firm has sufficient funds (or liquid assets) to immediately meet its current liabilities. Quick Ratio is also known as Liquid Ratio and Acid Test Ratio. It is calculated as:

$$\text{Quick or Liquid or Acid Test Ratio} = \frac{\text{Liquid Assets or Quick Assets}}{\text{Current Liabilities}}$$

This ratio is expressed in <u>Fraction</u>

The liquid assets are the excess of current assets over stock and prepaid expenses. That is,

Liquid or Quick Assets = Current Assets – Stock – Prepaid Expenses

The ideal liquidity ratio is 1:1.

Significance or Importance of Liquid Ratio or Quick Ratio

The given below are the importance of liquid ratio.

a. It helps in determining whether a firm has sufficient funds to discharge its all current liabilities immediately.
b. It represents the short-term solvency of a firm.
c. It does not include stock, since it takes comparatively more time to convert the stock into cash. Also prepaid expenses are not included in liquid assets, since it can not be converted into cash.
d. The ideal liquid ratio is considered to be 1:1.

Note: The ideal ratio of 1:1 implies that current liabilities is exactly equal to the quick assets. This implies that a company is in position where it can immediately dispose off its current liabilities by converting liquid assets in cash. Unlike, Current Ratio, a higher Liquid Ratio indicates a favourable position for a company.

***Example*:** From the given below information calculate Quick Ratio.

Particulars	Amount Rs
Marketable Securities	50,000
Debtors	35,000
Stock	27,000
Prepaid Expenses	14,000
Cash in Hand	20,000
Cash at Bank	30,000
Bills Payable	25,500
Machinery	90,000
Long-term Loans	70,000
Equity Share Capital	1,00,000
Outstanding Expenses	12,000
Creditors	30,000

Solution

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

Quick Assets = Marketable securities + Debtors + Cash in hand + Cash at Bank

= 50,000 + 35,000 + 20,000 + 30,000

= Rs 1,35,000

Current Liabilities = Bills Payable + Outstanding Expenses + Creditors

= 25,500 + 12,000 + 30,000

= Rs 67,500

$$\therefore \text{Quick Ratio} = \frac{1,35,000}{67,500} = 2:1$$

Example: Current Assets of the firm is Rs 2,00,000, Current Ratio is 2:1 and Quick Ratio is 1.5:1. How much of stock is to be converted into cash or debtors in order to maintain the Quick Ratio as 1.8:1?

Solution

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

$$\frac{2}{1} = \frac{2,00,000}{\text{Current Liabilities}}$$

$$2 \text{ Current Liabilities} = 2,00,000$$

$$\text{or, Current Liabilities} = \text{Rs } 1,00,000$$

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

$$\frac{1.5}{1} = \frac{\text{Quick Assets}}{1,00,000}$$

$$\text{Quick Assets} = 1.5 \times 1,00,000 = \text{Rs } 1,50,000$$

$$\text{Let the stock to be converted in cash or debtors} = x$$

$$\text{Quick Asset after conversion of stock in cash or debtors} = 1,50,000 + x$$

$$\text{Quick Ratio (after conversion of stock in cash Debtors)} = \frac{1,50,000 + x}{1,00,000} = \frac{1.8}{1}$$

$$\text{or, } 1.8 \times 1,00,000 = 1,50,000 + x$$

$$x = 1,80,000 - 1,50,000$$

$$= \text{Rs } 30,000$$

$$\therefore \text{Stock to be converted into cash to maintain the Quick Ratio 1.8:1 is Rs } 30,000$$

Difference between Current Ratio and Quick Ratio

The following are the points of differences between Current Ratio and Quick / Liquid Ratio.

Basis	Current Ratio	Liquid Ratio

1. Relationship	It represents the relationship between Current Assets and Current Liabilities.	It represents the relationship between Quick Assets and Current Liabilities.
2. Ideal Ratio	The ideal current ratio is 2:1.	The ideal liquid ratio is 1:1.
3. Payment Period	It indicates the firms' potential to meet its current liabilities within a period of one year.	It indicates the firm's ability to pay its current liabilities immediately (mostly within a month).
4. Reliability	Current ratio is less reliable because it considers the stock and prepaid expenses.	Quick Ratio or liquid ratio is more reliable. This is because it includes quick assets that are most liquid and can be converted into cash in no time. That is, why Liquid Ratio is considered as a better indicator of short-term financial position of a company.
5. Formula	$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$	$\text{Liquid Ratio} = \frac{\text{Liquid Assets or Quick Assets}}{\text{Current Liabilities}}$

***Example*:** A company had Current Assets of Rs 2,00,000 and Current Liabilities of Rs 1,00,000. Ascertain the following ratios.

a. Current Ratio
b. Quick Ratio when there is not inventory
c. Quick Ratio when stock of goods costing Rs 10,000 sold for Rs 12,000
d. Current Ratio when debtors realised for Rs 10,000 after giving discount of Rs 2,000
e. Current Ratio when goods worth Rs 20,000 purchased on credit.
f. Current Ratio when creditors of Rs 10,000 proved unclaimed.
g. Current Ratio when an advance of Rs 25,000 is received from a customer for supplying goods.
h. Current Ratio when creditors of Rs 30,000 were discharged.

Solution

$$\text{(a) Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{2,00,000}{1,00,000} = 2:1$$

(b) Quick Assets = Current Assets – Stock = 2,00,000 – NIL = Rs 2,00,000

$$\text{Quick Ratio} = \frac{\text{Quick Assets}}{\text{Current Liabilities}} = \frac{2,00,000}{1,00,000}$$
$$= 2:1$$

(c) Quick Assets = Current Assets – Stock = 2,00,000 – 10,000 = Rs 1,90,000

Quick Assets (after sale of goods) = Quick Assets + Cash received (from Sale of Goods)

= 1,90,000 + 12,000 = Rs 2,02,000

$$\text{Quick Ratio} = \frac{\text{Quick Assets (after sale of goods)}}{\text{Current Liabilities}} = \frac{2,02,000}{1,00,000} = 2.02:1$$

(d) Current Assets = 2,00,000 – Debtors + Cash received from Debtors

= 2,00,00 – 12,000 + 10,000 = Rs 1,98,000

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{1,98,000}{1,00,000} = 1.98:1$$

(e) Current Assets = 2,00,000 + 20,000 (Stock) = 2,20,000

Current Liabilities = 1,00,000 + 20,000 (Creditors) = Rs 1,20,000

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{2,20,000}{1,20,000} = 1.83:1$$

(f) Current Liabilities = 1,00,000 – 10,000 (unclaimed creditors) = Rs 90,000

$$\text{Current Ratio} = \frac{2,00,000}{90,000} = 2.22:1$$

(g) Current Assets = 2,00,000 + 25,000 (Advances received from customer) = Rs 2,25,000

Current Liabilities = 1,00,000 + 25,000 (Advances) = 1,25,000

$$\text{Current Ratio} = \frac{2,25,000}{1,25,000} = 1.8:1$$

(h) Current Assets = 2,00,000 – 30,000 (Payments to creditors) = Rs 1,70,000

Current Liabilities = 1,00,000 – 30,000 (Payment to creditors) = Rs 70,000

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{1,70,000}{70,000} = 2.42 : 1$$

Solvency Ratios

Objective

After going through this lesson, you shall be able to understand the following concepts.

- Solvency Ratios and its types
- Leverage Ratio/Debt-Equity Ratio and its Significance
- Total Assets to Debt Ratio and its Significance
- Proprietary Ratio and its Significance
- Interest Coverage Ratio and its Significance

Solvency Ratios and its Types

Solvency Ratios help in studying the long-term solvency and financial position of a firm. These ratios are long-term in nature and helps in analysing how a firm is able to meet its long-term obligations using its long-term assets. The long-term obligations include payments of principal amount of debts on the due date and payments of interests on regular basis. The following are various types of solvency ratios that are used to assess the long-term solvency position of any business.

I. Leverage Ratio/Debt-Equity Ratio
II. Total Assets to Debt Ratio
III. Proprietary Ratio
IV. Interest Coverage Ratio
V. Debt Ratio

I. *Leverage Ratio/**Debt-Equity Ratio***

It depicts the relationship between the borrowed funds and the owner's funds. It indicates how strong the long-term financial position of the enterprise is. The lower the debt-equity ratio higher will be the degree of security to the lenders. A low debt-equity ratio implies that the company can easily meet its long term obligations. It also shows the proportion of long-term debts in comparison of the owner’s fund in the capital employed. The debt-equity ratio can be computed by any of the following two formula.

$$\text{Debt-Equity Ratio} = \frac{\text{Debt}}{\text{Equity}} \text{ or,}$$

$$\text{Debt-Equity Ratio} = \frac{\text{Long-term Debts}}{\text{Shareholders' Funds}}$$

This ratio is expressed in <u>Fraction</u>

Debts- Debts include all the long-term liabilities that has a maturity period more than one year. These are also known as *external funds*. Some examples of long-term debts are debentures, loan from bank, loan from financial institutions, etc.

Debts/Long-term Debts =	Debentures + Bank Loan + Loan from Financial Institutions + Mortgage Loan + Public Deposits + Other long-term Borrowings.
OR	
Debts/Long-term Debts =	Total Debts – Current Liabilities

Equity- Equity (or Shareholders' Funds) include equity share capital, preference share capital, reserves, etc. It does not include any accumulated losses and fictitious assets such as underwriting commission, discount on issue, preliminary expenses, etc.

Equity or Shareholders' Funds	
Includes	***Excludes***
Equity Share Capital, Preference Share Capital, General Reserves, Reserve Funds, Capital Reserve, Securities Premium, Credit Balance of Profit and Loss Account, Other Reserves, etc.	Accumulated Losses and Fictitious Assets i.e. Preliminary Expenses, Underwriting Commission, Share Issue Expenses, Discount on Issue of Shares / Debentures, Debit Balance of Profit and Loss Account, etc.

Equity/Shareholders' Funds =	Equity Share Capital + Preference Share Capital + General Reserve + Capital Reserve + Profit and Loss (Cr.) + Securities Premium + Other Reserves – Miscellaneous Expenditures – Profit and loss (Dr.)
OR	
Equity/Shareholders' Funds =	Total Assets – (Long-term Loans + Current Liabilities) *where*, Total Assets = Fixed Assets + Current Assets (except fictitious assets)
OR	
Equity/Shareholders' Funds =	Capital Employed – Long-term Debts

Significance of Debt-Equity Ratio

a. It reveals the firm's ability to discharge its long-term debts.
b. It shows the respective amount of funds contributed by the owners of a company and outsiders.
c. It depicts the long-term financial position of the firm.
d. The ideal debt-equity ratio is considered to be 2:1.
e. A higher debt-equity ratio implies the higher risk as it indicates that a large portion of funds has been invested by the outsiders. On the other hand, a low debt-equity ratio is considered to be safe because it implies that a company can easily meet its long-term obligations.

Note: Debt-Equity Ratio is expressed in fractions.

***Example*:** From the following data calculate Debt-equity ratio.

Particulars	Amount Rs
Equity Share Capital	1,20,000
Profit and Loss Account (credit)	40,000
Accumulated Profits	35,000
Securities Premium	50,000
Creditors	45,500
Debentures	85,000
Bank Loan	20,000
Prepaid Expenses	15,750
Outstanding Expenses	16,200

Solution

$$\text{Debt-Equity Ratio} = \frac{\text{Debt}}{\text{Equity}}$$

Debt = Debentures + Bank Loan = 85,000 + 1,20,000 = Rs 1,05,000

Equity = Equity Share Capital + Profit and Loss Account + Accumulated Profits + Securities Premium

= 1,20,000 + 40,000 + 35,000 + 50,000 = Rs 2,45,000

$$\therefore \text{Debt-Equity Ratio} = \frac{1,05,000}{2,45,000} = 3:7 \text{ or } 0.43:1$$

***Example*:** Ascertain Debt-equity in each of the following cases.

Case (a)

Particulars	Rs
Equity Share Capital	10,10,000
12% Preference Share Capital	2,00,000
Reserves and Surplus	3,00,000
14% Debentures	8,00,000
Loan from ICICI Bank	12,00,000
Sundry Creditors	1,50,000
Bank Overdraft	50,000
Preliminary Expenses	10,000

Case (b)
Total Debts Rs 20,00,000, Current Liabilities Rs 6,00,000 and Capital Employed Rs 25,00,000.

Solution

Case (a) Long-term Debt = 14% Debentures + Loan from ICICI Bank
= 8,00,000 + 12,00,000 = Rs 20,00,000

Shareholder's Fund = Equity Share Capital + 12% Preference Share Capital + Reserves and Surplus – Preliminary Expenses
= 10,10,000 + 2,00,000 + 3,00,000 – 10,000 = Rs 15,00,000

$$\text{Debt-Equity Ratio} = \frac{\text{Long-term Loans}}{\text{Shareholders' Funds}} = \frac{20,00,000}{15,00,000} = 1.33:1$$

Case (b)

Long-term Debts = Total Debts – Current Liabilities
= 20,00,000 – 6,00,000 = Rs 14,00,000

Shareholders' Fund = Capital Employed – Long-term Debts
= 25,00,000 – 14,00,000 = Rs 11,00,000

$$\text{Debt-Equity Ratio} = \frac{\text{Long-term Loans}}{\text{Shareholders' Funds}} = \frac{14,00,000}{11,00,000} = 1.27:1$$

II. *Total Assets to Debt Ratio*

It depicts the relationship between the total assets and the long-term loans of a firm. It represents how sufficient are the available assets in order to meet the long-term borrowings. In other words, this ratio indicates the extent to which the total assets are available to meet the claims of the long-term borrowers. A high total assets to debt ratio implies that more assets are financed by the owner's fund and the company can easily meet its long-term obligations.

$$\text{Total Assets to Debt Ratio} = \frac{\text{Total Assets}}{\text{Long-term Debts}}$$

This ratio is expressed in <u>Fraction</u>

Total Assets =	All Fixed Assets + Investment + Current Assets + Loan and Advances – Fictitious Assets (such as preliminary expenses, loss/discount on issue, etc.)
OR	
Total Assets =	Shareholders' Funds + Long-term Liabilities + Current Liabilities
OR	
Total Assets =	Total Liabilities
Debts/Long-term Debts =	Debentures + Bank Loan + Loan from Financial Institutions + Mortgage Loan + Public Deposits + Other long-term Borrowings.
OR	
Debts/Long-term Debts =	Total Debts – Current Liabilities

Significance of Total Assets to Debt Ratio

a. It represents the relationship between total assets and long-term loans.
b. It depicts the extent to which the assets can be applied to meet the long-term obligations.
c. The ideal total asset to debt ratio is considered to be 2:1.
d. A high ratio implies that more assets are financed by the owner's fund which in turn provides more security to the lenders. On the other hand, a lower Total Assets to Debt Ratio implies the more use of external funds which results into the higher risk.

III. *Proprietary Ratio*

It represents the portion of total assets that is financed by the owner's equity. In other words, it determines the proportion of total assets financed by proprietors' (Shareholders') funds. It depicts the relationship between the shareholder's fund and the total assets. *Higher the ratio, the higher is the degree of safety to the creditors.* This ratio is computed as dividing Shareholders' Funds by Total Equity.

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

This ratio is expressed in <u>Fraction</u>

Equity/Shareholders' Funds =	Equity Share Capital + Preference Share Capital + General Reserve + Capital Reserve + Profit and Loss (Cr.) + Securities Premium + Other Reserves – Miscellaneous Expenditures – Profit and loss (Dr.)
OR	
Equity/Shareholders' Funds =	Total Assets – (Long-term Loans + Current Liabilities) *where*, Total Assets = Fixed Assets + Current Assets (except fictitious assets)
Total Assets =	All Fixed Assets + Investment + Current Assets + Loan and Advances – Fictitious Assets (such as preliminary expenses, loss/discount on issue, etc.)
OR	
Total Assets =	Shareholders' Funds + Long-term Liabilities + Current Liabilities
OR	
Total Assets =	Total Liabilities

Significance of Proprietary Ratio

a. Proprietary Ratio close to one is an indicator of strong holding of equity.
b. It depicts the part of assets financed by the owner's fund.
c. This ratio is of highly importance to the creditors particularly.
d. A high ratio reveals the strong financial position of a firm as it indicates more assets are financed through the owner's funds. On the other hand, a low ratio indicates the lower safety to the creditors because they may feel insecure regarding their payment at the time of liquidation.

***<u>Example</u>*:** From the given below information, calculate the Proprietary Ratio

Particulars	Amount Rs
Equity Share Capital	1,20,000
Securities Premium	70,000
General Reserve	50,000
Debentures	95,000

Bank Loan	67,500
Machinery	95,000
Investment	1,05,000
Stock	60,000
Debtors	40,000
Underwriting Commission	25,000

Solution

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

Shareholders' Funds = Equity Share Capital + Securities Premium + General Reserve – Underwriting Commission

= 1,20,000 + 70,000 + 50,000 – 25,000 = Rs 2,15,000

Total Assets = Machinery + Investment + Stock + Debtors

= 95,000 + 1,05,000 + 60,000 + 40,000 = Rs 3,00,000

$$\text{Proprietary Ratio} = \frac{2,15,000}{3,00,000} = 0.72:1$$

Example: Proprietary Ratio 0.4 : 1, Proprietors' Funds 4,00,000 and Current Liabilities 1,00,000. Calculate:

a. Debt Equity Ratio
b. Total Assets to Debt Ratio
c. What will the new Debt Equity Ratio, if 10% Debentures 1,00,000 are issued.
d. In order to maintain Debt Equity Ratio 2 : 1, what amount of debt is to be raised?

Solution

a. ***Debt Equity Ratio***

$$\text{Debt Equity Ratio} = \frac{\text{Long Term Loan}}{\text{Shareholders' Fund}}$$
$$= \frac{5,00,000}{4,00,000}$$
$$= 1.25:1$$
$$\text{Proprietary Ratio} = \frac{\text{Proprietors' (Shareholders') Funds}}{\text{Total Assets}}$$
$$\frac{4}{1} = \frac{4,00,000}{\text{Total Assets}}$$
$$\text{Total Assets} = \text{Rs}10,00,000$$
$$\text{Long Term Loan} = \text{Total Assets} - (\text{Shareholders' Fund} + \text{Current Liabilities})$$
$$= 10,00,000 - (4,00,000 + 1,00,000)$$
$$= \text{Rs } 5,00,000$$

b. ***Total Assets to Debt Ratio***

$$\text{Total Assets to Debt} = \frac{\text{Total Assets}}{\text{Long-term Loans}} = \frac{10,00,000}{5,00,000} = 2:1$$

c. ***New Debt Equity Ratio***

If 10% of debenture is raised, then the Long-term loans will increase by 1,00,000 and the total Long-term loans will be 6,00,000 (i.e. 5,00,000 + 1,00,000)

$$\text{Debt Equity Ratio (after issue of new debentures)} = \frac{\text{Long Term Loan}}{\text{Shareholders Fund}}$$
$$= \frac{6,00,000}{4,00,000} = 1.5:1$$

d. To maintain ***Debt Equity Ratio at 2:1,*** debt has to be raised to Rs 8,00,000. This is ascertained as follows.

$$\text{Debt Equity Ratio} = \frac{\text{Long-term Loans}}{\text{Shareholders Fund}}$$

$$\text{Existing Debt Equity Ratio} = \frac{5,00,000}{4,00,000} = \frac{1.25}{1}$$

Let Debt to be raised (in order to maintain Debt Equity Ratio at 2:1) be x

$$\text{Debt Equity Ratio} = \frac{5,00,000 + x}{4,00,000} = \frac{2}{1}$$

$$\text{or, } 8,00,000 = 5,00,000 + x$$

$$x = \text{Rs } 3,00,000$$

$$\text{New Debt} = 5,00,000 + x$$

$$= 5,00,000 + 3,00,000 = \text{Rs } 8,00,000$$

IV. *Interest Coverage Ratio*

This ratio depicts the relationship between the amount of profit utilise for paying interest and total amount of interest payable. A high interest coverage ratio implies that the company can easily meet all its interest obligations out of its profits. It is calculated as:

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

Net Profit Before Interest and Tax = Net Profit After Interest and Tax + Interest + Tax

Note:

1. Interest on long-term debts is calculated by multiplying the rate of interest by the amount of long-term debt on which interest has to be charged.

2. ***Interest Coverage Ratio is e****xpressed in* ***Times***

Significance of Interest Coverage Ratio

a. It depicts the security of interest payments on the long-term debts out of its profits.
b. It reveals the number of times the interest on long-term debt can be paid out of the profits available for interest.
c. A high ratio indicates the surplus available for shareholder after meeting its interest obligations on the long-term debts. Therefore, a high Interest Coverage Ratio ensures safety of interest payment on the long-term debts.

Example**:** KMO Ltd. has a net profit (after interest and tax) of Rs 81,000, 10% Debentures of Rs 15,00,000 and 5% long-term loan of Rs 10,50,000. The tax rate is 40%. Calculate the Interest Coverage Ratio.

Solution

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

Interest on Long-term Debts = Interest on Debentures + Interest on Loan $= \left(15,00,000 \times \frac{10}{100}\right) + \left(10,50,000 \times \frac{5}{100}\right) = \text{Rs } 2,02,500$

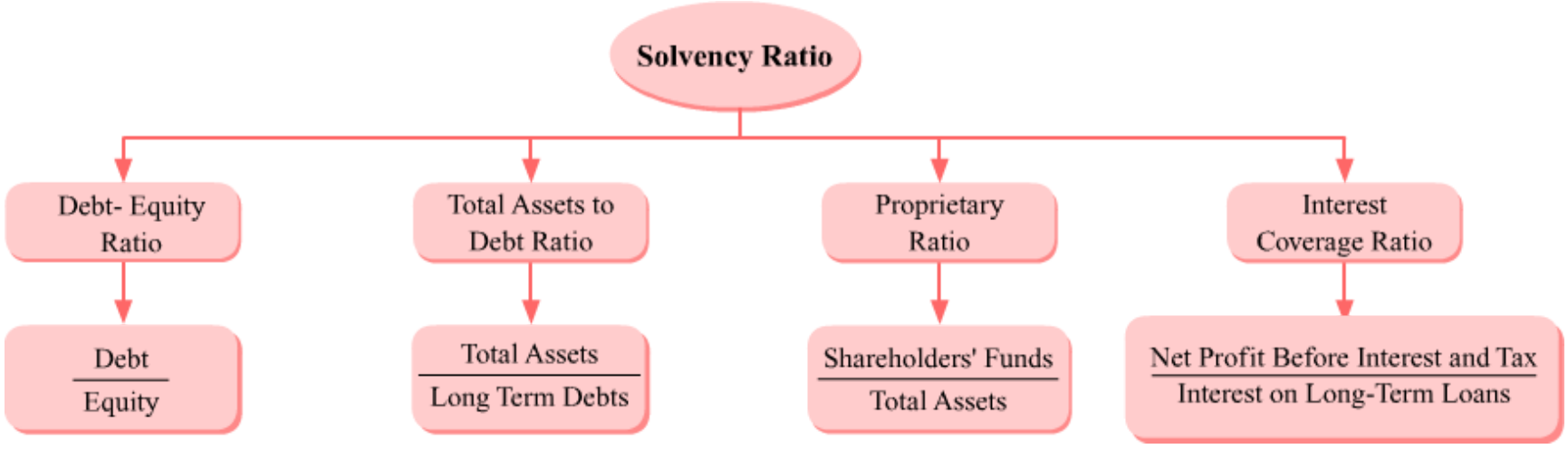
Profit before Interest and Tax = Profit after Interest and Tax + Tax + Interest

$$\text{Profit } \textit{Before} \text{ Tax but } \textit{After} \text{ Interest} = \frac{\text{Profit after Tax}}{(100 - \text{Tax Rate})} \times 100 = \frac{81,000}{60} \times 100 = \text{Rs } 1,35,000$$

Profit before Interest and Tax = Profit before Tax but after Interest + Interest = 1,35,000 + 2,02,500 = Rs 3,37,500

$$\therefore \text{Interest Coverage Ratio} = \frac{3,37,500}{2,02,500} = 1.67 \text{ times}$$

Summary of all Solvency Ratios



Activity or Turnover Ratios

Objective

After going through this lesson, you shall be able to understand the following concepts of Activity Ratios.

- Meaning and Types of Activity Ratios
- Stock Turnover Ratio and its Significance

- Trade Receivables Turnover Ratio and its Significance
- Trade Payables Turnover Ratio and its Significance
- Working Capital Turnover Ratio and its Significance

Introduction

In the previous chapters, we learnt about the Liquidity Ratios and Solvency Ratios. These ratios are used to determine the solvency position of a firm in short-run and long-run. In this lesson, we will learn about various yardsticks which are used to measure efficiency and efficacy of a business enterprise. This is done by computing Activity Ratios.

Activity or Turnover Ratios

The Activity Ratios help us in assessing the operational efficiency and efficacy of a business in using its limited available resources. That is, in other words, how efficiently a business is employing its resources. These ratios show the adequacy and capability of a business to convert its assets and other resources into the sales during an accounting period. Accordingly, such ratios are also termed as *Turnover or Efficiency or Performance Ratio*. These ratios are basically related to sales or cost of goods sold. A higher turnover ratio is considered good as it implies better utilisation of the resources. Therefore, a high turnover ratio can also be regarded as an indicator of efficient performance and high profits earning capacity. The following are various types of turnover ratios that are used to assess the operational efficiency of any business.

I. Stock or Inventory Turnover Ratio
II. Debtors or Trade Receivable Turnover Ratio
III. Creditors or Trade Payables Turnover Ratio
IV. Working Capital Turnover Ratio

It should be noted that unlike Liquidity Ratios and Solvency Ratios, Activity Ratios are expressed in terms of times.

I. *Stock or Inventory Turnover Ratio*

This ratio depicts the relationship between the cost of goods sold and average stock of goods kept during an accounting year. It is computed to determine the efficiency of an enterprise with which the stock has been utilised. It is calculated as:

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

This ratio is expressed in <u>Times</u>

Cost of Goods Sold =	Net Sales (Sales – Sales Return) – Gross Profit
OR	
Cost of Goods Sold =	Opening Stock + Net Purchases + Direct Expenses – Closing Stock

$$\textit{Average Stock} = \frac{\text{Opening Stock} + \text{Closing Stock}}{2}$$

Note:

1. In case, cost of goods sold is not given or it can not be computed, the *Sales* can be used in place of *Cost of Goods Sold* to calculate this ratio.
2. In case, only closing stock is given, it will be considered as Average Stock to calculate this ratio.

Significance of Stock Turnover Ratio

a. This ratio shows efficacy with which an enterprise employs its stock.
b. It shows how fast the stock of goods is converted into sales during an accounting year.
c. This ratio can be used to compare the performance of two firms in terms of their respective sales.
d. It is a measure of liquidity.
e. A high stock turnover ratio implies the effective utilisation investment in stock to convert it into sales.On the other hand, a low stock turnover ratio implies the excess investment in stock or inefficient utilisation of stock.

***Example*:**

From the following information calculate the inventory turnover ratio.

Particulars	Amount (Rs)
Sales	5,00,000
Purchases	2,50,000
Freight	25,000
Stock at the beginning of the year	1,00,000
Stock at the end of the year	50,000

Solution

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

Cost of Goods Sold = Opening Stock + Purchases + Freight – Closing Stock

∴ Cost of Goods Sold = 1,00,000 + 2,50,000 + 25,000 – 50,000 = Rs 3,25,000

$$\text{Average Stock} = \frac{\text{Opening Stock} + \text{Closing Stock}}{2} = \frac{1,00,000 + 50,000}{2} = \text{Rs } 75,000$$

$$\text{Stock/Inventory Turnover Ratio} = \frac{\text{Cost of Goods Sold}}{\text{Average Stock}} = \frac{3,25,000}{75,000} = 4.33 \text{ times}$$

II. *Debtors or Trade Receivable Turnover Ratio*

This ratio depicts the relationship between net credit sales and average accounts receivables during an accounting year. This ratio is computed to determine the rate at which the amount is collected from its debtors or the speed with which receivables are converted into cash. That is, in other words, this ratio helps us in knowing how often amount is received from the debtors and bills receivable (arising from goods sold on credit) in comparison of total credit sales. This ratio indicates the debt collection ability of the enterprise. This ratio is computed as:

$$\text{Debtors/Receivables Turnover Ratio} = \frac{\text{Net Credit Sales}}{\text{Average Receivables}}$$

This ratio is expressed in <u>Times</u>

***Net Credit Sales* =**	Total Net Sales – Cash Sales *where*, Total Net Sales = Gross Sales – Sales Return
OR	
***Net Credit Sales* =**	Cash Received from Debtors + Sales Returns + Closing Debtors – Opening Debtors
***Average Receivables* =**	$\frac{\text{Opening Debtors} + \text{Opening B/ R} + \text{Closing Debtors} + \text{Closing B/R}}{2}$

Average Collection Period or Debtors Velocity

$$\text{Average Collection Period or Debtors Velocity (in months)} = \frac{12}{\text{Debtors Turnover Ratio}}$$

$$\text{Average Collection Period or Debtors Velocity (in days)} = \frac{365 \text{ or } 366}{\text{Debtors Turnover Ratio}}$$

This fraction is expressed in <u>Months or Days</u>.

The Average Collection Period represents the average time (months/days) taken by the debtors to repay from the date of credit sales. It indicates the average time taken by each debtors to repay their amount.

Note 1 Debtors implies debtors due to sale of goods on credit.

Note 2 While calculating this ratio, *provision for doubtful debts* is not taken into consideration i.e. it should not be deducted from the amount total debtors.

Note 3 In case, the information regarding *credit sales is not given*, then the ratio can be calculated by taking the amount of *total sales.*

Note 4 In case, the amount of Bills Receivable is not given, then Average Receivables can be calculated by taking the average of Opening and Closing Debtors.

Note 5 If Opening Debtors and Opening Bills Receivable are not given, then the ratio is calculated by taking Total Receivables at the end i.e. Closing Debtors and Closing Bills Receivable.

Significance of Debtors or Trade Receivables Turnover Ratio

a. It shows how frequently the firm is able to convert its receivables into cash.
b. It gives a clear view regarding the credit policy followed by an organisation.
c. Higher Debtors Turnover Ratio is preferred because it implies fast and efficient collection procedure.
d. This ratio also helps in calculating the average collection period.

***Example*:**

From the following information calculate the Debtors Turnover Ratio and Average Collection Period.

Particulars	Amount (Rs)
Total Sales for the year	3,30,000
Cash Sales for the year	66,000
Debtors at the beginning	57,750
Debtors at the end	90,750
Provision for Doubtful Debts	25,000

Solution

$$\text{(i) Debtors Turnover Ratio} = \frac{\text{Net Credit Sales}}{\text{Average Receivables}}$$

Net Credit Sales = Total Sales – Cash Sales = 3,30,000 – 66,000 = Rs 2,64,000

$$\text{Average Debtors} = \frac{\text{Opening Debtors} + \text{Closing Debtors}}{2} = \frac{57,750+90750}{2} = \text{Rs } 74,250$$

$$\therefore \text{Debtors Turnover Ratio} = \frac{2,64,000}{74,250} = 3.55 \text{ times}$$

$$\text{(ii) Average Collection Period} = \frac{\text{No. of days in a year}}{\text{Debtors Turnover Ratio}} = \frac{365}{3.55} = 102.81 \text{ or } 103 \text{ days}$$

III. *Creditors or Trade Payables Turnover Ratio*

This ratio depicts the relationship between net credit purchase and average accounts payable during an accounting period. It is computed to determine the rate at which the amount is paid to the creditors. In other words, it helps us to know how many times payment is made to the creditors and bills payable (arising from credit purchase of goods) in comparison of net credit purchases. It is calculated as:

$$\text{Creditors Turnover Ratio} = \frac{\text{Net Credit Purchases}}{\text{Average Payables (Average Account Payables)}}$$

This ratio is expressed in <u>Times</u>

Net Credit Purchases =	Total Net Purchases – Cash Purchases *where*, Total Net Purchases = Gross Purchases – Purchases Return
Average Payables/Average Accounts Payable =	$\frac{\text{Opening Creditors} + \text{Opening B/P} + \text{Closing Creditors} + \text{Closing B/P}}{2}$

Note 1 While calculating this ratio, *provision for discount on creditors* should not be taken into consideration i.e. it should not be deducted from the amount total creditors.

Note 2 In case, information regarding *credit purchases is not mentioned*, then the ratio can be calculated by taking the amount of *total purchases.*

Note 3 If amount for Bills Payable is not given in the question, then Average Payables can be calculated by taking the average of Opening and Closing Creditors.

Note 4 Moreover, if no information regarding Opening Creditors and Opening Bills Payable is mentioned, then the ratio is calculated by taking the Total Payables at the end i.e. Closing Creditors and Closing Bills Payable.

Average Payment Period or Creditors Velocity

$$\text{Average Payment Period (in months)} = \frac{12}{\text{Creditors Turnover Ratio}}$$

$$\text{Average Payment Period (in days)} = \frac{365 \text{ or } 366}{\text{Creditors Turnover Ratio}}$$

This fraction is expressed in Months or Days.

Average Payment Period indicates the average time-gap (in months or days) of settlement of accounts from the date of purchase to the date of payment.

Significance of Creditors or Trade Payables Turnover Ratio

a. It helps in calculating the average payment period.
b. This ratio provides information especially to the suppliers or the creditors about the debt payment tendency (frequency) of an enterprise. This also helps the creditors to permit time to the enterprise to repay their debts.
c. It shows how frequently the firm is able to pay its creditors, thereby, helps in assessing the credit worthiness of a firm.
d. A high Creditor's Turnover Ratio indicates quicker repayment to the creditors and more need of working capital in the form of cash.
e. A low creditors turnover ratio longer payment period to the creditors resulting in delayed payment which may affect the credit worthiness and reputation of a firm.

***Example*:** From the following information calculate the Creditors Turnover Ratio and Average Payment Period.

Particulars	Amount (Rs)
Total Purchase during the year	2,50,000
Cash Purchase during the year	80,000
Purchase Returns	20,000
Creditors at the beginning	30,000
Creditors at the end	40,000
Bills Payable at the beginning	26,000
Bills Payable at the end	14,000

Solution

$$\text{(i) Creditors Turnover Ratio} = \frac{\text{Net Credit Purchases}}{\text{Average Payables}}$$

Net Credit Purchases = Total Purchases – Purchase Returns – Cash Purchases = 2,50,000 – 20,000 – 80,000 = Rs 1,50,000

$$\text{Average Accounts Payable} = \frac{\text{Opening Creditors} + \text{Opening B/P} + \text{Closing Creditors} + \text{Closing B/P}}{2}$$

$$= \frac{(30,000 + 26,000) + (40,000 + 14,000)}{2} = \text{Rs } 55,000$$

$$\therefore \text{ Creditors Turnover Ratio} = \frac{1,50,000}{55,000} = 2.73 \text{ times}$$

$$\text{(ii) Average Payment Period} = \frac{\text{No. of Days in a Year}}{\text{Creditors Turnover Ratio}} = \frac{365}{2.73} = 133.69 \text{ or } 134 \text{ days}$$

IV. *Working Capital Turnover Ratio*

This ratio depicts the relationship between the net sales and working capital of a firm. Working capital is the excess of current assets over the current liabilities. This ratio is computed to determine how efficiently the working capital is utilised in making sales. It is calculated as:

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

This ratio is expressed in <u>Times</u>

Net Sales =	Total Sales – Sales Return
OR	
Net Sales =	Cost of Goods Sold + Gross Profit
Working Capital =	Current Assets – Current Liabilities

Note: In case, information regarding net sales is not given or it can not be computed, the *Cost of Goods Sold* can be used in place of *Net Sales* to calculate this ratio.

Significance of Working Capital Turnover Ratio

a. This ratio shows the how efficiently the working capital is utilised in making sales.
b. A high working capital turnover ratio indicates the efficient utilisation of working capital by an organisation.
c. A low working capital turnover ratio indicates the inefficient and improper utilisation of working capital.

***<u>Example</u>*:**

From the following information calculate Working Capital Turnover Ratio.

Particulars	Amount (Rs)
Cash Sales	2,00,000
Credit Sales	3,50,000
Sales Returns	65,000
Current Assets	4,25,000
Current Liabilities	1,75,000

Solution

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

Net Sales = Cash Sales + Credit Sales – Sales Returns = 2,00,000 + 3,50,000 – 65,000 = Rs 4,85,000

Working Capital = Current Assets – Current Liabilities = 4,25,000 – 1,75,000 = Rs 2,50,000

$$\therefore \text{Working Capital Turnover Ratio} = \frac{4,85,000}{2,50,000} = 1.94 \text{ times}$$

Example:
Debtors Turnover ratio = 2 times
Stock Turnover Ratio = 4 times
Current Ratio = 1.5

Closing Debtors = Rs 70,000
Opening Debtors = Rs 40,000 in excess of Closing Debtors
Current Assets = Rs 45,000

Gross Profit = Rs 25,000
Cash Sales = 20% of Total Sales
Opening Stock is 2/3rd of the Closing Stock

From the given information compute the following-

i. Total Sales
ii. Closing Stock
iii. Working Capital Turnover Ratio

Solution

$$\text{Debtors Turnover Ratio} = \frac{\text{Net Credit Sales}}{\text{Average Debtors}}$$

$$\text{Average Debtors} = \frac{\text{Opening Debtors} + \text{Closing Debtors}}{2}$$

Closing Debtors = 70,000

Opening Debtors = 40,000 in excess of Closing Debtors

or, Opening Debtors = 40,000 + 70,000 = 1,10,000

$$\therefore \text{Average Debtors} = \frac{1,10,000 + 70,000}{2} = 90,000$$

$$\text{Debtors Turnover Ratio} = \frac{\text{Net Credit Sales}}{\text{Average Debtors}}$$

$$\text{or, } 2 = \frac{\text{Net Credit Sales}}{90,000}$$

or, Net Credit Sales = 1,80,000

Cash Sales = 20% of Total Sales
Let Total Sales = x
Cash Sales = $0.20x$

Total Sales = Cash Sales + Credit Sales
or, $x = 0.20x + 1,80,000$

or, $0.80x = 1,80,000$
or, $x = 2,25,000$

Total Sales = Rs 2,25,000

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

$$\text{Cost of Goods Sold} = \text{Total Sales} - \text{Gross Profit}$$

$$\text{or, Cost of Goods Sold} = 2,25,000 - 25,000 = 2,00,000$$

$$4 = \frac{2,00,000}{\text{Average Stock}}$$

$$\text{Average Stock} = 50,000$$

$$\text{Average Stock} = \frac{\text{Opening Stock} + \text{Closing Stock}}{2}$$

$$\text{Opening Stock} = \frac{2}{3}\text{rd of Closing Stock}$$

$$\text{Let Closing Stock} = x$$

$$\text{Opening Stock} = \frac{2}{3}x$$

$$\text{Average Stock} = \frac{\frac{2}{3}x + x}{2}$$

$$\text{or, } 50,000 = \frac{\frac{5}{3}x}{2}$$

$$\text{or, } \frac{5}{3}x = 1,00,000$$

$$\text{or, } x = 60,000$$

Closing Stock = Rs 60,000

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

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

$$\text{Current Assets} = 45,000$$

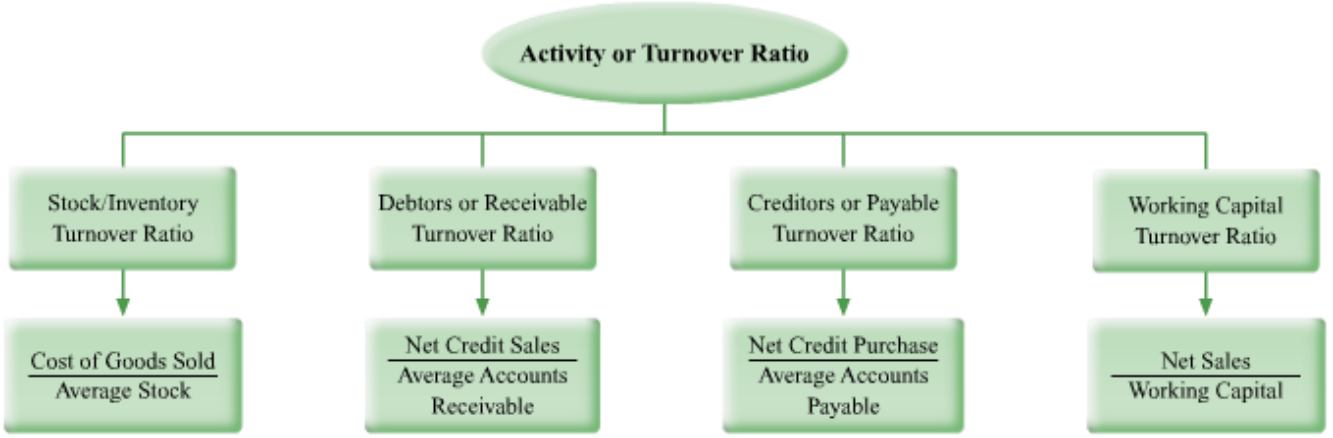
$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

$$1.5 = \frac{45,000}{\text{Current Liabilities}}$$

$$\text{or, Current Liabilities} = 30,000$$

$$\therefore \text{Working Capital} = 45,000 - 30,000 = 15,000$$

$$\text{Working Capital Turnover Ratio} = \frac{2,25,000}{15,000} = 15 \text{ times}$$



Profitability Ratios-I (GPR, OR, OPR)

Objective

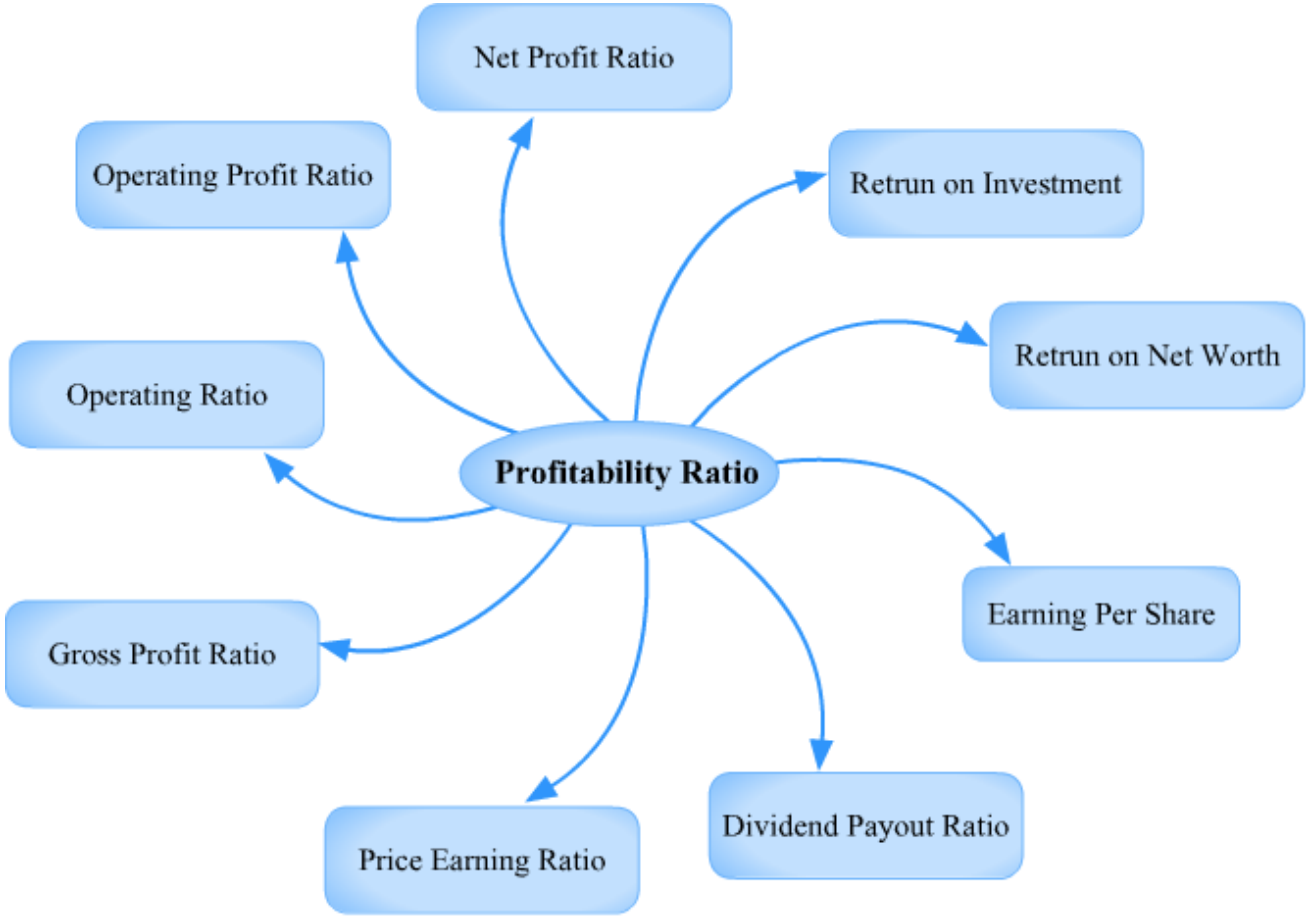
After going through this lesson, you shall be able to understand the following concepts.

- Meaning and Types of Profitability Ratios
- Gross Profit Ratio and its Significance
- Operating Ratio and its Significance
- Operating Profit Ratio and its Significance

Profitability Ratios

Profitability ratios are calculated on the basis of profit earned by a business. This ratio gives a percentage measure to assess the financial viability, profitability and operational efficiency of the business. The various important profitability Ratios are given below.

I. Gross Profit Ratio (*expressed in percentage*)
II. Operating Ratio (*expressed in percentage*)
III. Operating Profit Ratio (*expressed in percentage*)
IV. Net Profit Ratio (*expressed in percentage*)
V. Return on Investment or Capital Employed (*expressed in percentage*)
VI. Earning Per Share (*Rs per share*)
VII. Dividend Payout Ratio (*Rs per share*)
VIII. Price Earning Ratio (*Rs per share*)



I. *Gross Profit Ratio*

This ratio depicts the relationship between Gross Profit and Net Sales of an organisation.. It reveals the trading efficiency of a business. This ratio is expressed in percentage. A higher Gross Profit Ratio implies a better position of a business, whereas a low Gross Profit Ratio implies an inefficient unfavourable sales policy. This ratio is calculated by the following formula.

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

This ratio is expressed in <u>Percentage</u>

Gross Profit =	Net Sales – Cost of Goods Sold
Net Sales =	Total Sales – Sales Returns
Cost of Goods Sold =	Opening Stock + Purchases + Direct Expense – Closing Stock

Significance of Gross Profit Ratio

a. This ratio shows the profit margin on the goods sold. Higher is the gross profit ratio, greater are the profits to a firm.
b. This ratio helps in determining the selling price of goods and services.
c. A higher gross profit ratio implies a better and strong position of a business.
d. A low gross profit ratio implies an inefficient sales policy.

***<u>Example</u>*:** Kanika Ltd. had a sales of Rs 8,00,000 and earned gross profit of 25% on cost during the year 2012. Find out the gross profit ratio.

Solution

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

Sales = Rs 8,00,000

Gross Profit = 25% on Cost

Let Cost be Rs 100

$$\text{Gross Profit} = 25\% \text{ on cost} = \left(100 \times \frac{25}{100}\right) = \text{Rs } 25$$

Sales = 100 + 25 = Rs 125 (Cost + Profit)

$$\text{Cost of Goods Sold} = \frac{8,00,000}{125} \times 100 = \text{Rs } 6,40,000$$

Gross Profit = Sales – Cost of Goods Sold = 8,00,000 – 6,40,000 = Rs 1,60,000

Alternate Method (for calculating Gross Profit)

Gross Profit can be directly calculated as:

$$\text{Gross Profit} = \frac{80,000}{125} \times 25 = \text{Rs } 1,60,000$$

$$\text{Gross Profit Ratio} = \frac{\text{Gross Profit}}{\text{Net Sales}} \times 100 = \frac{1,60,000}{8,00,000} \times 100 = 20\%$$

***Example*:** Cost of Goods Sold is Rs 75,000, Gross Profit is 30% on cost. Calculate the Gross Profit Ratio.

Solution

$$\text{Gross Profit} = \text{Cost of Goods Sold} \times \frac{30}{100}$$

$$= 75,000 \times \frac{30}{100} = \text{Rs } 22,500$$

$$\text{Sales} = \text{Cost of Goods Sold} + \text{Gross Profit}$$

$$= 75,000 + 22,500 = \text{Rs } 97,500$$

$$\text{Gross Profit Ratio} = \frac{\text{Gross Profit}}{\text{Net Sales}} \times 100 = \frac{22,500}{97,500} \times 100 = 23.07\%$$

***Example*:** Net Sales is Rs 2,30,000, Gross Profit is 15% on (or above) cost. Calculate the Gross Profit Ratio.

Solution

Let Cost be $= x$

$$\text{Gross Profit} = x \times \frac{15}{100} = \frac{15x}{100}$$

$$\text{Sales} = \text{Cost of Goods Sold} + \text{Gross Profit}$$

$$\text{or, } 2{,}30{,}000 = x + \frac{15x}{100}$$

so, $x =$ Rs 2,00,000

Gross Profit = Sales − Cost of Goods Sold

= 2,30,000 − 2,00,000 = Rs 30,000

$$\text{Gross Profit Ratio} = \frac{\text{Gross Profit}}{\text{Net Sales}} \times 100 = \frac{30{,}000}{2{,}30{,}000} \times 100 = 13.04\%$$

***Example*:** Cost of Goods Sold Rs 4,50,000 and Gross Profit Ratio is 25%. Calculate sales and gross profit.

Solution

Let Sales be $= x$

$$\text{Gross Profit} = x \times \frac{25}{100} = \frac{25x}{100}$$

$$\text{Sales} = \text{Cost of Goods Sold} + \text{Gross Profit}$$

$$\text{or, } x = 4{,}50{,}000 + \frac{25x}{100}$$

so, $x =$ Rs 6,00,000

Hence, Sales is Rs 6,00,000

Goss Profit = Sales − Cost of Goods Sold

= 6,00,000 − 4,50,000 = Rs 1,50,000

***Example*:** Cash Sales is Rs 1,80,000, Credit Sales is 85% of Net Sales and Cost of Goods Sold is Rs 7,00,000. Calculate the Gross Profit Ratio.

Solution

$$\text{Let Sales be} = x$$

$$\text{Credit Sales} = x \times \frac{85}{100} = \frac{85x}{100}$$

$$\text{Net Sales} = \text{Cash Sales} + \text{Credit Sales}$$

$$\text{or, } x = 1{,}80{,}000 + \frac{85x}{100}$$

$$\text{so, Net Sales} = x = \text{Rs } 12{,}00{,}000$$

$$\text{Gross Profit} = \text{Net Sales} - \text{Cost of Goods Sold}$$

$$= 12{,}00{,}000 - 7{,}00{,}000 = \text{Rs } 5{,}00{,}000$$

$$\text{Gross Profit Ratio} = \frac{5{,}00{,}000}{12{,}00{,}000} \times 100 = 41.67\%$$

II. *Operating Ratio*

This ratio depicts the relationship between cost of operation and net sales. It indicates the operational efficiency of a business. It is calculated as-

$$\text{Operating Ratio} = \frac{\text{Operating Cost}}{\text{Net Sales}} \times 100$$

This ratio is expressed in <u>Percentage</u>

Operating Cost =	Cost of Goods Sold + Operating Expenses
Cost of Goods Sold =	Opening Stock + Purchases + Direct Expenses – Closing Stock **OR** Net Sales (Sales – Sales Return) – Gross Profit
Operating Expenses =	Office and Administrative Expenses + Selling and Distribution Expenses + Discount Allowed + Bad Debts + Interest on Short-term Loan
Net Sales =	Total Sales – Sales Returns

Note: Operating Cost does not include non-operating incomes and expenses such as interest paid, dividend paid/received, profit/loss on sale of fixed assets, loss by fire, loss by theft, etc.

Significance of Operating Ratio

a. It helps to determine the percentage rate of operating cost in comparison of the Net Sales
b. This ratio measures the operational efficiency and profitability of a business.

c. A low operating ratio is considered better because it indicates that a business has high profit margin. That is, a business is left with sufficient profit after meeting all its operating expenses and it can utilise greater amount to meet interest and dividends payments, etc.
d. On the other hand, a high operating ratio implies higher operating costs and low profit margin.

***Example*:** From the following date calculate the Operating Ratio.

Particulars	Amount (Rs)
Total Sales	4,35,000
Sales Returns	15,000
Gross Profit	1,05,000
Office Expenses	27,750
Selling Expenses	12,250
Bad Debts	7,500

Solution

$$\text{Operating Ratio} = \frac{\text{Operating Cost}}{\text{Net Sales}} \times 100$$

Operating Cost = Cost of Goods Sold + Operating Expenses

Cost of Goods Sold = Total Sales – Sales Returns – Gross Profit = 4,35,000 – 15,000 – 1,05,000 = Rs 3,15,000

Operating Expenses = Office Expenses + Selling Expenses + Bad Debts = 27,750 + 12,250 + 7,500 = Rs 47,500

So, Operating Cost = 3,15,000 + 47,500 = Rs 3,62,500

Net Sales = Total Sales – Sales Returns = 4,35,000 – 15000 = Rs 4,20,000

$$\therefore \text{Operating Ratio} = \frac{3,62,500}{4,20,000} \times 100 = 86.31\%$$

III. Operating Profit Ratio

This ratio depicts the relationship between operating profit and net sales. It also helps in assessing the operational efficiency of the business. The formula for calculating this ratio is:

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

This ratio is expressed in <u>Percentage</u>

This ratio can also be calculated directly from the operating ratio as:

Operating Profit Ratio = 100 – Operating Ratio

where,
Operating Profit = Sales – Operating Cost

Significance of Operating Profit Ratio

a. Operating Profit Ratio helps in assessing the operational efficiency as well as the performance of a business.
b. It helps to determine the percentage rate of Operating Profit in comparison of the Net Sales.
c. High Operation Profit Ratio indicates an efficient utilisation of amount incurred in form of cost of production and operating expenses.

***<u>Example</u>*:** From the following information calculate Operating Profit Ratio.

Particulars	Amount (Rs)
Cost of Sales	2,40,000
Selling Expenses	18,000
Administrative Expenses	22,000
Sales	3,00,000

Solution

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

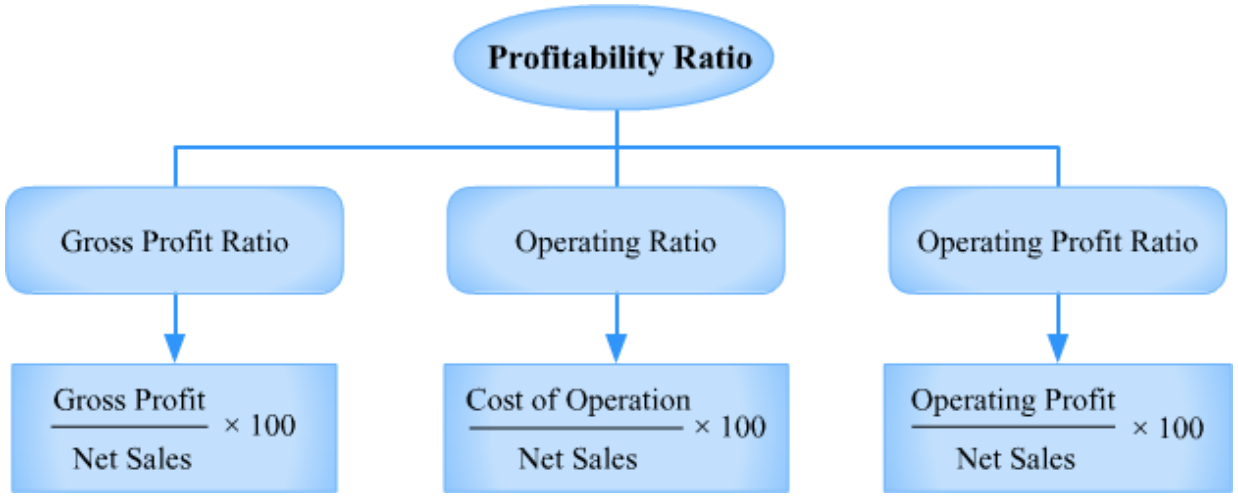
Operating Profit = Sales – Operating Cost

Operating Cost = Cost of Sales + Selling Expenses + Administrative Expenses

= 2,40,000 + 18,000 + 22,000 = Rs 2,80,000

Operating Profit = Sales – Cost of Operation = 3,00,000 – 2,80,000 = Rs 20,000

$$\text{Operating Profit Ratio} = \frac{\text{Operating Profit}}{\text{Net Sales}} \times 100 = \frac{20,000}{3,00,000} \times 100 = 6.67\%$$



The other Profitability Ratios such as Net Profit Ratio, Return on Investment or Capital Employed, Earning Per Share, Dividend Payout Ratio and Price Earnings Ratio are covered in the next lesson.

Profitability Ratios- II (NPR, ROI, EPS, DPR, PER)

Objective

After going through this lesson, you shall be able to understand the following concepts of Profitability Ratios.

- Net Profit Ratio and its Significance
- Return on Investment or Capital Employed and its Significance
- Return on Net Worth/Return on Shareholders' Funds and its Significance
- Earning Per Share and its Significance
- Dividend Payout Ratio and its Significance
- Price Earning Ratio and its Significance

Introduction

In the previous lesson, we have studied about the first three Profitability Ratios namely, Gross Profit Ratio, Operating Ratio and Operating Profit Ratio. In this lesson, we will study the importance and procedure to compute the remaining Profitability Ratios.

IV. Net Profit Ratio

This ratio depicts the relationship between Net Profit and Net Sales. It depicts the overall efficiency of a business and acts as an important tool to the investors for analysing and measuring the viability and performance of the business. It is calculated as:

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

This ratio is expressed in <u>Percentage</u>

Net Profit =	Gross Profit – Operating and Non-Operating Expenses + Operating and Non-Operating Incomes
Net Sales =	Total Sales – Sales Returns

Note: Net Profit implies the Profits After Tax (PAT) i.e. amount of profit available after paying tax. From the financial point of view, there is no difference between PAT and Net Profit. But in case, tax rate is not mentioned, then Net Profit is regarded as Profits Before Tax (PBT). PBT implies the amount of profit from which amount of tax payable is not deducted. That is, amount of profit that is available before paying tax. Accordingly, Net Profit Ratios can be calculated as:

$$\text{Net Profit Ratio} = \frac{\text{Profit } \textit{after} \text{ Tax (PAT)}}{\text{Net Sales}} \times 100$$

OR

$$\text{Net Profit Ratio} = \frac{\text{Profit } \textit{before} \text{ Tax (PBT)}}{\text{Net Sales}} \times 100$$

Significance of Net Profit Ratio

a. This ratio helps to know the percentage rate of Net Profit in comparison of Net Sales.
b. It depicts the overall efficiency of a business.
c. High Net Profit Ratio is considered to be good for a company as it indicates higher profit earning capacity.

***<u>Example</u>*:** From the following given information calculate the Net Profit Ratio.

Particulars	Amount (Rs)
Total Sales	5,00,000
Sales Returns	50,000
Indirect Expenses	55,000
Gross Profit	20% on Sales

Solution

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

Net Sales = Total Sales – Sales Returns = 5,00,000 – 50,000 = Rs 4,50,000

Net Profit = Gross Profit – Indirect Expenses

$$\text{Gross Profit Ratio (20\% on Sales)} = 4,50,000 \times \frac{20}{100} = \text{Rs } 90,000$$

∴Net Profit = Gross Profit – Indirect Expenses = 90,000 – 55,000 = Rs 35,000

$$\therefore \text{Net Profit Ratio} = \frac{\text{Net Profit}}{\text{Net Sales}} \times 100 = \frac{35,000}{4,50,000} \times 100 = 7.78\%$$

V. Return on Investment or Return on Capital Employed

It depicts the relationship between the profit earned and the capital employed to earn that profit. This ratio indicates the percentage rate of earnings from the amount invested in the business. The formula for calculating this is given below.

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

This ratio is expressed in <u>Percentage</u>

Capital Employed =	Equity Share Capital + Preference Share Capital + Reserves and Surplus + Long-term Loans – Fictitious Assets (such as Preliminary Expenses, etc.) – Non-Operating Assets (such as Non-Trade Investments, etc.)
OR	
Capital Employed =	Net Fixed Assets (Cost *minus* Depreciation) + Current Assets – Current Liabilities
OR	
Capital Employed =	Net Fixed Assets + Working Capital

Note 1: Non-Trade Investments imply investments made outside the business.

Note 2: Profit before Interest Tax and Dividend (PBITD) implies that interest, tax and dividend is *not* to be subtracted from the profit earned by an enterprise. That is, amount of profit earned by the business before paying interest, tax and dividend.

Note 3: As Non-Operating Assets are *not* included while computing the capital employed, so income from such assets should *not* to be included in the Profits.

Significance of Return on Investment

a. This ratio measures the overall efficiency and performance of a business.
b. It measures how effectively and efficiently the funds invested by its owners as well as outsiders are utilised by the business.
c. As it is a good measure of profitability, so this ratio can be used for conducting both inter-company as well intra-company comparisons.
d. A higher ROI reveals an efficient management and utilisation of the capital employed in the business.

***Example*:** Following is the balance sheet of Kriti Ltd. as on March 31, 2012.

Balance Sheet
as on March 31, 2012

Liabilities	Amount Rs	Assets	Amount Rs
Share Capital	1,50,000	Fixed Assets	2,17,500
General Reserve	22,500	Current Assets	1,87,500
Securities Premium	15,000	Underwriting Commission	7,500
12% Debentures	75,000	Preliminary Expenses	70,000
Creditors	1,17,500		
Profit and Loss Account	37,500		
Bills Payable	65,000		
	4,82,500		4,82,500

Calculate Return on Investment.

Solution

$$\text{Return on Investment} = \frac{\text{Profit before Interest, Tax and Dividend}}{\text{Capital Employed}} \times 100$$

Profit before Interest, Tax and Dividend = Profit for the year + Interest on Debentures + Tax + Dividend

Interest on Debentures = 75,000 × 12% = Rs 9,000

Tax and Dividend = Nil

Profit before Interest, Tax and Dividend = 37,500 + 9000 = Rs 46,500

Capital Employed = Share Capital + General Reserve + Securities Premium + 12% Debentures + Profit (as per Profit and Loss Account) – Preliminary Expenses – Underwriting Commission

Capital Employed = 1,50,000 + 22,500 + 15,000 + 75,000 + 37,500 – 70,000 – 7500 = Rs 2,22,500

Alternative Method

Capital Employed = Fixed Assets + Current Assets – Current Liabilities = 2,17,500 + 1,87,500 – (1,17,500 + 65,000) = Rs 2,22,500

$$\text{Return on Investment} = \frac{46,500}{2,22,500} \times 100 = 20.89\%$$

Example: Consider the following items.

Particulars	Rs
Fixed Assets	3,00,000
Current Assets	2,00,000
Current Liabilities	1,00,000
Net Profit after Tax	50,000
8% Debentures	1,00,000
Net Sales	5,00,000
Tax Paid	20,000

Using the above information calculate:

a. Working Capital Turnover Ratio
b. Net Profit Ratio
c. Return on Investment

Solution

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

or, Working Capital = Current Assets – Current Liabilities
or, Working Capital = 2,00,000 – 1,00,000
or, Working Capital = Rs 1,00,000

$$\text{Working Capital Turnover Ratio} = \frac{5,00,000}{1,00,000} = 5 \text{ times.}$$

(b)

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

$$= \frac{50,000}{5,00,000} \times 100 = 10\%$$

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

Profit before Tax = Net Profit + Tax
or, Profit before Tax = 50,000 + 20,000 = Rs 70,000.

Interest on Debentures = 8% of 1,00,000 $= 1,00,000 \times \frac{8}{100} = \text{Rs } 8,000$

Profit before Tax and Interest = Net Profit before Tax + Interest on 8% Debentures
Profit before Tax and Interest = 70,000 + 8,000 = Rs 78,000

$$\text{Capital Employed} = \text{Fixed Assets} + \text{Current Assets} - \text{Current Liabilities}$$

$$= 3,00,000 + 2,00,000 - 1,00,000$$

$$= \text{Rs } 4,00,000$$

Alternatively
Capital Employed = Fixed Assets + Working Capital
Capital Employed =3,00,000 + 1,00,000 = Rs 4,00,000

$$\text{Return on Investment} = \frac{78000}{4,00,000} \times 100 = 19.5\%$$

VI. Return on Net Worth (RONW)/ Return on Shareholders' Funds (RSF)

This ratio expresses the relationship between PAT and Shareholders' Funds. It reveals the amount of returns received by the shareholders. This ratio is calculated as:

$$\text{Return on Net Worth} = \frac{\text{Profit after Tax}}{\text{Shareholders' Fund}} \times 100$$

This ratio is expressed in Percentage

Shareholders' Funds =	Equity Share Capital + Preference Share Capital + General Reserve + Capital Reserve + Profit and Loss (Cr.) + Securities Premium + Other Reserves – Miscellaneous Expenditures – Profit and loss (Dr.)
OR	

Shareholders' Funds =	Total Assets – (Long-term Loans + Current Liabilities)
Profit After Tax =	Profit Before Tax – Tax Payable

Significance of Return on Net Worth/Return on Shareholders' Funds

a. It helps in determining the amount invested by the shareholders in the business is fetching them sufficient returns or not.
b. It should be higher than the Return on Investment; else it would imply the failure of the enterprise to employ the funds efficiently.
c. A high Return on Shareholders' Funds Ratio indicates that the shareholders are receiving high returns on their investments.

VII. Earnings Per Share

It depicts the relationship between the amount of profit available to distribute as dividend (among the equity shareholders) and the number of equity shares. This ratio determines the amount of profit available to each equity shares. It is calculated with the help of given below formula.

$$\text{Earnings Per Share} = \frac{\text{Net Profit after Interest, Tax and Preference Dividend}}{\text{Number of Equity Shares}}$$

This ratio is expressed in <u>Rs per Share</u>

Net Profit after Interest, Tax and Preference Dividend =	Net Profit *before* Interest, Tax and Preference Dividend – Interest – Tax – Preference Dividend
Number of Equity Shares =	$\frac{\text{Equity Share Capital}}{\text{Face Value of Share}}$

Significance of EPS

a. It helps in determining the market price of a share.
b. It helps in comparing the dividend to that of the last years.
c. It helps in assessing the capacity of a company to pay dividends on equity shares.

***<u>Example</u>*:** AKS Ltd. earned a Net Profit of Rs 75,000 during the year 2012. The balance sheet of the company showed 12% Preference Share Capital at Rs 1,00,000 and Equity Share Capital (Rs 10 per share) at Rs 1,00,000. Calculate the Earning Per Share.

Solution

$$\text{Earnings Per Share} = \frac{\text{Net Profit after Interest, Tax and Preference Dividend}}{\text{Number of Equity Shares}}$$

Net Profit after Interest, Tax and Preference Dividend = Net Profit – Preference Dividend = 75,000 – 12,000 = Rs 63,000

$$\text{Number of Equity Shares} = \frac{\text{Equity Share Capital}}{\text{Face Value of Share}} = \frac{1,00,000}{10} = 10,000 \text{ shares}$$

$$\text{EPS} = \frac{63,000}{10,000} = \text{Rs } 6.30 \text{ per share}$$

VIII. Dividend Payout Ratio

This ratio depicts the relationship between the divided per share and earnings per share. It reveals the amount of earnings that is distributed in form of dividend among the shareholders. It basically represents that portion of the profit which is distributed among the shareholders. It is calculated as.

$$\text{Dividend Payout Ratio} = \frac{\text{Dividend Per Share (DPS)}}{\text{Earnings Per Share (EPS)}}$$

This ratio is expressed in <u>Percentage</u>

Dividend Per Share (DPS) =	$\frac{\text{Dividend paid to Equity Shareholders}}{\text{Number of Equity Shares}}$
Earnings Per Share (EPS)=	$\frac{\text{Net Profit after Interest, Tax and Preference Dividend}}{\text{Number of Equity Shares}}$

Significance of Dividend Payout Ratio

a. It shows the increase in the owner's equity
b. It also depicts the policy of dividend followed by the company.
c. It shows how much profits has been retained by the company and how much profit is distributed among the shareholders.
d. It helps to calculate the dividend paid on each share.
e. It helps in comparing dividend per share in the current year to that of in the previous years.

***<u>Example</u>*:** From the following information calculate Dividend Per Share and Dividend Payout Ratio.

Particulars	Amount (Rs)
Net Profit after Interest and Tax	5,50,000
Dividend Paid	1,92,500
Equity Share Capital (Rs 10 each)	1,00,000

Solution

$$\text{Dividend Payout Ratio} = \frac{\text{Dividend Per Share (DPS)}}{\text{Earnings Per Share (EPS)}}$$

$$\text{Dividend Per Share} = \frac{\text{Dividend paid to Equity Shareholders}}{\text{Number of Equity Shares}} = \frac{1,92,500}{10,000} = \text{Rs } 19.25$$

$$\text{Earnings Per Share} = \frac{\text{Net Profit after Interest, Tax and Preference Dividend}}{\text{Number of Equity Shares}}$$

$$\text{Net Profit after Interest, Tax and Dividend} = \text{Net Profit after Interest and Tax} - \text{Dividend paid}$$
$$= 5,50,000 - 1,92,500 = \text{Rs } 3,57,500$$

$$\text{Earning Per Share} = \frac{3,57,500}{10,000} = \text{Rs } 35.75$$

$$\text{Dividend Payout Ratio} = \frac{19.25}{35.75} = 53.85\% \text{ (approximately)}$$

IX. Price Earnings Ratio

This ratio depicts the relationship between the market price of a share and the earnings per share. This ratio is the most common tool that is used in the stock markets. It is calculated as:

$$\text{Price Earnings Ratio} = \frac{\text{Market Price per Share}}{\text{Earnings per Share}}$$

This ratio is expressed in Times

Significance of Price Earnings Ratio

a. This ratio depicts how many times is the market price of a share to its earnings. For example, if Price Earning Ratio is 8.5, then it implies that the market price of the share is 8.5 times the earnings of the share.

b. It depicts the degree of relevance and trust that the shareholders have on a company.

c. It reflects the expectation of the shareholders regarding the rise in the future prices of the company's share.

d. A high Price Earnings Ratio enables a company to enjoy favorable position in the market. This is because a high Price Earnings Ratio indicates rise in the wealth of the shareholders and high demand for the shares.

***Example*:** The market price of a share is Rs 95 and earnings per share is Rs 10. Calculate Price Earnings Ratio.

Solution

$$\text{Price Earnings Ratio} = \frac{\text{Market Price per Share}}{\text{Earnings per Share}} = \frac{95}{10} = 9.5 \text{ times}$$