Accounting Ratios

Meaning of Ratio

Ratio is an arithmetical expression of relationship between two items or variables. These items may be interdependent or related.

Meaning of Accounting Ratio

When the ratios are calculated on the basis of accounting information are called Accounting Ratios.

“The term accounting ratio is used to describe significant relationships which exist between figures shown in a Balance Sheet, in a Statement of Profit and Loss, in a budgetary control system or any part of the accounting organization.”

J. Betty

Expression of Ratio

Accounting Ratios can be expressed in the following forms:-

- **Pure Ratio:-** **Pure Ratio is expressed as a quotient. For example Current Ratio expresses the relationship between Current Assets and Current Liabilities as 2:1 or 3:1.**
- **Percentage:-** **It is expressed in percentage. For example net profit ratio is 10% or 20%.**
- **Times:-** **Some of the ratios are expressed in number of times when a particular figure is compared with another figure. For example, 3 times or 5 times.**
- **Fraction:-** **It is expressed in fraction:- It is expressed in fraction. For Example, ½ or 0.50.**

Meaning of Ratio Analysis

When analysis of Financial Statement is done with the help of Accounting Ratio is called Ratio Analysis.

It is a process of determining and interpreting relationships between the items of financial statements to provide a meaningful understanding of the Statement of Profit and Loss and Balance Sheet.

Objectives of Ratio Analysis

1. To Simplify the Accounting Information
2. To Determine Liquidity
3. To Assess the Operating Efficiency of Business
4. To Analyse the Profitability of the Business
5. To Analyse the Financial Position of Business
6. To help in Comparative Analysis

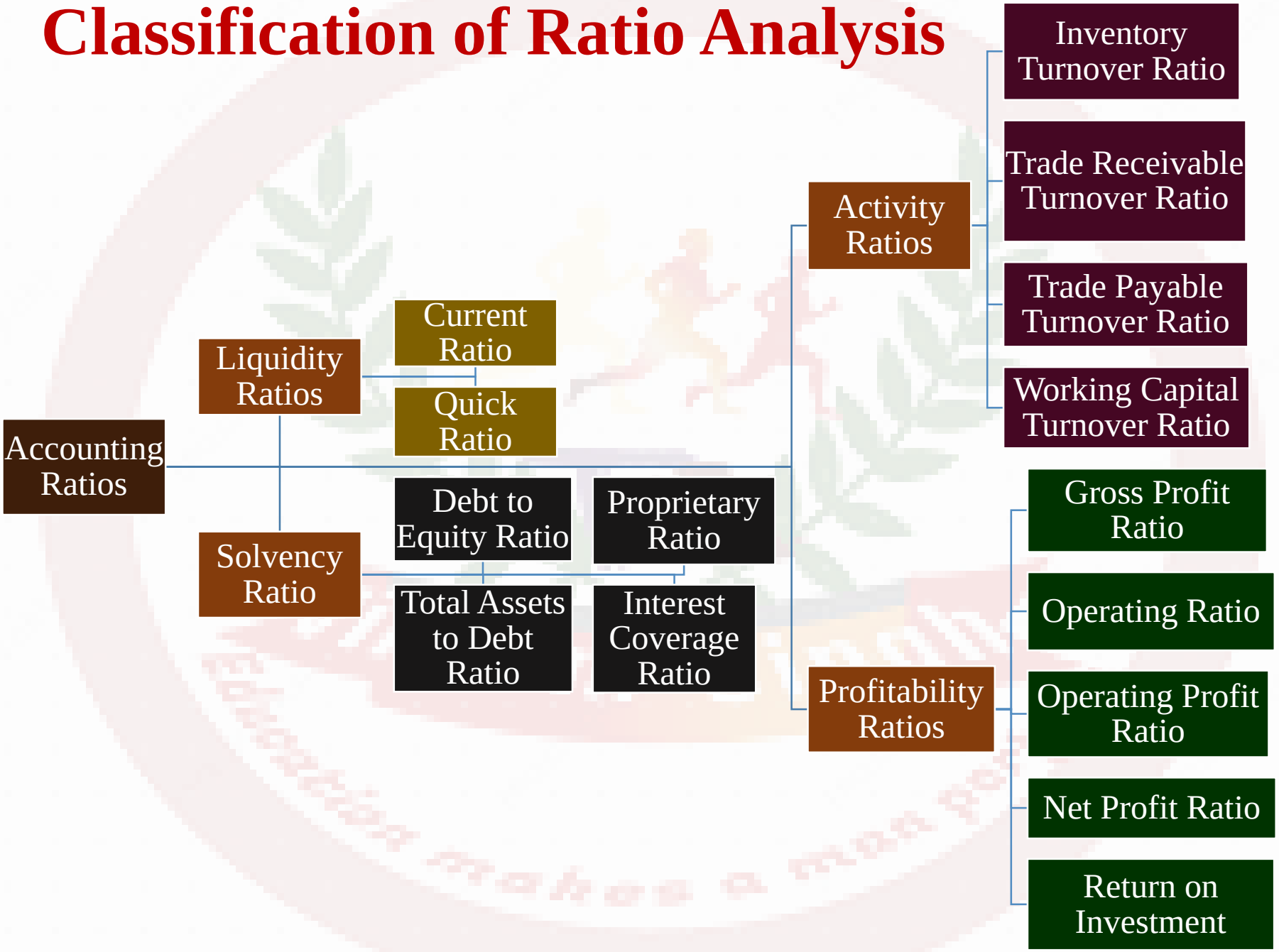
Advantages of Ratio Analysis

- Useful Tool for Analysis of Financial Statements
- Simplifies Accounting Information
- Assess the Operating Efficiency of Business
- Helps in Forecasting
- Helps in Locating the Weak Points
- Helps in Comparison

Limitations of Ratio Analysis

1. Based on Historical Statements
2. Qualitative Factors are Ignored
3. Lack of Standard Ratio
4. Ratios Sometimes not Comparable
5. Price Level Changes Ignored
6. Window Dressing
7. Affecting from Personal Biasness

Classification of Ratio Analysis



Liquidity Ratios

Liquidity Ratios shows the ability of the firm to meet its current obligations. These ratios are calculated to know the short term solvency position of the business, i.e., ability to meet the short term liabilities.

Following are the liquidity ratios:-

- **Current Ratio**
- **Liquid Ratio or Quick Ratio or Acid Test Ratio**

Current Ratio

Current Ratios establishes the relationship between Current Assets and Current Liabilities. It is calculated to measure the ability of the enterprise to pay its short term obligations when they become due for payment.

$$\textbf{Current Ratio} = \frac{\textit{Current Assets}}{\textit{Current Liabilities}}$$

It is expressed in Pure Ratio, i.e., 2:1 or 3:1. The ideal Current Ratio is 2:1, means the current assets should be twice the current liabilities. If this ratio is 2:1 or more, it means the firm is able to meet its current obligations but if it is less then 2:1, means the firm may face difficulty in meeting its current liabilities.

Current Assets = Current Investments + Inventories (Excluding Loose Tools and Stores and Spares) + Trade Receivables (B/R + Debtors) + Cash in hand + Cash at Bank + Cheques/Drafts in hand + Short-term Loans and Advances + Prepaid Expenses + Income Receivable

Current Liabilities = Short-term Borrowings + Trade Payables (Creditors + B/P) + Short-term Provisions + Outstanding Expenses + Unclaimed Dividend + Calls in Advance + Interest accrued but due or not due on Borrowings + Current maturities of Long-term Debts

Illustration 1

From the following information, calculate Current Ratio:-

Sundry Debtors Rs.1,50,000; Prepaid Expenses Rs.15,000; Cash and Cash Equivalents Rs.40,000; Current Investment Rs.25,000; Furniture Rs.12,000; Bills Payable Rs.30,000; Creditors Rs.50,000; Inventories Rs.60,000 (including Loose Tools Rs.10,000); Interest Receivable Rs.20,000: Expenses Payable Rs.40,000 and Unclaimed Dividend Rs.30,000.

Solution

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

Current Assets = Sundry Debtors + Prepaid Expenses + Cash and Cash Equivalent + Current Investment + Inventories (Excluding Loose Tools) + Interest Receivable

= 1,50,000 + 15,000 + 40,000 + 25,000 + 50,000 + 20,000 = Rs.3,00,000

Current Liabilities = B/P + Creditors + Expenses Payable + Unclaimed Dividend

= 30,000 +50,000 + 40,000 + 30,000 = Rs.1,50,000

Current Ratio $= \frac{3,00,000}{1,50,000} = 2:1$

Illustration 2

Current Ratio is 3; Working Capital is Rs.1,00,000. Calculate the amount of Current Assets and Current Liabilities.

Solution

$$\text{Current Ratio} = \frac{Current\ Assets}{Current\ Liabilities} = 3$$

Current Assets = 3 Current Liabilities

Working Capital = Current Assets – Current Liabilities

1,00,000 = 3 Current Liabilities – Current Liabilities

1,00,000 = 2 Current Liabilities

$$\text{Current Liabilities} = \frac{1{,}00{,}000}{2} = Rs.\,50,000$$

Current Assets = Working Capital + Current Liabilities

Current Assets = 1,00,000 + 50,000 = 1,50,000

Liquid/Quick/Acid Test Ratio

Liquid Ratio establishes a relationship between liquid assets and current liabilities. It is calculated to measure the ability of the enterprise to meet its current liabilities in a very short time period.

$$\textbf{Liquid Ratio} = \frac{\textit{Quick Assets}}{\textit{Current Liabilities}}$$

It is expressed in Pure Ratio, i.e., 2:1 or 3:1. The ideal Liquid Ratio is 1:1, means the liquid assets should be equal to the current liabilities. If this ratio is 1:1 or more, it means the firm is able to meet its current obligations but if it is less then 1:1, means the firm may face difficulty in meeting its current liabilities.

Illustration 3

From the following information, calculate Current Ratio:-

Sundry Debtors Rs.1,50,000; Prepaid Expenses Rs.15,000; Cash and Cash Equivalents Rs.40,000; Current Investment Rs.25,000; Furniture Rs.12,000; Bills Payable Rs.30,000; Creditors Rs.50,000; Inventories Rs.60,000 (including Loose Tools Rs.10,000); Interest Receivable Rs.20,000: Expenses Payable Rs.40,000 and Unclaimed Dividend Rs.30,000.

Solution

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

Liquid Assets = Sundry Debtors + Cash and Cash Equivalent + Current Investment + Interest Receivable

= 1,50,000 + 40,000 + 25,000 + 20,000 = Rs.2,35,000

Current Liabilities = B/P + Creditors + Expenses Payable + Unclaimed Dividend

= 30,000 +50,000 + 40,000 + 30,000 = Rs.1,50,000

Liquid Ratio $= \frac{2,35,000}{1,50,000} = 1.56:1$

Illustration 4

Current Ratio is 3; Working Capital Rs.1,00,000 and Inventories Rs.70,000. Calculate the amount of Current Assets and Current Liabilities and Quick Ratio.

Solution

Current Ratio $= \frac{Current\ Assets}{Current\ Liabilities} = 3$

Current Assets = 3 Current Liabilities

Working Capital = Current Assets – Current Liabilities

1,00,000 = 3 Current Liabilities – Current Liabilities

1,00,000 = 2 Current Liabilities

Current Liabilities $= \frac{1,00,000}{2} = Rs.50,000$

Current Assets = Working Capital + Current Liabilities = 1,00,000 + 50,000 = 1,50,000

Liquid Assets = 1,50,000- 70,000 = Rs.80,000

Quick Ratio $= \frac{Liquid\ Assets}{Current\ Liabilities} = \frac{80,000}{50,000} = 1.6:1$

Solvency Ratios

Solvency Ratios are the ratios which shows whether the business is able to meet its long-term liabilities as and when they become due.

Following are the Solvency ratios:-

- **Debt Equity Ratio**
- **Total Assets to Debt Ratio**
- **Proprietary Ratio**
- **Interest Coverage Ratio**

Debt to Equity Ratio

To assess the long-term financial soundness of the enterprise the Debt-Equity Ratio is calculated. It establishes the relationship between debt and equity.

$$\text{Debt Equity Ratio} = \frac{Debt}{Equity} = \frac{Long\ Term\ (Borrowings + Provisions)}{Shareholders'\ Funds}$$

Debt = Long Term Borrowings + Long Term Provisions

Or

= Total Debt – Current Liabilities Or Capital Employed - Equity

Equity = Share Capital + Reserve & Surplus Or

= Non-Current Assets + Working Capital – Non Current Liabilities

Or

= Total Assets – Total Debt

Illustration 5

From the following information, calculate Debt Equity Ratio:-

Share Capital Rs.2,00,000; General Reserve Rs.90,000; Surplus, i.e., Balance in Statement of Profit and Loss Rs.60,000; Debentures Rs.1,50,000; Long-term Provisions Rs.50,000 and Outstanding Expenses Rs.20,000.

Solution

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

Debt = Debentures + Long-term Provisions

= 1,50,000 + 50,000 = Rs.2,00,000

Equity = Share Capital + General Reserve + Surplus, i.e., Balance in Statement of Profit and Loss

= 2,00,000 + 90,000 + 60,000 = 3,50,000

Debt Equity Ratio $= \frac{Debt}{Equity} = \frac{2,00,000}{3,50,000} = 0.57:1$

Total Assets to Debt Ratio

It shows the relationship between Total Assets and Long-term Debts of the business.

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

Total Assets = Non-Current Assets + Current Assets

This ratio is calculated to measure the safety margin available to the lenders of long term debts. It helps to know, how much debts can be covered by the assets. A high ratio means higher safety for lenders and lower ratio means lower safety for lenders.

Illustration 6

From the following information, calculate Total Assets to Debt Ratio:-

Shareholders' Funds Rs.20,00,000; Total Debts Rs.26,00,000; Current Liabilities Rs.3,00,000.

Solution

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

Debt = Total Debts – Current Liabilities

= 26,00,000 + 3,00,000 = Rs.23,00,000

Total Assets = Shareholders' Funds + Total Debts

= 20,00,000 + 26,00,000 = 46,00,000

Total Assets to Debt Ratio $= \frac{Total\ Assets}{Debt} = \frac{46,00,000}{23,00,000} = 2:1$

Proprietary Ratio

This ratio establishes the relationship between Equity and Total Assets.

$$\textbf{Proprietary Ratio} = \frac{Equity}{Total\ Assets}$$

This ratio is calculated to measure the proportion equity to total assets. It also provides the safety margin available to the lenders and creditors. A high ratio ensures the safety for lenders and creditors but lower ratio means inadequate safety for lenders and creditors. A very high ratio results in lower return on investment.

Illustration 7

From the following information, calculate Proprietary Ratio:-

Shareholders' Funds Rs.20,00,000; Total Debts Rs.26,00,000; Current Liabilities Rs.3,00,000.

Solution

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

Equity or Shareholders' Funds = 20,00,000

Total Assets = Shareholders' Funds + Total Debts

= 20,00,000 + 26,00,000 = 46,00,000

$$\text{Proprietary Ratio} = \frac{Equity}{Total\ Assets} = \frac{20{,}00{,}000}{46{,}00{,}000} = 0.43:1$$

Interest Coverage Ratio

This ratio is calculated by establishing relationship between Profit before Interest and Tax and Interest on Long-term Debts.

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

This ratio is calculated to ascertain the amount of profit available to cover interest on long-term debt. A high ratio is better for the lender, means sufficient profit is available to meet interest cost.

Illustration 8

Richa Ltd. has a Long-term Loan of Rs.10,00,000 obtained at 10% p.a. interest rate. Profit before Interest and Tax of Richa Ltd. is Rs.4,00,000. Calculate Interest Coverage Ratio.

Solution

$$\text{Interest Coverage Ratio} = \frac{Profit\ before\ Interest\ and\ Tax}{Interest\ on\ Long\ Term\ Debt}$$

$$\text{Interest on Long Term Debt} = 10,00,000 \times \frac{10}{100} = 1,00,000$$

$$\text{Interest Coverage Ratio} = \frac{4,00,000}{1,00,000} = 4:1\ or\ 4\ times$$

Activity Ratios

These ratios are calculated to know how efficiently the activities of the business organisations are performed. Activity ratios also called Performance or Turnover Ratios. These ratios measure the effectiveness with which the enterprise uses its available resources.

Following are the Activity ratios:-

- **Inventory Turnover Ratio**
- **Trade Receivable Turnover Ratio**
- **Trade Payable Turnover Ratio**
- **Working Capital Turnover Ratio**

Inventory Turnover Ratio

Inventory Turnover Ratio is calculated to measure the efficiency of the enterprise to convert its inventory into sales. It establishes relation between Cost of Goods Sold and Average Inventory carried during that period.

Inventory Turnover Ratio

$$= \frac{Cost\ of\ Goods\ Sold}{Average\ Inventory} = ---\ -times$$

Cost of Goods Sold = Revenue from Operations – Gross Profit

Or

= Revenue from Operations + Gross Loss

Or

= Opening Inventory + Net Purchase + Direct Expenses – Closing Inventory

Average Inventory = $\frac{Opening\ Inventory + Closing\ Inventory}{2}$

Illustration 9

From the following information, calculate Inventory Turnover Ratio:

Cost of Revenue from Operations	**Rs.5,00,000**
Inventories in the beginning of the year	**Rs.1,00,000**
Inventories at the end of the year	**Rs.1,50,000**

Solution

$$\text{Inventory Turnover Ratio} = \frac{Cost\ of\ Revenue\ from\ Operations}{Average\ Inventory}$$

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

$$= \frac{1{,}00{,}000 + 1{,}50{,}000}{2} = \frac{2{,}50{,}000}{2} = Rs.\,1,25,000$$

$$\text{Inventory Turnover Ratio} = \frac{5{,}00{,}000}{1{,}25{,}000} = 4\ times$$

Illustration 10

Opening Inventory is Rs.30,000; Purchase Rs.2,40,000; Net Sales Rs.3,20,000; Gross Profit 25% on sales. Calculate Inventory Turnover Ratio.

Solution

Inventory Turnover Ratio $= \frac{Cost\ of\ Revenue\ from\ Operations}{Average\ Inventory}$

Gross Profit $= 3,20,000 \times \frac{25}{100} = Rs.80,000$

Cost of Revenue from Operations = Net Sales - Gross Profit

= 3,20,000 – 80,000 = 2,40,000

Cost of Goods Sold = Opening Inventory + Purchase – Closing Inventory

2,40,000 = 30,000 + 2,40,000 – Closing Inventory

Closing Inventory = 2,70,000 – 2,40,000 = Rs.30,000

Average Inventory $= \frac{Opening\ Inventory + Closing\ Inventory}{2}$

$= \frac{30,000+30,000}{2} = \frac{60,000}{2} = Rs.30,000$

Inventory Turnover Ratio $= \frac{2,40,000}{30,000} = 8\ times$

Trade Receivable Turnover Ratio

Trade Receivable is the amount receivable against goods sold or services rendered in the normal course of business. These includes Debtors and Bill Receivables.

This ratio establishes relationship between Credit Revenue from Operation and Average Trade Receivables.

Trade Receivable Turnover Ratio

$$= \frac{Credit\ Revenue\ from\ Operations}{Average\ Trade\ Receivables} = - - - - times$$

Credit Revenue from Operations = Credit Sales – Sales Return

Or

= Revenue from Operations – Cash Revenue from Operations

Average Trade Receivables

$$= \frac{Opening\ Trade\ Recievables + Closing\ Trade\ Receivables}{2}$$

Or

$$\frac{Opening\ (Debtors + Bills\ Receivables) + Closing\ (Debtors + Bill\ Receivables)}{2}$$

Average Collection Period:- This ratio provides an approximate average time which takes to collect the amount from debtors. It is calculated by dividing 365 days or 12 months by the Trade Receivable Turnover Ratio. It is also called Debt Collection Period.

Average Collection Period

$$= \frac{365\ days\ or\ 12\ months}{Trade\ Receivable\ Turnover\ Ratio} = - - - \text{days/months}$$

Illustration 11

From the following information, calculate Trade Receivable Turnover Ratio and Average Collection Period:

Credit Revenue from Operations Rs.5,00,000

Debtors and Bills Receivables at the end of the year were Rs.55,000 and Rs.45,000 respectively.

Solution

$$\text{Trade Receivable Turnover Ratio} = \frac{Credit\ Revenue\ from\ Operations}{Average\ Trade\ Receivables}$$

$$\text{Average Trade Receivables} = Rs.55,000 + Rs.45,000$$

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

$$\text{Trade Receivable Turnover Ratio} = \frac{5,00,000}{1,00,000} = 5\ times$$

$$\text{Debt Collection Ratio} = \frac{365}{Trade\ Receivable\ Turnover\ Ratio}$$

$$= \frac{365}{5} = 73\ days$$

Illustration 12

From the following information, calculate Trade Receivable Turnover Ratio:

Net Credit Sales 25% of Net Sales; Closing Debtors Rs.50,000 and excess of Closing Debtors over Opening Debtors Rs.20,000; Total Net Sales Rs.4,00,000

Solution

$$\text{Trade Receivable Turnover Ratio} = \frac{Credit\ Revenue\ from\ Operations}{Average\ Trade\ Receivables}$$

Closing Debtors = Opening Debtors + 20,000

50,000 = Opening Debtors + 20,000

Opening Debtors = 50,000 – 20,000 = Rs.30,000

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

$$\frac{50{,}000+30{,}000}{2} = \frac{80{,}000}{2} = Rs.40{,}000$$

$$\text{Credit Revenue from Operations} = 4{,}00{,}000 \times \frac{25}{100} = Rs.1{,}00{,}000$$

$$\text{Trade Receivable Turnover Ratio} = \frac{1{,}00{,}000}{40{,}000} = 2.5\ times$$

Trade Payable Turnover Ratio

Trade Payable is the amount payable against goods purchased by the enterprise in the normal course of business. It includes Creditors and Bill Payables.

This ratio establishes relationship between Net Credit Purchase and Average Trade Payables.

Trade Payable Turnover Ratio

$$= \frac{Net\ Credit\ Purchase}{Average\ Trade\ Payables} = - - - - times$$

Net Credit Purchase = Credit Purchase – Purchase Return

Average Trade Payables

$$= \frac{Opening\ Trade\ Payables + Closing\ Trade\ Payables}{2}$$

Or

$$\frac{Opening\ (Creditors + Bills\ Payables) + Closing\ (Creditors + Bill\ Payables)}{2}$$

Average Payment Period:- It shows the credit period enjoyed by the enterprise in paying creditors.

Average Payment Period

$$= \frac{365\ days\ or\ 12\ months}{Trade\ Payable\ Turnover\ Ratio} = - - -$$ days or months

Illustration 13

Opening Sundry Creditors Rs.75,000; Opening Bills Receivable Rs.8,000; Closing Sundry Creditors Rs.85,000; Closing Bills Payable Rs.32,000; Purchase Rs.10,00,000; Cash Purchases Rs.3,00,000; Purchase Return Rs.1,00,000. Calculate Trade Payable Turnover Ratio and Average Payable Period.

Solution

$$\text{Trade Payable Turnover Ratio} = \frac{\textit{Net Credit Purchases}}{\textit{Average Trade Payables}}$$

Net Credit Purchase = Purchases – Cash Purchase – Purchase Return

= 10,00,000 – 3,00,000 – 1,00,000 = Rs.6,00,000

$$\text{Average Trade Payables} = \frac{(75{,}000+8{,}000)+(85{,}000+32{,}000)}{2}$$

$$= \frac{83{,}000+1{,}17{,}000}{2} = \frac{2{,}00{,}000}{2} = \textit{Rs.}\,1,00,000$$

$$\text{Trade Payable Turnover Ratio} = \frac{6{,}00{,}000}{1{,}00{,}000} = 6\ \textit{times}$$

$$\text{Average Payment Period} = \frac{365}{\textit{Trade Payable Turnover Ratio}}$$

$$= \frac{365}{6} = 60.8 = 61\ \textit{days}$$

Working Capital Turnover Ratio

Working Capital Turnover Ratio establishes the relation between Revenue from Operations and Working Capital. It is calculated to ascertain whether working capital is used effectively in generating revenue or not.

Working Capital Turnover Ratio

$$= \frac{Revenue\ from\ Operations}{Working\ Capital} = --- -times$$

Working Capital = Current Assets – Current Liabilities

Higher the ratio is better for the enterprise. But very high ratio indicates overtrading, i.e., the working capital being inadequate for the scale of operations.

Illustration 14

Calculate Working Capital Turnover Ratio from the following information:-

Working Capital	**Rs.4,00,000**
Cost of Revenue from Operations	**Rs.9,00,000**
Gross Profit on sales	**25%**

Solution

$$\text{Working Capital Turnover Ratio} = \frac{Revenue\ from\ Operations}{Working\ capital}$$

Let Revenue from Operations = Rs.100

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

Cost of Revenue from Operations = 100 – 25 = Rs.75

If Cost is Rs.75, then Revenue = Rs.100

$$\text{If Cost is Rs.9,00,000 then Revenue} = 9,00,000 \times \frac{100}{75} = \text{Rs.12,00,000}$$

$$\text{Working Capital Turnover Ratio} = \frac{12,00,000}{4,00,000} = 3\ times$$

Profitability Ratios

Profitability means the financial performance of the business and efficiency in business is measured by profitability. These ratios measures the profitability position of the business.

Following are the Profitability ratios:-

- **Gross Profit Ratio**
- **Operating Ratio**
- **Operating Profit Ratio**
- **Net Profit Ratio**
- **Return on Investment (ROI)**

Gross Profit Ratio

Gross Profit Ratio establishes the relation between Gross Profit and Revenue from Operations. It is calculated to determine the efficiency with which production is carried on.

$$\textbf{Gross Profit Ratio} = \frac{Gross\ Profit}{Revenue\ from\ Operations} \times 100 = -- -\%$$

Gross Profit = Revenue from Operations – Cost of Revenue from Operations

Cost of Revenue from Operations = Opening Inventory (Excluding Loose Tools and Spare Parts) + Net Purchases + Direct Expenses – Closing Inventories (Excluding Loose Tools and Spare Parts)

Or

Revenue from Operations – Gross Profit

Illustration 15

Calculate Gross Profit Ratio from the following information:-

Cash Sales are 25% of Total Sales; Purchase Rs.6,50,000; Credit Sales Rs.7,50,000; Excess of Closing Inventory over Opening Inventory Rs.50,000.

Solution

$$\text{Gross Profit Ratio} = \frac{Gross\ Profit}{Revenue\ from\ Operations} \times 100$$

Let Total Sales = Rs.100

Cash Sales = $100 \times \frac{25}{100} = Rs.25$

Credit Sales = 100 – 25 = Rs.75

If Credit Sales is Rs.75, then Total Sales = Rs.100

If Credit Sales is Rs.7,50,000 then Total Sales = $7,50,000 \times \frac{100}{75} =$

Rs.10,00,000

Cost of Revenue from Operations = Purchase – Excess of Closing Inventory over Opening Inventory

= 6,50,000 – 50,000 = Rs.6,00,000

Gross Profit = Revenue from Operation (Total Sales) – Cost of Revenue from Operation

= 10,00,000 – 6,00,000 = Rs.4,00,000

Gross Profit Ratio = $\frac{4,00,000}{10,00,000} \times 100 = 40\%$

Operating Ratio

Operating Ratio establishes the relation between Operating Cost and Revenue from Operations. It is calculated to determine the operational efficiency of the business. Lower Operating Ratio is better because it shows higher profit margin.

Operating Ratio

$$= \frac{Operating\ Cost}{Revenue\ from\ Operations} \times 100 = -- -\%$$

Operating Cost = Cost of Revenue from Operations + Operating Expenses

Cost of Revenue from Operations = Opening Inventory (Excluding Loose Tools and Spare Parts) + Net Purchases + Direct Expenses – Closing Inventories (Excluding Loose Tools and Spare Parts)

Or

Revenue from Operations – Gross Profit

Operating Expenses = Employees Benefit Expenses + Depreciation and Amortisation Expenses + Other Operating Expenses

Or

Office and Administrative Expenses – Selling and Distribution Expenses + Employees Benefit Expenses + Depreciation and Amortization Expenses

Illustration 16

Revenue from Operations Rs.10,00,000, Gross Profit 25% on Cost, Operating Expenses Rs.1,00,000. Calculate Operating Ratio.

Solution

$$\text{Operating Ratio} = \frac{Operating\ Cost}{Revenue\ from\ Operations} \times 100$$

Let Cost of Revenue = Rs.100

Gross Profit = $100 \times \frac{25}{100} = Rs.25$

Revenue from Operations = 100 + 25 = Rs.125

If Revenue is Rs.125, then Cost = Rs.100

If Revenue is Rs.10,00,000 then Cost = $10,00,000 \times \frac{100}{125}$ = Rs.8,00,000

Operating Cost = Cost of Revenue + Operating Expenses

= 8,00,000 + 1,00,000 = Rs.9,00,000

Operating Ratio = $\frac{9,00,000}{10,00,000}$ =90%

Operating Profit Ratio

Operating Profit Ratio establishes the relation between Operating Profit and Revenue from Operations. It is calculated to determine the operational efficiency of the business. Increasing Operating Profit Ratio shows improvement in operational efficiency.

Operating Profit Ratio

$$= \frac{Operating\ Profit}{Revenue\ from\ Operations} \times 100 = -- -\%$$

Operating Profit = Gross Profit + Operating Income - Operating Expenses

Or

Net Profit before Tax + Non-operating Expenses – Non-operating Income

Or

Revenue from Operations – Operating Cost

Non-Operating Expenses = Interest on Long-term Borrowings + Loss on Sale of Fixed Assets

Non-Operating Incomes = Interest on Investment + Profit on Sale of Fixed Assets

Illustration 17

Calculate Operating Profit Ratio from the following information:-

Opening Inventory	**Rs.50,000**
Purchase	**Rs.5,00,000**
Sales (Gross)	**Rs.7,65,000**
Closing Inventory	**Rs.75,000**
Administrative Expenses	**Rs.25,000**
Selling Expenses	**Rs.60,000**
Dividend on Shares	**Rs.15,000**
Loss by Theft	**Rs.10,000**
Sales Return	**Rs.15,000**

Solution

$$\text{Operating Profit Ratio} = \frac{Operating\ Profit}{Revenue\ from\ Operations} \times 100$$

Revenue from Operations (Net) = Sales (Gross) – Sales Return

= 7,65,000 – 15,000 = Rs.7,50,000

Operating Profit = Revenue from Operations (Net) – (Opening Inventory + Purchases + Administrative Expenses + Selling Expenses – Closing Inventory)

= 7,50,000 – (50,000 + 5,00,000 + 25,000 + 60,000 – 75,000)

=7,50,000 -5,60,000 = Rs.1,90,000

$$\text{Operating Profit Ratio} = \frac{1,90,000}{7,50,000} \times 100 = 25.33\%$$

Net Profit Ratio

Net Profit Ratio establishes the relation between Net Profit and Revenue from Operations. It is calculated to determine the overall efficiency of the business. High Net Profit Ratio is better for the business.

$$\text{Net Profit Ratio} = \frac{Net\ Profit}{Revenue\ from\ Operations} \times 100 = -- -\%$$

Net Profit = Revenue from Operations – Cost of Revenue from Operations – Operating Expenses – Non-operating Expenses + Non-operating Incomes - Tax

Illustration 18

Revenue from Operations Rs.10,00,000, Gross Profit Ratio 25%, Operating Ratio 90%, Non-operating Expenses Rs.5,000; Non-operating Income Rs.45,000. Calculate Net Profit Ratio.

Solution

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

$$\text{Operating Ratio} = \frac{Operating\ Cost}{Revenue\ from\ Operations} \times 100$$

$$90 = \frac{Operating\ Cost}{10{,}00{,}000} \times 100$$

$$\text{Operating Cost} = \frac{90}{100} \times 10,00,000 = Rs.9,00,000$$

Net Profit = Revenue from Operations – Operating Cost – Non-operating Expenses + Non-operating Incomes

= 10,00,000 – 9,00,000 – 5,000 + 45,000 = Rs.1,40,000

$$\text{Net Profit Ratio} = \frac{1{,}40{,}000}{10{,}00{,}000} \times 100 = 14\%$$

Return on Investment (ROI)

Return on Investment establishes the relation between Profit before Interest and Tax and Capital Employed. It shows how efficiently the resources of the business are used.

Return on Investment

$$= \frac{Net\ Profit\ before\ Interest\ \&\ Tax}{Capital\ Employed} \times 100 = - - - \%$$

Capital Employed = Shareholders' Funds + Non-current Liabilities

Or

Non-current Assets + Working Capital (Current Assets – Current Liabilities)

Or

Share Capital + Reserve & Surplus + Long-term Borrowings + Long-term Provisions

Illustration 19

From the following information, calculate Return on Investment:-

Net Profit after Interest and Tax	**Rs.1,00,000**	**Equity Share Capital**	**Rs.50,000**
Tax	**Rs.40,000**	**10% Preference Share Capital**	**Rs.50,000**
Net Fixed Assets	**Rs.5,00,000**	**Reserve and Surplus**	**Rs.1,00,000**
Long-term Investment (Trade)	**Rs.50,000**	**Current Liabilities**	**Rs.1,70,000**
Current Assets	**Rs.2,20,000**	**10% Debentures**	**Rs.4,00,000**

Solution

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

Profit before Interest and Tax = $Profit\ after\ Interest\ \&\ Tax + Tax + Interest\ on\ Debentures$

= 1,00,000 + 40,000 + 40,000 = Rs.1,80,000

Capital Employed = Equity Share Capital + 10% Preference Share Capital + Reserve & Surplus + 10% Debentures

= 50,000 + 50,000 + 1,00,000 + 4,00,000 = Rs.6,00,000

$$\text{Return on Investment} = \frac{1,80,000}{6,00,000} \times 100 = 30\%$$