

## CHAPTER FIVE

# FINANCIAL ANALYSIS & PLANNING – RATIO ANALYSIS

- ❖ A ratio is defined as “the indicated quotient of two mathematical expressions and as the relationship between two or more things.” Here ratio means financial ratio or accounting ratio which is a mathematical expression of the relationship between accounting figures.

### Ratio Analysis

- ❖ The term financial ratio can be explained by defining how it is calculated and what the objective of this calculation is?

### Calculation Basis

- ❖ A relationship expressed in mathematical terms;
- ❖ Between two individual figures or group of figures;
- ❖ Connected with each other in some logical manner; and
- ❖ Selected from financial statements of the concern

### Objective for financial ratios is that all stakeholders (owners, investors, lenders, employees etc.) can draw conclusions about the

- ❖ Performance (past, present and future);
- ❖ Strengths & weaknesses of a firm; and
- ❖ Can take decisions in relation to the firm.
- ❖ Ratio analysis is based on the fact that a single accounting figure by itself may not communicate any meaningful information but when expressed as a relative to some other figure, it may definitely provide some significant information.
- ❖ Ratio analysis is not just comparing different numbers from the balance sheet, income statement, and cash flow statement. It is comparing the number against previous years, other companies, the industry, or even the economy in general for the purpose of financial analysis.

### APPLICATION OF RATIO ANALYSIS IN FINANCIAL DECISION MAKING

#### Financial Ratios for Evaluating Performance

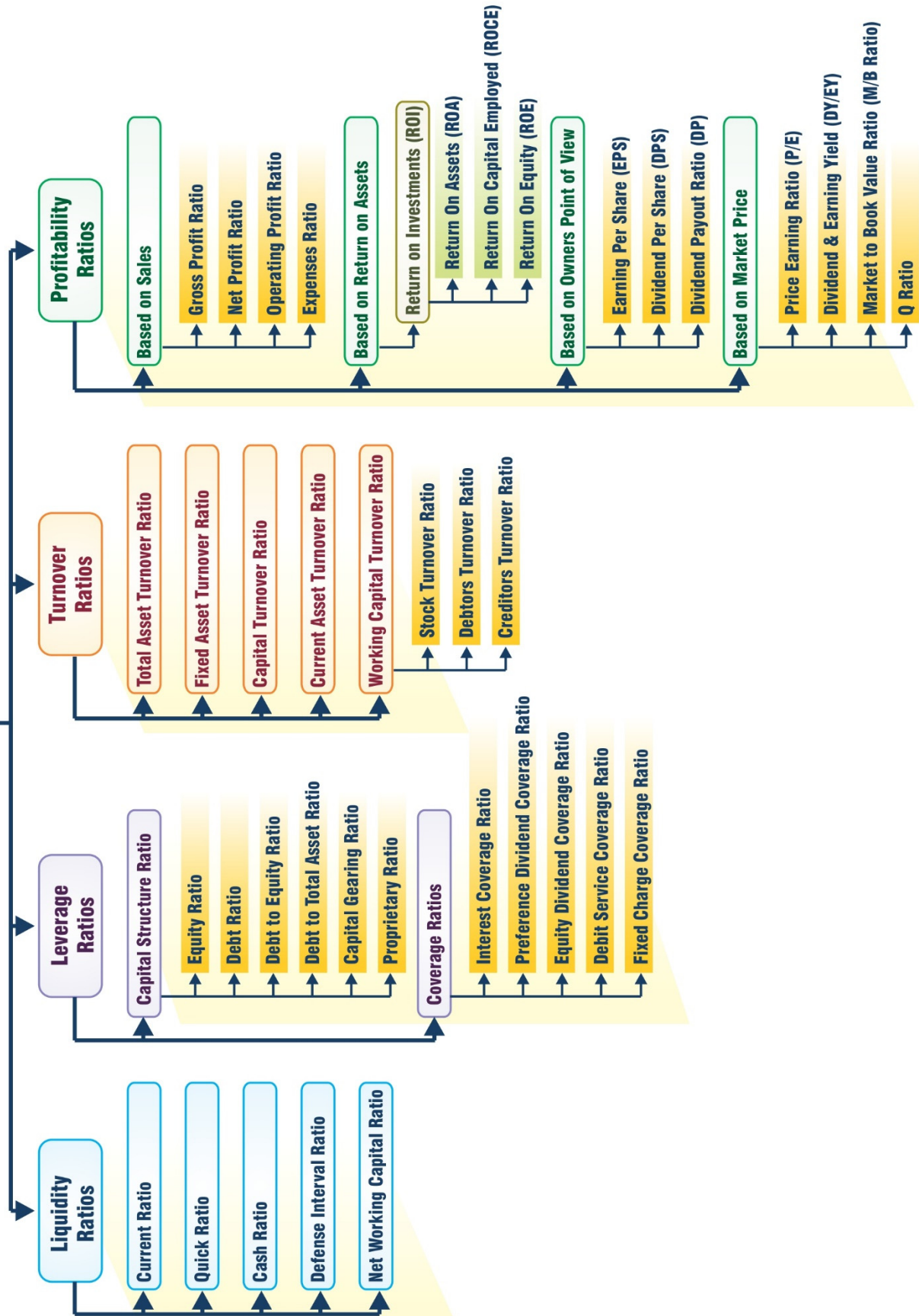
- ❖ Liquidity Position
- ❖ Long-term Solvency
- ❖ Operating Efficiency:
- ❖ Overall Profitability:
- ❖ Inter-firm Comparison
- ❖ Financial Ratios for Budgeting

#### Sources of Financial Data for Analysis

The sources of information for financial statement analysis are:

- Annual Reports
- Interim financial statements
- Notes to Accounts
- Statement of cash flows
- Business periodicals.
- Credit and investment advisory services

**TYPES OF RATIOS**

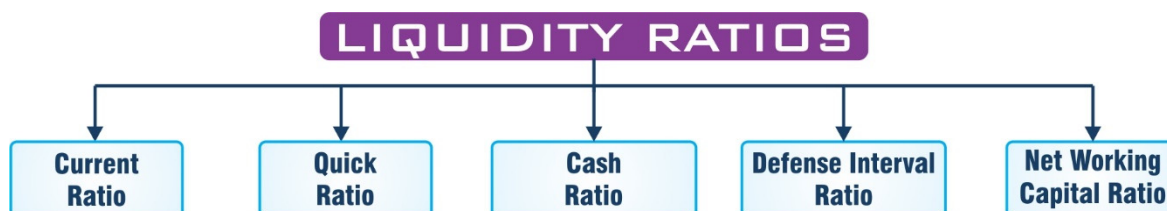


## 1. Liquidity Ratios

The terms 'liquidity' and 'short-term solvency' are used synonymously.

Liquidity or short-term solvency means ability of the business to pay its short-term liabilities. Inability to pay-off short-term liabilities affects its credibility as well as its credit rating. Continuous default on the part of the business leads to commercial bankruptcy.

Short-term lenders and creditors of a business are very much interested to know its state of liquidity because of their financial stake. Both lack of sufficient liquidity and excess liquidity is bad for the organization.



- a) **Current Ratio:** The Current Ratio is one of the best known measures of short term solvency. It is the most common measure of short-term liquidity.

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

Where,

Current Assets	Current Liabilities
<b>Inventories</b> + Sundry Debtors + Cash and Bank Balances + Receivables/ Accruals + Loans and Advances + Disposable Investments + Any other current assets.	<b>Creditors for goods and services</b> + Short-term Loans + Bank Overdraft + Cash Credit + Outstanding Expenses + Provision for Taxation + Proposed Dividend + Unclaimed Dividend + Any other current liabilities.

### Interpretation

A generally acceptable current ratio is 2 to 1. But whether or not a specific ratio is satisfactory depends on the nature of the business and the characteristics of its current assets and liabilities.

- b) **Quick Ratios:** The Quick Ratio is sometimes called the "acid-test" ratio and is one of the best measures of liquidity.

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

Where,

Quick Assets = Current Assets - Inventories

Current Liabilities = As mentioned under Current Ratio.

The Quick Ratio is a much more conservative measure of short-term liquidity than the Current Ratio.

**Quick Assets** consist of only cash and near cash assets. Inventories are deducted from current assets on the belief that these are not 'near cash assets'

### Interpretation

An acid-test of 1:1 is considered satisfactory unless the majority of “quick assets” are in accounts receivable, and the pattern of accounts receivable collection lags behind the schedule for paying current liabilities.

- c) **Cash Ratio/ Absolute Liquidity Ratio:** The cash ratio measures the absolute liquidity of the business. This ratio considers only the absolute liquidity available with the firm.

$$\text{Cash Ratio} = \frac{\text{Cash \& Bank Balances} + \text{Marketable Securities or Current Investments}}{\text{Current Liabilities}}$$

- d) **Basic Defense Interval/ Interval Measure:**

$$\text{Basic Defense Interval} = \frac{\text{Cash \& Bank Balances} + \text{Marketable Securities}}{\text{Average Daily Operating Expenses}}$$

Or

$$\text{Interval Measure} = \frac{\text{Current Assets} - \text{Inventories}}{\text{Average Daily Operating Expenses}}$$

### Interpretation

If for some reason all the company’s revenues were to suddenly cease, the Basic Defense Interval would help determine the number of days the company can cover its cash expenses without the aid of additional financing.

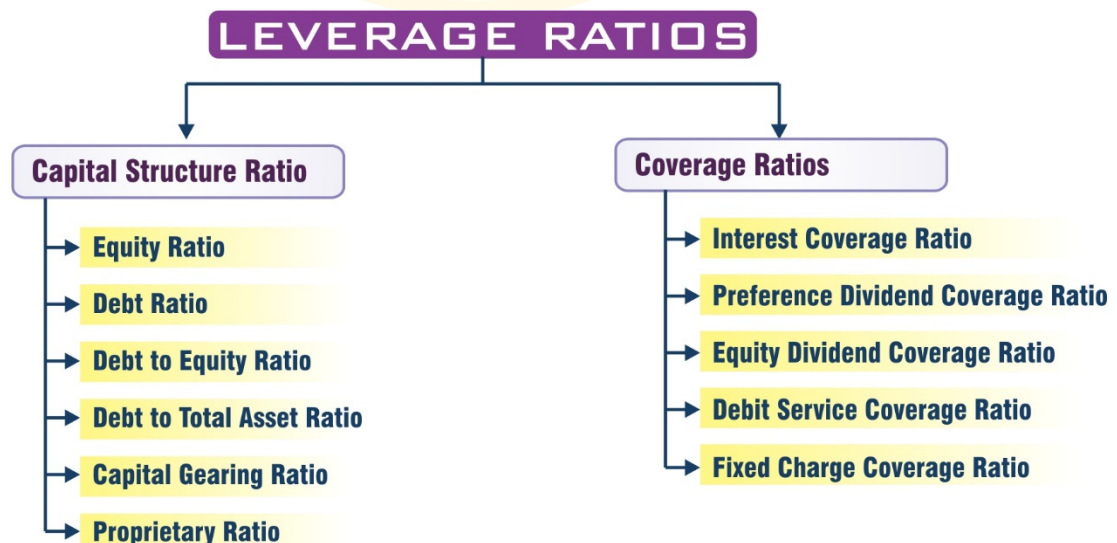
- e) **Net Working Capital Ratio:** Net working capital is more a measure of cash flow than a ratio. The result of this calculation must be a positive number.

$$\text{Net Working Capital Ratio} = \frac{\text{Current Assets} - \text{Current Liabilities}}{\text{(excluding short-term borrowing)}}$$

## 2. Long-term Solvency Ratio /Leverage Ratio

The leverage ratios may be defined as those financial ratios which measure the long term stability and structure of the firm. These ratios indicate the mix of funds provided by owners and lenders and assure the lenders of the long term funds with regard to:

- (i) Periodic payment of interest and
- (ii) Repayment of principal amount



### A. Capital Structure Ratios

These ratios provide an insight into the financing techniques used by a business and focus, as a consequence, on the long-term solvency position.

From the balance sheet one can get only the absolute fund employed and its sources, but only capital structure ratios show the relative weight of different sources.

#### a) Equity Ratio:

This ratio indicates proportion of owners' fund to total fund invested in the business. Traditionally, it is believed that higher the proportion of owners' fund lower is the degree of risk.

$$\text{Equity Ratio} = \frac{\text{Shareholders' Equity}}{\text{Capital Employed OR Net Assets}}$$

b) Debt Ratio: It shows the proportion of interest bearing debt in the capital structure.

$$\text{Debt Ratio} = \frac{\text{Total outside Liabilities or Total Debt}}{\text{Total Debt + Net Worth}}$$

OR

$$\text{Debt Ratio} = \frac{\text{Total Debt}}{\text{Capital Employed OR Net Assets}}$$

#### **Total debt or total outside liabilities includes**

- ❖ short and long term borrowings from financial institutions,
- ❖ debentures/bonds,
- ❖ deferred payment arrangements for buying capital equipments,
- ❖ bank borrowings,
- ❖ public deposits and
- ❖ any other interest bearing loan.

#### **Interpretation**

This ratio is used to analyse the long-term solvency of a firm.

#### c) Debt to Equity Ratio:

$$\text{Debt to Equity Ratio} = \frac{\text{Total outside liabilities or Total Debt}}{\text{Shareholders' Equity}}$$

#### **The shareholders' equity is**

##### **Equity Share Capital**

- + reserve & surplus
- + preference share capital
- fictitious assets etc.

#### **Interpretation**

A high debt to equities ratio here means less protection for creditors, a low ratio, on the other hand, indicates a wider safety cushion.

This ratio indicates the proportion of debt fund in relation to equity.

Debt equity ratio is the indicator of firm's financial leverage.

d) Debt to Total Assets Ratio: This ratio measures the proportion of total assets financed with debt and, therefore, the extent of financial leverage.

$$\text{Debt to Total Asset Ratio} = \frac{\text{Total outside liabilities or Total Debt}}{\text{Total Assets}}$$

- e) **Capital Gearing Ratio:** Capital gearing ratio shows the proportion of fixed interest (dividend) bearing capital to funds belonging to equity shareholders i.e. equity funds or net worth.

$$\text{Capital Gearing Ratio} = \frac{\text{Preference Share Capital} + \text{Debenture} + \text{Other Borrowed Funds}}{\text{Equity Share Capital} + \text{Reserve and Surplus} - \text{Losses}}$$

- f) **Proprietary Ratio:**

$$\text{Proprietary Ratio} = \frac{\text{Proprietary Fund}}{\text{Total Assets}}$$

- ❖ **Proprietary fund includes Equity Share Capital**

+ Preference Share Capital  
+ Reserve & Surplus.

- ❖ Total assets exclude fictitious assets and losses.

**Interpretation**

It indicates the proportion of total assets financed by shareholders.

**B. Coverage Ratios:**

The coverage ratios measure the firm's ability to service the fixed liabilities. These ratios establish the relationship between fixed claims and what is normally available out of which these claims are to be paid. The fixed claims consist of:

- (i) Interest on loans
- (ii) Preference dividend
- (iii) Amortisation of principal or repayment of the instalment of loans or redemption of preference capital on maturity.

- a) **Interest Coverage Ratio:** This ratio also known as "times interest earned ratio" indicates the firm's ability to meet interest (and other fixed-charges) obligations.

$$\text{Interest Coverage Ratio} = \frac{\text{EBIT}}{\text{Interest}}$$

**Interpretation**

- ❖ It shows the times interest charges are covered by funds that are available for their payment.
  - ❖ A high interest coverage ratio means that an enterprise can easily meet its interest obligations even if earnings before interest and taxes suffer a considerable decline.
  - ❖ A lower ratio indicates excessive use of debt or inefficient operations.
- b) **Preference Dividend Coverage Ratio:** This ratio measures the ability of a firm to pay dividend on preference shares which carry a stated rate of return.

$$\text{Preference Dividend Coverage Ratio} = \frac{\text{Net Profit or Earning after taxes or PAT}}{\text{Preference Dividend Liability}}$$

**Interpretation**

This ratio indicates margin of safety available to the preference shareholders. A higher ratio is desirable from preference shareholders point of view.

- c) **Equity Dividend Coverage Ratio:** It can also be calculated taking (EAT – Pref. Dividend) and equity fund figures into consideration.

$$\text{Equity Dividend Coverage Ratio} = \frac{\text{EAT} - \text{Preference Dividend}}{\text{Equity Dividend}}$$

- d) **Debt Service Coverage Ratio (DSCR):** Lenders are interested in debt service coverage to judge the firm's ability to pay off current interest and instalments.

$$\text{Debt Service Coverage Ratio} = \frac{\text{Earning available for debt service}}{\text{Interest} + \text{Instalments}}$$

**Earning for debt service = Net profit (Earning after taxes)**

- + Non-cash operating expenses like depreciation and other amortizations
- + Interest
- + other adjustments like loss on sale of Fixed Asset etc.

**Interpretation**

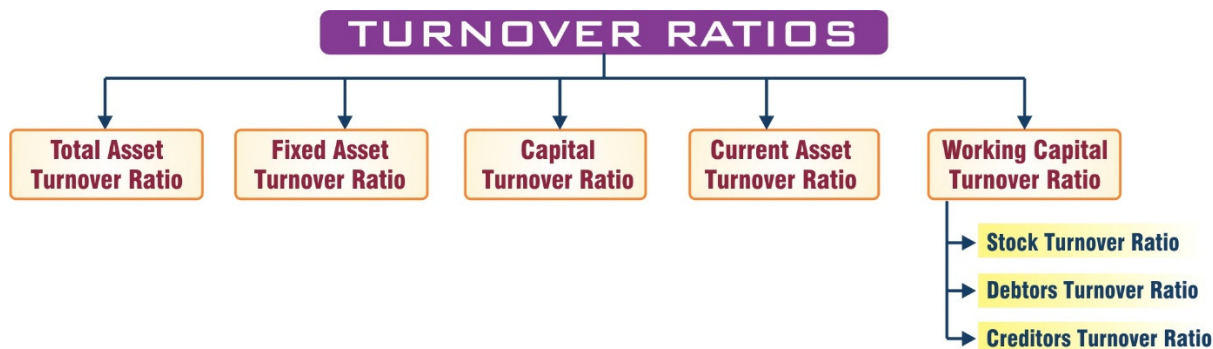
Normally DSCR of 1.5 to 2 is satisfactory. You may note that sometimes in both numerator and denominator lease rentals may be added.

- e) **Fixed Charges Coverage Ratio:** This ratio shows how many times the cash flow before interest and taxes covers all fixed financing charges. This ratio is more than 1 is considered as safe.

$$\text{Fixed Charges Coverage Ratio} = \frac{\text{EBIT} + \text{Depreciation}}{\text{Interest} + \frac{\text{Repayment of Loan}}{(1 - \text{tax rate})}}$$

**3. Activity Ratio/ Efficiency Ratio/ Performance Ratio/ Turnover Ratio**

These ratios are employed to evaluate the efficiency with which the firm manages and utilises its assets. These ratios usually indicate the frequency of sales with respect to its assets. These assets may be capital assets or working capital or average inventory.



These ratios are usually calculated with reference to sales/cost of goods sold and are expressed in terms of rate or times.

- a) **Total Asset Turnover Ratio:** This ratio measures the efficiency with which the firm uses its total assets.

$$\text{Total Asset Turnover Ratio} = \frac{\text{Sales / Cost of Goods Sold}}{\text{Average Total Assets}}$$

- b) **Fixed Assets Turnover Ratio:** It measures the efficiency with which the firm uses its fixed assets.

$$\text{Fixed Assets Turnover Ratio} = \frac{\text{Sales / Cost of Goods Sold}}{\text{Fixed Assets}}$$

#### **Interpretation**

A high fixed assets turnover ratio indicates efficient utilisation of fixed assets in generating sales. A firm whose plant and machinery are old may show a higher fixed assets turnover ratio than the firm which has purchased them recently.

- c) **Capital Turnover Ratio/ Net Asset Turnover Ratio:**

$$\text{Capital Turnover Ratio/ Net Asset Turnover Ratio} = \frac{\text{Sales / Cost of Goods Sold}}{\text{Net Assets}}$$

#### **Interpretation**

➤ This ratio indicates the firm's ability of generating sales/ Cost of Goods Sold per rupee of long term investment. The higher the ratio, the more efficient is the utilisation of owner's and long-term creditors' funds.

➤ Net Assets includes Net Fixed Assets and Net Current Assets (Current Assets – Current Liabilities). Since Net Assets equals to capital employed it is also known as Capital Turnover Ratio.

- d) **Current Assets Turnover Ratio:** It measures the efficiency using the current assets by the firm

$$\text{Current Assets Turnover Ratio} = \frac{\text{Sales / Cost of Goods Sold}}{\text{Current Assets}}$$

- e) **Working Capital Turnover Ratio:**

$$\text{Working Capital Turnover Ratio} = \frac{\text{Sales / Cost of Goods Sold}}{\text{Working Capital}}$$

**Note:** Average of Total Assets/ Fixed Assets/ Current Assets/ Net Assets/ Working Capital/ also can be taken.

**Working Capital Turnover is further segregated into Inventory Turnover, Debtors Turnover, and Creditors Turnover.**

- (i) **Inventory/ Stock Turnover Ratio:** This ratio also known as stock turnover ratio establishes the relationship between the cost of goods sold during the year and average inventory held during the year. It measures the efficiency with which a firm utilizes or manages its inventory.



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

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

$$\text{Days of Inventory Holdings (DIH)} = \frac{\text{Average Inventory}}{\text{Cost of Good Sold}} \times 360 = \frac{360}{\text{Stock turnover Ratio}}$$

In the case of inventory of raw material the inventory turnover ratio is calculated using the following formula :

$$\text{Raw Material Inventory Turnover Ratio} = \frac{\text{Raw Material Consumed}}{\text{Average Raw Material Stock}}$$

$$\text{Work-in-progress Inventory Turnover Ratio} = \frac{\text{Cost of production}}{\text{Average Work-in-progress inventory}}$$

### Interpretation

This ratio indicates that how fast inventory is used or sold. A high ratio is good from the view point of liquidity and vice versa. A low ratio would indicate that inventory is not used/ sold/ lost and stays in a shelf or in the warehouse for a long time.

- (ii) **Receivables (Debtors) Turnover Ratio:** In case firm sells goods on credit, the realization of sales revenue is delayed and the receivables are created. The cash is realised from these receivables later on.

The speed with which these receivables are collected affects the liquidity position of the firm. The debtor's turnover ratio throws light on the collection and credit policies of the firm. It measures the efficiency with which management is managing its accounts receivables. It is calculated as follows:

$$\text{Debtors Turnover Ratio(DTR)} = \frac{\text{Credit Sales}}{\text{Average Accounts Receivable or Average Debtors}}$$

**Receivables (Debtors') Velocity:** Debtors' turnover ratio indicates the average collection period. However, the average collection period can be directly calculated as follows:

$$\text{Receivable Velocity / Average Collection Period} = \frac{\text{Average Debtors}}{\text{Credit Sales}} \times 360$$

$$\text{OR } \frac{\text{Average Debtors}}{\text{Average Daily Credit Sales}} \quad \text{OR } \frac{12 \text{ months}/52 \text{ weeks}/360 \text{ days}}{\text{Debtors turnover Ratio}}$$

$$\text{Average Daily Credit Sales} = \frac{\text{Credit Sales}}{\text{No.of days in a year (say 360)}}$$

### Interpretation

The average collection period measures the average number of days it takes to collect an account receivable. This ratio is also referred to as the number of days of receivable and the number of day's sales in receivables.

- (iii) **Payables / Creditors Turnover Ratio:** This ratio is calculated on the same lines as receivable turnover ratio is calculated. This ratio shows the velocity of payables payment by the firm. It is calculated as follows:

$$\text{Payables/ Creditors Turnover Ratio} = \frac{\text{Annual Net Credit Purchase}}{\text{Average Accounts Payables}}$$

A low creditor's turnover ratio reflects liberal credit terms granted by supplies. While a high ratio shows that accounts are settled rapidly.

$$\text{Payable Velocity/ Average payment period} = \frac{\text{Average Accounts Payables}}{\text{Annual Net Credit Purchase}} \times 360 \text{ OR}$$

$$\frac{\text{Average Account Payables}}{\text{Average Daily Credit Purchase}} \text{ OR } \frac{12 \text{ months}/52 \text{ weeks}/ 360 \text{ days}}{\text{Creditors turnover Ratio}}$$

### Interpretation

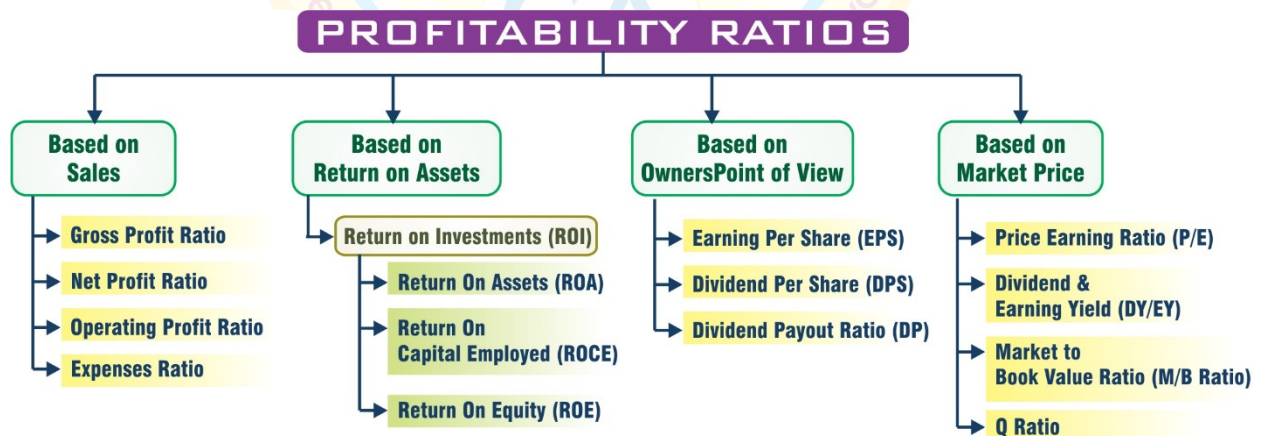
The firm can compare what credit period it receives from the suppliers and what it offers to the customers. Also it can compare the average credit period offered to the customers in the industry to which it belongs.

The above three ratios i.e. Inventory Turnover Ratio/ Receivables Turnover Ratio/Payable Turnover Ratio / is also relevant to examine liquidity of an organization.

## 4. Profitability Ratios

The profitability ratios measure the profitability or the operational efficiency of the firm. These ratios reflect the final results of business operations. Management attempts to maximize these ratios to maximize firm value.

The results of the firm can be evaluated in terms of its earnings with reference to a given level of assets or sales or owner's interest etc. Therefore, the profitability ratios are broadly classified in four categories:



### A. Profitability Ratios based on Sales

- a) **Gross Profit (G.P) Ratio/ Gross Profit Margin:** It measures the percentage of each sale in rupees remaining after payment for the goods sold.

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

Gross Profit = Sales – Cost of Good Sold

**Interpretation**

Gross profit margin depends on the relationship between price/ sales, volume and costs. A high Gross Profit Margin is a favourable sign of good management.

- b) **Net Profit Ratio/ Net Profit Margin:** It measures the relationship between net profit and sales of the business.

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

**Interpretation**

Net Profit ratio finds the proportion of sales that finds its way into profits. A high net profit ratio will ensure positive returns of the business.

- c) **Operating profit ratio:**

Operating profit ratio is also calculated to evaluate operating performance of business.

$$\text{Operating profit ratio} = \frac{\text{Operating Profit OR EBIT}}{\text{Sales}} \times 100$$

Where,

Operating Profit = Sales – Operating Cost

Operating Cost = COGS + Admin Exp + S & D

EBIT = Earning before interest and tax

**Interpretation**

Operating profit ratio measures the percentage of each sale in rupees that remains after the payment of all costs and expenses except for interest and taxes. This ratio is followed closely by analysts because it focuses on operating results.

- d) **Expenses Ratio:** Based on different concepts of expenses it can be expressed in different variants as below:

$$(i) \text{ Cost of Good Sold (COGS) Ratio} = \frac{\text{COGS}}{\text{Sales}} \times 100$$

$$(ii) \text{ Operating Expense Ratio} = \frac{\text{COGS} + \text{Operating expenses}}{\text{Sales}} \times 100$$

$$(iii) \text{ Financial Expense Ratio} = \frac{\text{Financial Expenses}}{\text{Sales}} \times 100$$

**B. Profitability Ratios related to Overall Return on Assets/ Investments**

- a) **Return on Investment (ROI):** ROI is the most important ratio of all. It is the percentage of return on funds invested in the business by its owners. In short, this ratio tells the owner whether or not all the effort put into the business has been worthwhile. It compares earnings/ returns/ profit with the investment in the company.

$$\text{Return on Investment (ROI)} = \frac{\text{Return / Profit / Earnings}}{\text{Investments}} \times 100$$

The concept of investment varies and accordingly there are three broad categories of ROI i.e.

- (i) Return on Assets (ROA),
- (ii) Return on Capital Employed (ROCE) and
- (iii) Return on Equity (ROE).

- (i) **Return on Assets (ROA):** The profitability ratio is measured in terms of relationship between net profits and assets employed to earn that profit. This ratio measures the profitability of the firm in terms of assets employed in the firm. Based on various concepts of net profit (return) and assets the ROA may be measured as follows:

$$\text{Return on Assets (ROA)} = \frac{\text{Net Profit after taxes}}{\text{Average total assets}} \times 100$$

$$\text{OR } \frac{\text{Net Profit after taxes}}{\text{Average Intangible assets}} \times 100$$

$$\text{OR } \frac{\text{Net Profit after taxes}}{\text{Average Fixed assets}} \times 100$$

Here net profit is exclusive of interest. As Assets are also financed by lenders, hence ROA can be calculated as:

$$\text{ROA} = \frac{\text{Net Profit after taxes}}{\text{Average total Assets OR Average Intangible Assets OR Average Fixed Assets}} \times 100$$

OR

$$\text{ROTA (Return on Total Assets)} = \frac{\text{EBIT (1-Tax)}}{\text{Average total assets}} \times 100$$

OR

$$\text{RONA (Return on Net Assets)} = \frac{\text{EBIT (1-Tax)}}{\text{Average Net assets}} \times 100$$

- (ii) **Return on Capital Employed (ROCE):** It is another variation of ROI.

$$\text{Return on Capital Employed (ROCE) (Pre-Tax)} = \frac{\text{EBIT}}{\text{Capital Employed}} \times 100$$

$$\text{Return on Capital Employed (ROCE) (Post-Tax)} = \frac{\text{EBIT (1-Tax)}}{\text{Capital Employed}} \times 100$$

OR

$$\text{Return on Capital Employed (ROCE)(Post-Tax)} = \frac{\text{PAT+Interest}}{\text{Capital Employed}} \times 100$$

Where,

Capital Employed = Total Assets – Current Liabilities, or

= Fixed Assets + Working Capital

ROCE should always be higher than the rate at which the company borrows. Intangible assets (assets which have no physical existence like goodwill, patents and trade-marks) should be included in the capital employed. But no fictitious asset should be included within capital employed. If information is available then average capital employed shall be taken.

- (iii) **Return on Equity (ROE):** Return on Equity measures the profitability of equity funds invested in the firm. This ratio reveals how profitably of the owners' funds have been utilised by the firm. It also measures the percentage return generated to equity shareholders. This ratio is computed as:

$$\text{Return on Equity (ROE)} = \frac{\text{Net Profit after taxes} - \text{Preferences Dividend (if any)}}{\text{Net worth or equity shareholders fund}} \times 100$$

- ❖ Return on equity is one of the most important indicators of a firm's profitability and potential growth. Companies that boast a high return on equity with little or no debt are able to grow without large capital expenditures, allowing the owners of the business to withdraw cash and reinvest it elsewhere.
- ❖ Many investors fail to realize, however, that two companies can have the same return on equity, yet one can be a much better business. If return on total shareholders is calculated then Net Profit after taxes (before preference dividend) shall be divided by total shareholders' fund includes preference share capital.

### Return on Equity using the Du Pont Model:

- ❖ There are various components in the calculation of return on equity using the DuPont model- the net profit margin, asset turnover, and the equity multiplier. By examining each input individually, the sources of a company's return on equity can be discovered and compared to its competitors.
- (i) **Profitability/Net Profit Margin:** The net profit margin is simply the after- tax profit a company generates for each rupee of revenue. Net profit margins vary across industries, making it important to compare a potential investment against its competitors.

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

- (ii) **Investment Turnover/Asset Turnover/Capital Turnover:** The asset turnover ratio is a measure of how effectively a company converts its assets into sales. It is calculated as follows:

$$\text{Total Asset Turnover Ratio} = \frac{\text{Sales}}{\text{Total Assets}}$$

The asset turnover ratio tends to be inversely related to the net profit margin; i.e., the higher the net profit margin, the lower the asset turnover. The result is that the investor can compare companies using different models (low-profit, high-volume vs. high-profit, low-volume) and determine which one is the more attractive business.

- (iii) **Equity Multiplier:** It is possible for a company with terrible sales and margins to take on excessive debt and artificially increase its return on equity. The equity multiplier, a measure of financial leverage, allows the investor to see what portion of the return on equity is the result of debt. The equity multiplier is calculated as follows:

$$\text{Equity Multiplier} = \frac{\text{Total Assets}}{\text{Shareholder's Equity}}$$

### Calculation of Return on Equity

To calculate the return on equity using the DuPont model, simply multiply the three components (net profit margin, asset turnover, and equity multiplier.)

$$\text{Return on Equity} = \frac{\text{Profit after Tax (PAT)}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total Assets}} \times \frac{\text{Total Assets}}{\text{Shareholder's Equity}}$$

### C. Profitability Ratios Required for Analysis from Owner's Point of View

- a) **Earnings per Share (EPS):** The profitability of a firm from the point of view of ordinary shareholders can be measured in terms of number of equity shares. This is known as Earnings per share. It is calculated as follows:

$$\text{EPS} = \frac{\text{Total earning available to equity shareholders}}{\text{Total number of equity shares}}$$

- b) **Dividend per Share (DPS):** Dividend per share ratio indicates the amount of profit distributed to equity shareholders per share. It is calculated as:

$$\text{DPS} = \frac{\text{Total dividend paid to equity shareholders}}{\text{Total number of equity shares}}$$

- c) **Dividend Payout Ratio (DP):** This ratio measures the dividend paid in relation to net earnings. It is determined to see to how much extent earnings per share have been retained by the management for the business. It is computed as:

$$\text{Dividend pay-out Ratio} = \frac{\text{Dividend per share}}{\text{Earning per share}} \times 100$$

### D. Profitability Ratios related to market/ valuation/ Investors

These ratios involve measures that consider the market value of the company's shares. Frequently share prices data are punched with the accounting data to generate new set of information. These are (a) Price- Earnings Ratio, (b) Dividend Yield, (c) Market Value/ Book Value per share, (d) Q Ratio.

- a) **Price- Earnings Ratio (P/E Ratio):** The price earnings ratio indicates the firm's performance as expected by investors. It indicates investor's judgement about the firm's performance. It is calculated as

$$\text{P/E Ratio} = \frac{\text{MPS}}{\text{EPS}}$$

- b) **Dividend and Earning Yield:**

$$\text{Dividend Yield} = \frac{\text{Dividend per share}}{\text{Market price per share}} \times 100$$

$$\text{Earning Yield} = \frac{\text{Earning per share}}{\text{Market Price per share}} \times 100$$

#### Interpretation

This ratio indicates return on investment. Yield (%) is the indicator of true return in which share capital is taken at its market value.

- c) **Market Value to Book Value Ratio (MVBV):** It provides evaluation of how investors view the company's past and future performance

$$\text{M/B Ratio} = \frac{\text{Market Value per share}}{\text{Book Value per share}}$$

**Interpretation**

This ratio indicates market response of the shareholders' investment. Undoubtedly, higher the ratios better is the shareholders' position in terms of return and capital gains.

d) **Q Ratio**: This ratio is proposed by James Tobin, a ratio is defined as

$$\text{Q Ratio} = \frac{\text{Market Value of Assets}}{\text{Estimated Replacement Cost of Assets}}$$

