Financial Reporting Statement And Analysis
Analysis of Financial Statement I (Module-4)

Types of Ratios

1. Liquidity Ratios/Short- term solvency ratios
2. LeveragE Ratio/Long term solvency Ratios
3. Activity Ratios/Efficiency Ratios/Performance Ratios/Turnover ratios Profitability Ratios

INTRODUCTION

The basis for financial analysis, planning and decision making is financial statements which mainly consist of Balance Sheet and Profit and Loss Account. The profit & loss account shows the operating activities of the concern and the balance sheet depicts the balance value of the acquired assets and of liabilities ata particular point of time.

However, the above statements do not disclose all of the necessary and relevant information. For the purpose of obtaining the material and relevant information necessary for ascertaining the financial strengths and weaknesses of an enterprise, it is necessary to analyse the data depicted in the financial statement.

The financial manager has certain analytical tools which help in financial analysis and planning. One of the main tool is Ratio Analysis. Let us discuss the Ratio Analysis.

RATIOS AND RATIO ANALYSIS

Let us first understand the definition of ratio and meaning of ratio analysis

Definition of Ratio

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

a. Calculation Basis (Basis of Calculation)

- 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

b. 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 relative to some other figure**, it may definitely provide some significant information.

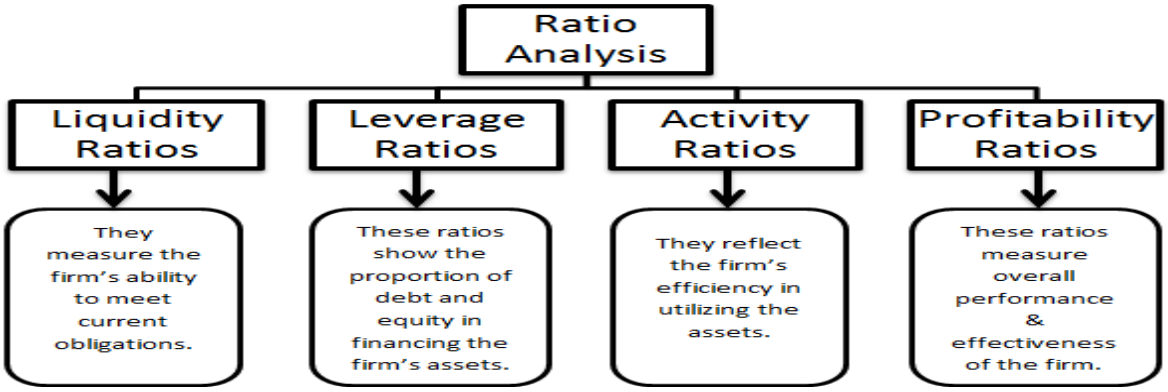
Ratio analysis is not just comparing different numbers from the balance sheet, income statement, and cash flow statement. It is comparing the number against previous years, other companies, the industry, or even the economy in general forthe purpose of financial analysis.

Sources of Financial Data for Analysis

The sources of information for financial statement analysis are:

1. Annual Reports
2. Interim financial statements
3. Notes to Accounts
4. Statement of cash flows
5. Business periodicals.
6. Credit and investment advisory services

TYPES OF RATIOS:-



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. Eventually such commercial bankruptcy may lead to its sickness and dissolution. 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.

The main question this ratio addresses is: **"Does your business have enough current assets to meet the payment schedule of its current debts with a margin of safety for possible losses in current assets?"**

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

Where,

Current Assets = Inventories + Sundry Debtors + Cash and Bank Balances + Receivables/ Accruals + Loans and Advances + Disposable Investments + Any other current assets.

Current Liabilities	=	Creditors for goods and services + Short-term Loans + Bank Overdraft + Cash Credit + Outstanding Expenses + Provision for Taxation + Proposed Dividend + Unclaimed Dividend + Any other current liabilities.

The main question this ratio addresses is: "Does your business have enough current assets to meet the payment schedule of its current debts with a margin of safety for possible losses in current assets?"

Interpretation

A generally acceptable current ratio is 2:1. 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 Ratio: The Quick Ratio is sometimes called the **"acid-test"** ratio andis one of the best **measures of liquidity**.

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

Where,

Quick Assets	=	Current Assets – Inventories – Prepaid expenses
Current Liabilities	=	As mentioned under Current Ratio.

The Quick Ratio is a much more conservative measure of short-term liquidity than the Current Ratio. It helps answer the question: "If all sales revenues should disappear, could my business meet its current obligations with the readily convertible quick funds on hand?"

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' and also because in times of financial difficulty inventory may be saleable only at liquidation value. But in a seller's market inventories are also 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. This ratio is calculated as:

Interpretation

The Absolute Liquidity Ratio only tests short-term liquidity in terms of cash andmarketable securities/ current investments.

(d) Basic Defense Interval/ Interval Measure:

$$\text{Basic Defense Interval} = \frac{\text{Cash and Bank balances} + \text{Marketable Securities}}{\text{Opearing Expenses} \div \text{No. of days (say 360)}}$$

Or

$$\text{Interval Measure} = \frac{\text{Current Assets} - \text{Inventories}}{}$$

$$\text{Daily Operating Expenses} = \frac{\text{Cost of GoodsSold} + \text{Selling Administartion and other General expenses} - \text{Depreciationand othernon cashexpenditure}}{\text{No. of days in a year}}$$

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 for which 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. It is calculated as shown below:

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

Interpretation

Bankers look at Net Working Capital over time to determine a company's ability to weather financial crises. Loans are often tied to minimum working capital requirements.

Long-term Solvency Ratios /Leverage Ratios

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 offunds provided by owners and lenders and assure the lenders of the long termfunds with regard to:

(i) Periodic payment of interest during the period of the loan and
(ii) Repayment of principal amount on maturity.

Leverage ratios are of two types:

1. Capital Structure Ratios

(a) Equity Ratio

(b) Debt Ratio

(c) Debt to Equity Ratio

(d) Debt to Total Assets Ratio

(e) Capital Gearing Ratio

(f) Proprietary Ratio

2. Coverage Ratios

(a) Debt-Service Coverage Ratio (DSCR)

(b) Interest Coverage Ratio

(c) Preference Dividend Coverage Ratio

(d) Fixed Charges Coverage Ratio

Capital Structure Ratios

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

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

Various capital structure ratios are:

(a) Equity Ratio:

$$\text{Equity Ratio} = \frac{\text{Shareholders' Equity}}{\text{CapitalEmployed}}$$

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

(b) Debt Ratio:

$$\text{Debt Ratio} = \frac{\text{Total outside liabilities}}{\text{Total Debt+ Net worth}}$$

Or,

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

Total debt or total outside liabilities includes short and long term borrowings from financial institutions, debentures/bonds, deferred payment arrangements for buying capital equipment, 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:

$$\text{Debt to Equity Ratio} = \frac{\text{Total Outside Liabilities}}{\text{Shareholders'Equity}} = \frac{\text{Total Debt}^*}{\text{Shareholders'Equity}}$$

Or,

$$= \frac{\text{Long- term Debt}^{**}}{\text{Shareholders'equity}}$$

*Not merely long-term debt.

** Sometimes only interest-bearing, long term debt is used instead of totalliabilities (exclusive of current liabilities)

The shareholders' equity is equity and preference share capital + postaccumulated profits (excluding fictitious assets etc).

Interpretation

A high debt to equity ratio here means less protection for creditors, a low ratio, on the other hand, indicates a wider safety cushion (i.e., creditors feel the owner's funds can help absorb possible losses of income and capital). This ratio indicatesthe proportion of debt fund in relation to equity. This ratio is very often referred in capital structure decision as well as in the legislation dealing with the capital structure decisions (i.e. issue of shares and debentures). Lenders are also very keen to know this ratio since it shows relative weights of debt and equity. Debtequity 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.

$$\text{Debt to Total Assets Ratio} = \frac{\text{Total Outside Liabilities}}{\text{Total Assets}}$$

Or,

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

(e) **Capital Gearing Ratio**: In addition to debt-equity ratio, sometimes capital gearing ratio is also calculated to show the proportion of fixed interest (dividend) bearing capital to funds belonging to equity shareholders i.e. equity funds or net worth.

$$\text{Capital Gearing ratio} = \frac{\text{(Preference Share Capital+Debentures + Other Borrowedfunds)}}{\text{(Equity Share Capital+Reserves \& Surplus - Losses)}}$$

(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.

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.

The following are important coverage ratios:

(a) 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.

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

*Fund from operations (or cash from operations) before interest and taxes alsocan be considered as per the requirement.

Interpretation

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

(b) **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. This ratio is computed as:

$$\text{Interest Coverage Ratio} = \frac{\text{Earnings before interest and taxes(EBIT)}}{\text{Interest}}$$

Activity Ratios/ Efficiency Ratios/ Performance Ratios/ Turnover Ratios:

These ratios are employed to **evaluate the efficiency with which the firm manages and utilises its assets.** For this reason, they are often called 'Asset management ratios'. 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.

Activity Ratios/ Efficiency Ratios/ Performance Ratios/ Turnover Ratios:

(a) Total Assets Turnover Ratio

(b) Fixed Assets Turnover Ratio

(c) Capital Turnover Ratio

(d) Current Assets Turnover Ratio

(e) Working Capital Turnover Ratio

- (i) Inventory/ Stock Turnover Ratio
- (ii) Receivables (Debtors) Turnover Ratio
- (iii) Payables (Creditors) Turnover Ratio.

Asset Turnover Ratios: Based on different concepts of assets employed, it can beexpressed as follows:

(a) Total Asset Turnover Ratio: This ratio measures the efficiency with whichthe firm uses its total assets. This ratio is computed as:

$$\text{Total Asset Turnover Ratio} = \frac{\text{Sales / Costof GoodsSold}}{\text{TotalAssets}}$$

(a) Fixed Assets Turnover Ratio: It measures the efficiency with which the firmuses its fixed assets.

$$\text{Fixed Assets Turnover Ratio} = \frac{\text{Sales / Costof Goods Sold}}{\text{FixedAssets}}$$

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.

(b) Capital Turnover Ratio/ Net Asset Turnover Ratio:

$$\text{Capital Turnover Ratio} = \frac{\text{Sales / Costof GoodsSold}}{\text{NetAssets}}$$

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). SinceNet Assets equals to capital employed it is also known as Capital Turnover Ratio.

(c) Current Assets Turnover Ratio: It measures the efficiency using the current assets by the firm.

$$\text{Current Assets Turnover Ratio} = \frac{\text{Sales / Costof GoodsSold}}{\text{Current Assets}}$$

(d) Working Capital Turnover Ratio:

$$\text{Working Capital Turnover Ratio} = \frac{\text{Sales / Costof GoodsSold}}{\text{Working Capital}}$$

Interpretation

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

Note: Average of Total Assets/ Fixed Assets/ Current Assets/ Net Assets/ WorkingCapita also can be taken.

(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 withwhich a firm utilizes or manages its inventory**.** It is calculated as follows:

$$\text{Inventory Turnover Ratio} = \frac{\text{Costof GoodsSold / Sales}}{\text{Average Inventory}^*}$$

$$^*\text{Average Inventory} = \frac{\text{OpeningStock+ClosingStock}}{2}$$

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

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

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:

$$\text{Receivable (Debtor) Turnover Ratio} = \frac{\text{Credit Sales}}{\text{Average AccountsReceivable}}$$

Profitability Ratios

The profitability ratios **measure the profitability or the operational efficiency**of the firm. These ratios reflect the final results of business operations. They aresome of the most closely watched and widely quoted ratios. 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 toa given level of assets or sales or owner's interest etc. Therefore, the profitability ratios

are broadly classified in four categories:

(i) Profitability Ratios related to Sales

(ii) Profitability Ratios related to overall Return on Investment

(iii) Profitability Ratios required for Analysis from Owner's Point of View

(iv) Profitability Ratios related to Market/ Valuation/ Investors.

Profitability Ratios are as follows:

1. Profitability Ratios based on Sales

(a) Gross Profit Ratio

(b) Net Profit Ratio

(c) Operating Profit Ratio

(d) Expenses Ratio

2. Profitability Ratios related to Overall Return on Assets/ Investments

(a) Return on Investments (ROI)

(i) Return on Assets (ROA)

(ii) Return of Capital Employed (ROCE)

(iii) Return on Equity (ROE)

3. Profitability Ratios required for Analysis from Owner's Point of View

(a) Earnings per Share (EPS)

(b) Dividend per Share (DPS)

(c) Dividend Payout Ratio (DP)

4. Profitability Ratios related to Market/ Valuation/ Investors

(a) Price Earnings (P/E) Ratio

(b) Dividend and Earning Yield

(c) Market Value/ Book Value per Share (MVBV)

(d) Q Ratio

Profitability Ratios based on Sales

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

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

Interpretation

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

(b) Net Profit Ratio/ Net Profit Margin: It measures the relationship betweennet profit and sales of the business. Depending on the concept of net profit it canbe calculated as:

(i) $\text{Net Profit Ratio} = \frac{\text{Net Profit}}{\text{Sales}} \times 100$ or $\frac{\text{Earnings after taxes (EAT)}}{\text{Sales}} \times 100$

Interpretation

Net Profit ratio finds the proportion of revenue that finds its way into profits. Ahigh 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.

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

or,

$$\frac{\text{Earnings before interest and taxes (EBIT)}}{\text{Sales}} \times 100$$

Where,

Operating Profit = Sales – Cost of Goods Sold (COGS) – Expenses

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. Operating profit is often referred to as earnings before interest and taxesor EBIT.

(d) Expenses Ratio: Based on different concepts of expenses it can beexpresses in different variants as below:

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

(ii) Operating Expenses Ratio $= \frac{\text{Administrative exp.+ Selling \& Distribution OH}}{\text{Sales}} \times 100$

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

(iv) Financial Expenses Ratio $= \frac{\text{Financialexpenses*}}{\text{Sales}} \times 100$

*It excludes taxes, loss due to theft, goods destroyed by fire etc.

Administration Expenses Ratio and Selling & Distribution Expenses Ratio can also be calculated in similar ways.

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 businesshas been worthwhile. It compares earnings/ returns/ profit with the investment in the company. The ROI is calculated as

$$\text{Return on Investment} = \frac{\text{Return /Profit /Earnings}}{\text{Investment}} \times 100$$

$$= \frac{\text{Return /Profit /Earnings}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Investment}}$$

$$\frac{\text{Return /Profit /Earnings}}{\text{Sales}} = \text{Profitability Ratio}$$

$$\text{Investment Turnover Ratio} = \frac{\text{Sales}}{\text{Investments}}$$

follows:

So, **ROI = Profitability Ratio** × **Investment Turnover Ratio**. ROI can be improved either by improving Profitability Ratio or Investment Turnover Ratio or by both.

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).

We should keep in mind that investment may be Total Assets or Net Assets. Further funds employed in net assets are also known as capital employed which is nothing but Net worth plus Debt, where Net worth is equity shareholders' fund. Similarly the concept of returns/ earnings/ profits may vary as per the requirement and availability of information.

(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:

$$\text{ROA} = \frac{\text{Net Profit after taxes}}{\text{Average Total Assets}} \text{ or } \frac{\text{Net Profit after taxes}}{\text{Average Tangible Assets}} \text{ or } \frac{\text{Net Profit after taxes}}{\text{Average Fixed Assets}}$$

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

The ROCE is calculated as follows:

$$\text{ROCE (Pre-tax)} = \frac{\text{Earnings before interest and taxes(EBIT)}}{\text{Capital Employed}} \times 100$$

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 ofequity 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:

$$ROE = \frac{\text{Net Profit after taxes-Preferencedividend (if any)}}{\text{Net worth}} \times 100$$

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.

USERS AND OBJECTIVE OF FINANCIAL ANALYSIS:- A BIRDS EYE VIEW

Financial Statement analysis is useful to various shareholders to obtain the derived information about the firm

S.No.	Users	Objectives	Ratios used in general
1.	Shareholders	Being owners of the organisation they are interested to know about profitability and growth of the organization	♦ Mainly Profitability Ratio [In particular Earning per share (EPS), Dividend per share (DPS), Price Earnings (P/E), Dividend Payout ratio (DP)]
2.	Investors	They are interested to know overall financial health of the organisation particularly future perspective of the organisations.	♦ Profitability Ratios ♦ Capital structure Ratios ♦ Solvency Ratios ♦ Turnover Ratios

3.	Lenders	They will keep an eye on the safety perspective of their money lent to theorganisation	♦ Coverage Ratios ♦ Solvency Ratios ♦ Turnover Ratios ♦ Profitability Ratios
4.	Creditors	They are interested to know liability position of the organisation particularly in short term. Creditors would like to know whether the organisation will be ableto pay the amount on due date.	♦ Liquidity Ratios ♦ Short term solvency Ratios/ Liquidity Ratios
5.	Employees	They will be interested to know the overall financial wealth of the organisation and compare it with competitor company.	♦ Liquidity Ratios ♦ Long terms solvency Ratios ♦ Profitability Ratios ♦ Return of investment
6.	Regulator / Government	They will analyse the financial statements to determine taxations and other details payable to the government.	Profitability Ratios

7.	Managers:-		
	(a) Production Managers	They are interested to know about data regarding input output, production quantities etc.	♦ Input output Ratio ♦ Raw material consumption ratio.
	(b) Sales Managers	Data related to units sold for various years, other associated figures and predicted future sales figure will be an area of interest for them	♦ Turnover ratios (basically receivable turnover ratio) ♦ Expenses Ratios

	(c) Financial Manager	They are interested to know various ratios for their future predictions of financial requirement.	♦ Profitability Ratios (particularly related to Return on investment) ♦ Turnover ratios ♦ Capital Structure Ratios
	Chief Executive/ General Manager	They will try to assess the complete perspective of the company, starting from Sales, Finance, Inventory, Human resources, Production etc.	♦ All Ratios

APPLICATION OF RATIO ANALYSIS IN FINANCIAL DECISION MAKING

A popular technique of analysing the performance of a business concern is that of financial ratio analysis. As a tool of financial management, they are of crucial significance.

The importance of ratio analysis lies in the fact that it presents facts on a comparative basis and enables drawing of inferences regarding the performance of a firm.

Ratio analysis is relevant in assessing the performance of a firm in respect of following aspects:

Financial Ratios for Evaluating Performance

(a) Liquidity Position: With the help of ratio analysis one can draw conclusions regarding liquidity position of a firm. The liquidity position of a firm would be satisfactory if it is able to meet its obligations when they become due. This ability is reflected in the liquidity ratios of a firm. The liquidity ratios are particularly useful in credit analysis by banks and other suppliers of short-term loans.

(b) **Long-term Solvency:** Ratio analysis is equally useful for assessing the long- term financial viability of a firm. This aspect of the financial position of a borrower is of concern to the long term creditors, security analysts and the present and potential owners of a business.

The long term solvency is measured by the leverage/capital structure and profitability ratios which focus on earning power and operating efficiency.

The leverage ratios, for instance, will indicate whether a firm has a reasonable proportion of various sources of finance or whether heavily loaded with debt inwhich case its solvency is exposed to serious strain.

Similarly, the various profitability ratios would reveal whether or not the firm is able to offer adequate return to its owners consistent with the risk involved.

(c) **Operating Efficiency:** Ratio analysis throws light on the degree of efficiency in the management and utilisation of its assets.

The various activity ratios measure this kind of operational efficiency. In fact,the solvency of a firm is, in the ultimate analysis, dependent upon the sales revenues generated by the use of its assets – total as well as its components.

(d) **Overall Profitability:** Unlike the outside parties which are interested in one aspect of the financial position of a firm, the management is constantly concerned about the overall profitability of the enterprise. That is, they are concerned about the ability of the firm to meet its short-term as well as long- term obligations to its creditors, to ensure a reasonable return to its owners and secure optimum utilisation of the assets of the firm. This is possible if an integrated view is taken and all the ratios are considered together.

(e) **Inter-firm Comparison:** Ratio analysis not only throws light on the financial position of a firm but also serves as a stepping stone to remedial measures. This is made possible due to inter-firm comparison/comparison with industry averages.

(f) **Financial Ratios for Budgeting:** In this field ratios are able to provide a great deal of assistance. Budget is only an estimate of future activity based on past experience, in the making of which the relationship between different spheres of activities are invaluable.

It is usually possible to estimate budgeted figures using financial ratios.

Problem - 1

The following Trading and Profit and Loss Account of Fantasy Ltd. for the year 31-3-2000 is givenbelow:

Particular	Rs.	Particular	Rs.
To Opening Stock	76,250	By Sales	5,00,000
" Purchases	3,15,250	" Closing stock	98,500
" Carriage and Freight	2,000		
" Wages	5,000		
" Gross Profit b/d	2,00,000		
	5,98,500		5,98,500
To Administration expenses	1,01,000	By Gross Profit b/d	2,00,000
" Selling and Dist. expenses	12,000	" Non-operating incomes:	
" Non-operating expenses	2,000	" Interest on Securities	1,500
" Financial Expenses	7,000	" Dividend on shares	3,750
Net Profit c/d	84,000	" Profit on sale of shares	750
	2,06,000		2,06,000

Calculate:

1. Gross Profit Ratio **2.** Expenses Ratio **3.** Operating Ratio
1. Net Profit Ratio **5.** Operating (Net) Profit Ratio **6.** Stock Turnover Ratio.

Solution – 1 (Problem related to Revenue Ratio)

1. Gross Profit Margin = $\frac{\text{Gross profit}}{\text{Sales}}$ **X** 100

$\frac{2,00,000}{5,00,000}$ **X** 100

= 40%

2. Expenses Ratio = $\frac{\text{Op. Expenses}}{\text{Net Sales}}$ **X** 100

$\frac{1,13,000}{5,00,000}$ **X** 100

= 22.60%

3. Operating Ratio = $\frac{\text{Cost of goods sold + Op. Expenses}}{\text{Net Sales}}$ **X** 100

$\frac{3,00,000 + 1,13,000}{5,00,000}$ **X** 100

= 82.60%

Cost of Goods sold = Op. stock + purchases + carriage and Freight + wages – Closing Stock

= 76250 + 315250 + 2000 + 5000 - 98500

= Rs.3,00,000

4. Net Profit Ratio = $\frac{\text{Net Profit}}{\text{Net Sales}}$ **X** 100

$\frac{84,000}{5,00,000}$ **X** 100

= 16.8%

5. Operating Profit Ratio = $\frac{\text{Op. Profit}}{\text{Net Sales}}$ **X** 100

Operating Profit = Sales – (Op. Exp. + Admin Exp.)

$\frac{87,000}{5,00,000}$ **X** 100

= 17.40%

6. Stock Turnover Ratio = $\frac{\text{Cost of goods sold}}{\text{Avg. Stock}}$

$\frac{3,00,000}{87,375}$

= 3.43 times

Problem - 2

The Balance Sheet of Punjab Auto Limited as on 31-12-2002 was as follows:

Particular	Rs.	Particular	Rs.
Equity Share Capital	40,000	Plant and Machinery	24,000
Capital Reserve	8,000	Land and Buildings	40,000
8% Loan on Mortgage	32,000	Furniture & Fixtures	16,000
Creditors	16,000	Stock	12,000
Bank overdraft	4,000	Debtors	12,000
Taxation:		Investments (Short-term)	4,000
Current	4,000	Cash in hand	12,000
Future	4,000		
Profit and Loss A/c	12,000		
	1,20,000		1,20,000

From the above, compute (a) the Current Ratio, (b) Quick Ratio, (c) Debt-Equity Ratio, and (d) Proprietary Ratio.

Solution – 2 (Problem related to Balance Sheet Ratio)

1. Current Ratio =	$\frac{\text{Current Assets}}{\text{Current liabilities}}$
	Current Assets = Stock + debtors + Investments (short term) + Cash In hand
	Current Liabilities = Creditors + bank overdraft + Provision for Taxation (current & Future)
	CA = 12000 + 12000 + 4000 + 12000 = 40,000
	CL = 16000 + 4000 + 4000 + 4000

= 28,000	
= 40,000 28,000	
= 1.43 : 1	

2. Quick Ratio =	Quick Assets Quick Liabilities	
	Quick Assets = Current Assets - Stock	
	Quick Liabilities = Current Liabilities – (BOD + PFT future)	
	QA = 40,000 – 12,000 = 28,000	
	QL = 28,000 – (4,000 + 4,000) = 20,000	
	= 28,000 20,000	
	= 1.40 : 1	

3. Debt – Equity Ratio =	Long Term Debt (Liabilities) Shareholders Fund	
	LTL = Debentures + long term loans	
	SHF = Eq. Sh. Cap. + Reserves & Surplus + Preference Sh. Cap. – Fictitious Assets	
	LTL = 32,000	
	SHF = 40,000 + 8,000 + 12,000 = 60,000	

= 32,000 60,000	
= 0.53 : 1	

4. Proprietary Ratio =	Shareholders' Funds Total Assets	
	SHF = Eq. Sh. Cap. + Reserves & Surplus + Preference Sh. Cap. – Fictitious Assets	
	Total Assets = Total Assets – Fictitious Assets	
	SHF = 40,000 + 8,000 + 12,000 = 60,000	
	TA = 1,20,000	
	= 60,000 1,20,000	
	= 0.5 : 1	

Problem - 3

The details of Shreenath Company are as under:

Sales (40% cash sales)		15,00,000
Less: Cost of sales		7,50,000
	Gross Profit:	7,50,000
Less: Office Exp. (including int. on debentures)	1,25,000	
Selling Exp.	1,25,000	2,50,000
	Profit before Taxes:	5,00,000
Less: Taxes		2,50,000
	Net Profit:	2,50,000

Balance Sheet

Particular	Rs.	Particular	Rs.
Equity share capital	20,00,000	Fixed Assets	55,00,000
10% Preference share capital	20,00,000	Stock	1,75,000
Reserves	11,00,000	Debtors	3,50,000
10% Debentures	10,00,000	Bills receivable	50,000
Creditors	1,00,000	Cash	2,25,000
Bank-overdraft	1,50,000	Fictitious Assets	1,00,000
Bills payable	45,000		
Outstanding expenses	5,000		
	64,00,000		64,00,000

Beside the details mentioned above, the opening stock was of Rs. 3,25,000. Taking 360 days of theyear, calculate the following ratios; also discuss the position of the company:

(1) Gross profit ratio. (2) Stock turnover ratio. (3) Operating ratio. (4) Current ratio. (5) Liquid ratio. (6) Debtors ratio. (7) Creditors ratio. (8) Proprietary ratio. (9) Rate of return on net capital employed. (10) Rate of return on equity shares.

Solution – 3 (Problem related to Composite Ratio)

1. Gross Profit Margin =	Gross profit / Sales	**X** 100
	7,50,000 / 15,00,000	**X** 100
	= 50%	

2. Stock Turnover Ratio =	Cost of goods sold / Avg. Stock
	Avg. stock = Opening Stock + Closing Stock / 2
	COGS = Sales – GP
	3,25,000 + 1,75,000 / 2

AS = 2,50,000
COGS = 15,00,000 – 7,50,000 7,50,000
= 7,50,000 2,50,000
= 3 times

3. Operating Profit Ratio =	Op. Profit Net Sales	**X** 100
	Operating Profit = Sales – (Op. Exp. + COGS.)	
	OP = 15,00,000 – (7,50,000 + 1,25,000 + 25,000) = 6,00,000 **(excluding Interest on Debentures)**	
	= 6,00,000 15,00,000	**X** 100
	= 40%	

4. Current Ratio =	Current Assets Current liabilities	
	Current Assets = Stock + debtors + Bills receivable + Cash	
	Current Liabilities = Creditors + bank overdraft + Bills payable + Outstanding expenses	
	CA = 1,75,000 + 3,50,000 + 50,000 + 2,25,000 = 8,00,000	

CL = 1,00,000 + 1,50,000 + 45,000 + 5,000 = 3,00,000	
= 8,00,000 3,00,000	
= 2.67 : 1	

5. Quick Ratio / Liquid Ratio =	Liquid Assets Liquid Liabilities	
	(Liquid) Quick Assets = Current Assets - Stock	
	(Liquid) Quick Liabilities = Current Liabilities – BOD	
	QA = 8,00,000 – 1,75,000 = 6,25,000	
	QL = 3,00,000 – 1,50,000 = 1,50,000	
	= 6,25,000 1,50,000	
	= 4.17 : 1	

6. Debtors Ratio =	Debtors + Bills receivable Credit sales	**X** 365 / 360 days
	= 3,50,000 + 50,000 9,00,000 (60% of 15,00,000)	**X** 360 days
	= 0.444	**X** 360 days
	= 160 days	

7. Creditors Ratio =	Creditors + Bills payable Credit Purchase	**X** 365 / 360 days
	= 1,00,000 + 45,000 7,50,000 **Notes: If credit purchase could not find out at that point Cost of Goods sold consider Credit purchase**	**X** 360 days
	= 0.193	**X** 360 days
	= 69 days	

8. Proprietary Ratio =	Shareholders' Funds Total Assets	
	SHF = Eq. Sh. Cap. + Reserves & Surplus + Preference Sh. Cap. – Fictitious Assets	
	Total Assets = Total Assets – Fictitious Assets	
	SHF = 20,00,000 + 20,00,000 + 11,00,000 – 1,00,000 = 50,00,000	
	TA = 64,00,000 – 1,00,000 = 63,00,000	
	= 50,00,000 63,00,000	
	= 0.79 : 1	

Notes:

Rate of Return on Capital Employed		**Rate of Return on Share holders Fund**		**Rate of return on Equity Shareholders Fund**	
= EBIT Capital employed	X 100	= PAT SHF	X 100	= PAT – Pref. Div. ESHF	X 100
CE = Eq Sh. Cap. + Pref. Sh.		**SHF =** Eq. Sh. Cap. + Pref. Sh.		**ESHF =** Eq. Sh. Cap. +	

Cap. + Reserves & Surplus + Debenture + Long Term Loan – Fictitious Assets	Cap. + Reserves & Surplus – Fictitious Assets	Reserves & Surplus – Fictitious Assets

Sales	15,00,000
Less: Cost of goods sold	7,50,000
Gross profit	**7,50,000**
Less: Operating expenses (including Depreciation)	1,50,000
Earnings before Interest & Tax (EBIT)	**6,00,000**
Less: Interest Cost	1,00,000
Earnings before Tax (EBT)	**5,00,000**
Less: Tax liability	2,50,000
Earnings after Tax (EAT/ PAT)	**2,50,000**
Less: Preference share dividend	2,00,000
Distributional Profit	**50,000**

9.		**10.**		**11.**	
Rate of Return on Capital Employed		**Rate of Return on Share holders Fund**		**Rate of return on Equity Shareholders Fund**	
= EBIT / Capital employed	X 100	= PAT / SHF	X 100	= PAT – Pref. Div. / ESHF	X 100
CE = Eq Sh. Cap. + Pref. Sh. Cap. + Reserves & Surplus + Debenture + Long Term Loan – Fictitious Assets		**SHF =** Eq. Sh. Cap. + Pref. Sh. Cap. + Reserves & Surplus – Fictitious Assets		**ESHF =** Eq. Sh. Cap. + Reserves & Surplus – Fictitious Assets	
CE = 20,00,000 + 20,00,000 11,00,000 +10,00,000 – 1,00,000		**SHF =** 20,00,000 + 20,00,000 11,00,000 – 1,00,000		ESHF = 20,00,000 + 11,00,000 – 1,00,000	

= 60,00,000		= 50,00,000		= 30,00,000	
= 6,00,000 / 60,00,000	X 100	= 2,50,000 / 50,00,000	X 100	= 50,000 / 30,00,000	X 100
= 10%		= 5%		= 1.67 %	

Problem = 4

From the following particulars extracted from the books of Ashok & Co. Ltd., compute the following ratios and comment:

(a) Current ratio, (b) Acid Test Ratio, (c) Stock-Turnover Ratio, (d) Debtors Turnover Ratio, (e) Creditors' Turnover Ratio, and Average Debt Collection period.

	1-1-2002 Rs.	31-12-2002 Rs.
Bills Receivable	30,000	60,000
Bills Payable	60,000	30,000
Sundry Debtors	1,20,000	1,50,000
Sundry Creditors	75,000	1,05,000
Stock-in-trade	96,000	1,44,000

Additional information:

(a) On 31-12-2002, there were assets: Building Rs. 2,00,000, Cash Rs. 1,20,000 and Cash at Bank Rs. 96,000.

(b) Cash purchases Rs. 1,38,000 and Purchases Returns were Rs. 18,000.

(c) Cash sales Rs. 1,50,000 and Sales returns were Rs. 6,000.
Rate of gross profit 25% on sales and actual gross profit was Rs. 1,50,000.

Solution – 4 (Problem related to find out missing item)

Notes: In this problem available information is not enough to solve ratios asked so that need to prepare Trading Account to identify values which are not given in the question.

Trading Account

Particular		Amount Rs.	Particular		Amount Rs.
To Opening Stock		96,000	By Sales: Cash:	1,50,000	
To Purchase: Cash:	1,38,000		Credit :	4,56,000	
Credit:	3,78,000			6,06,000	

5,16,000		Less: S/R 6,000	**6,00,000**

Less: P/R 18,000	4,98,000	By Closing Stock	1,44,000
To Gross Profit	1,50,000		
	7,44,000		7,44,000

1. Gross Profit Margin =	Gross profit / Sales	**X** 100
	25% = 1,50,000 / Sales	**X** 100
	Sales = 1,50,000 / 25	**X** 100
	Sales = 6,00,000	

2. Current Ratio =	Current Assets / Current liabilities	
	Current Assets = Stock + debtors + Bills receivable + Cash + Bank Balance	
	Current Liabilities = Creditors + Bills payable	
	CA = 1,44,000 + 1,50,000 + 60,000 + 1,20,000 + 96,000 = 5,70,000	
	CL = 1,05,000 + 30,000 = 1,35,000	
	= 5,70,000 / 1,35,000	
	= 4.22 : 1	

3. Acid Test Ratio =	Cash & Cash Equivalent Assets / Liquid Liabilities	

Cash & Cash equivalent Assets = Cash + Bank + Short term Investments	
(Liquid) Quick Liabilities = Current Liabilities – BOD	
= 1,20,000 + 96,000 = 2,16,000	
QL = 1,05,000 + 30,000 = 1,35,000	
= 2,16,000 1,35,000	
= 1.6 : 1	

4. Stock Turnover Ratio =	Cost of goods sold Avg. Stock
	Avg. stock = Opening Stock + Closing Stock 2
	COGS = Sales – GP
	96,000 + 1,44,000 2
	AS = 1,20,000
	COGS = 6,00,000 – 1,50,000 4,50,000
	= 4,50,000 1,20,000
	= 3.75 times

5. Debtors Ratio = **(Avg. debt collection period)**	Debtors + Bills receivable Credit sales	**X** 365 / 360 days
	= 1,50,000 + 60,000 4,56,000	**X** 365 days

= 0.461	**X** 365 days
= 168 days	

6. Creditors Ratio	= Creditors + Bills payable / Credit Purchase	**X** 365 / 360 days
	= 1,05,000 + 30,000 / 3,78,000	**X** 365 days
	= 0.357	**X** 365 days
	= 130 days	

Problem - 5

Following is the summarised Balance Sheet of Mona Ltd. as on 31-3-04.

Particular	Rs.	Particular	Rs.
Equity Shares of Rs. 10 each 10%	10,00,000	Fixed Assets	20,00,000
Pref. Sh. of Rs.100 each Reserves	4,00,000	Investments	2,00,000
and Surplus	7,00,000	Closing Stock	2,00,000
15% Debentures	5,00,000	Sundry Debtors	4,60,000
Sundry Creditors	2,40,000	Bills Receivable	60,000
Bank Overdraft	1,60,000	Cash at Bank	60,000
		Preliminary Expenses	20,000
	30,00,000		30,00,000

Summarised Profit and Loss Account is as under for the year ending on 31-3-'04:

	Rs.
Sales (25% Cash sales)	80,00,000
Less: Cost of goods sold	56,00,000
Gross Profit	24,00,000
Net profit (Before interest and tax 50%)	9,00,000

Calculate the following ratios:

(1) Rate on Return on Capital Employed (2) Proprietary Ratio (3) Debt-Equity (4) Capital gearing Ratio (5) Debtors Ratio (365 days of the year.) (6) Rate of Return on Shareholders' Funds (7) Rate ofReturn on Equity shareholders fund

Solution - 5 **Statement of Profitability**

Sales	80,00,000
Less: Cost of goods sold	56,00,000
Gross profit	**24,00,000**
Less: Operating expenses (including Depreciation)	15,00,000
Earnings before Interest & Tax (EBIT)	**9,00,000**
Less: Interest Cost	75,000
Earnings before Tax (EBT)	**8,25,000**
Less: Tax liability (50%)	4,12,500
Earnings after Tax (EAT/ PAT)	4,12,500
Less: Preference share dividend	40,000
Distributional Profit	**3,72,500**

1.		**6.**		**7.**	
Rate of Return on Capital Employed		**Rate of Return on Share holders Fund**		**Rate of return on Equity Shareholders Fund**	
= EBIT / Capital employed	X 100	= PAT / SHF	X 100	= PAT – Pref. Div. / ESHF	X 100
CE = Eq Sh. Cap. + Pref. Sh. Cap. + Reserves & Surplus + Debenture + Long Term Loan – Fictitious Assets		**SHF =** Eq. Sh. Cap. + Pref. Sh. Cap. + Reserves & Surplus – Fictitious Assets		**ESHF =** Eq. Sh. Cap. + Reserves & Surplus – Fictitious Assets	
CE = 10,00,000 + 4,00,000 7,00,000 + 5,00,000 – 20,000 **= 25,80,000**		**SHF =** 10,00,000 + 4,00,000 + 7,00,000 - 20,000 **= 20,80,000**		ESHF = 10,00,000 + 7,00,000 – 20,000 **= 16,80,000**	
= 9,00,000 / 25,80,000	X 100	= 4,12,500 / 20,80,000	X 100	= 3,72,500 / 16,80,000	X 100
= 34.88%		**= 19.83%**		**= 22.17 %**	

2. Proprietary Ratio =	Shareholders' Funds / Total Assets	
	SHF = Eq. Sh. Cap. + Reserves & Surplus + Preference Sh. Cap. – Fictitious Assets	
	Total Assets = Total Assets – Fictitious Assets	
	SHF = 10,00,000 + 7,00,000 + 4,00,000 - 20,000 = 20,80,000	
	TA = 30,00,000 – 20,000 = 29,80,000	
	= 20,80,000 / 29,80,000	
	= 0.70 : 1	

3. Debt – Equity Ratio =	Long Term Debt (Liabilities) / Shareholders Fund	
	LTL = Debentures + long term loans	
	SHF = Eq. Sh. Cap. + Reserves & Surplus + Preference Sh. Cap. – Fictitious Assets	
	LTL = 5,00,000	
	SHF = 10,00,000 + 7,00,000 + 4,00,000 - 20,000 = 20,80,000	
	= 5,00,000 / 20,80,000	
	= 0.24 : 1	

4. Capital Gearing Ratio =	Fixed Interest or Dividend Securities / Equity Shareholders Fund	
	FIS = Debentures + Preference share capital	

ESHF = Eq. Sh. Cap. + Reserves & Surplus – Fictitious Assets	
LTL = 9,00,000	
ESHF = 10,00,000 + 7,00,000 - 20,000 = 16,80,000	
= 9,00,000 16,80,000	
= 0.54 : 1	

5. Debtors Ratio = **(Avg. debt collection period)**	Debtors + Bills receivable Credit sales	**X** 365 / 360 days
	= 4,60,000 + 60,000 60,00,000	**X** 365 days
	= 0.461	**X** 365 days
	= 31.63 days **= 32 days (Aprox.)**	

Problem - 6

Two years' Balance sheets of Jamuna Company Ltd. are as follows:**[S. U. T.Y.-April, 1999]**

Liabilities	31-3-03	31-3-04	Assets	31-3-03	31-3-04
Equity share capital	1,00,000	1,50,000	Land and Buildings	1,00,000	90,000
10%Pref. Sh. capital	50,000	50,000	Machinery	90,000	90,000
General Reserve Profit &	30,000	30,000	Debtors	53,000	30,000
Loss A/c 12%	20,000	-----	Bills Receivable	20,000	12,000
Debentures Creditors	1,00,000	50,000	Stock	75,000	90,000
Bills payable	30,000	35,000	Bank Balance	15,000	35,000
Bank Overdraft	10,000	25,000	Cash Balance	2,000	13,000
O/s. Expenses	10,000 5,000	20,000 10,000	Profit & Loss A/c	----	10,000
	3,55,000	3,70,000		3,55,000	3,70,000

Additional Information:

	2002-'03	2003-04
	Rs.	Rs.
(1) Sales	3,65,000	2,19,000
(2) Cost of Goods sold	2,19,000	1,46,000
(3) Net profit (Before Pref. Dividend)	35,000	47,500
(4) Stock on 1-4-'02	71,000	---

Calculate following ratios and give your opinion about company position in 2003-'04 in comparisonwith 2002-'03. Whether it is positive or negative?

(1) Current ratio (2) Liquid ratio (3) Debtors ratio (Take 365 days for calculations) (4) Gross profitratio (5) Stock Turnover ratio (6) Rate of return on equity share-holders' funds.

Solution - 6 (problem related to comparative analysis between two years)

1. Current Ratio =	Current Assets / Current liabilities	
	Current Assets = Stock + debtors + Bills receivable + Cash + Bank Balance	
	Current Liabilities = Creditors + Bills payable	
	2002-03: = 53,000 +20,000 + 75,000 + 15,000 + 2,000 / 30,000 + 10,000 + 10,000 + 5,000	
	= 1,65,000 / 55,000	
	= 3 :1	
	2003-04: = 30,000 + 12,000 + 90,000 + 35,000 + 13,000 / 35,000 + 25,000 + 20,000 + 10,000	
	= 1,80,000 / 90,000	
	= **2 : 1**	

2. Liquid Ratio =	Liquid Assets / Liquid liabilities	

(Liquid) Quick Assets = Current Assets - Stock	
(Liquid) Quick Liabilities = Current Liabilities – BOD	
2002-03: = 1,65,000 - 75,000 55,000 - 10,000	
= 90,000 45,000	
= 2 :1	
2003-04: = 1,80,000 - 90,000 90,000 - 20,000	
= 90,000 70,000	
= **1.29 : 1**	

3. Debtors Ratio = **(Avg. debt collection period)**	Debtors + Bills receivable Credit sales	**X** 365 / 360 days
	2002-03: = 53,000 + 20,000 3,65,000	**X** 365 days
	= 73,000 3,65,000	**X** 365 days
	= 73 days	
	2003-04: = 30,000 + 12,000 2,19,000	**X** 365 days
	= 42,000 2,19,000	**X** 365 days
	= 70 days	

4. Gross Profit Margin =	Gross profit Sales	**X** 100
	GP = Sales - COGS **2002-03:** 365000 - 219000 = 1,46,000 **2003-04:** 219000 - 146000 = 73,000	
	2002-03: = 1,46,000 3,65,000	**X** 100
	= 40%	
	2003-04: = 73,000 2,19,000	**X** 100
	= 33.33%	

2. Stock Turnover Ratio =	Cost of goods sold Avg. Stock
	Avg. stock = Opening Stock + Closing Stock 2
	2002-03: 71000 + 75000 2 = 73,000 **2003-04:** 75000 + 90000 2 = 82,500
	2002-03: **=** 2,19,000 73,000
	= **3 times**
	2003-04:

= 1,46,000 82,500
= 1.77 times

7. Rate of return on Equity Shareholders Fund:	
2002-03 = PAT – Pref. Div. ESHF	**X** 100
ESHF = Eq. Sh. Cap. + Reserves & Surplus – Fictitious Assets	
ESHF = 1,00,000 + 30,000 + 20,000 **= 1,50,000**	
= 35,000 - 5,000 1,50,000	**X** 100
= 20 %	
2003-04: **ESHF:** 1,50,000 + 30,000 - 10,000 = 1,70,000	
= 47,500 - 5,000 1,70,000	**X** 100
= **25%**	

Problem - 7

The Balance Sheet as on 2002 and 2003 are as under:

Liabilities	2002	2003	Assets	2002	2003
Equity share capital	1,00,000	1,25,000	Land and Buildings	50,000	75,000
General Reserve Profit &	12,500	15,000	Plant Machinery	57,500	55,000
Loss A/c Creditors	10,000	7,500	Stock	10,000	12,500
Bills payable	5,000	6,250	Debtors	7,500	10,000
O/s. Expenses	3,750	7,500	Cash & Bank	5,000	7,500
Provident Fund	1,250	3,750	Bills Receivable	2,500	5,000
	7,500	5,000	Preliminary Exp.	7,500	5,000
	1,40,000	1,70,000		1,40,000	1,70,000

Profit & Loss A/c.

Particulars	2002	2003	Particulars	2002	2003
To Op. Stock	5,000	10,000	By Sales	62,500	1,12,500
To Purchase	37,500	47,500	By Closing Stock	10,000	12,500
To Office Exp.	7,500	10,000	By Profit on Sale of		
To Selling exp.	5,000	12,500	Furniture	2,500	----
To Fin. Exp.	2,500	15,000			
To Net Profit	17,500	30,000			
	75,000	1,25,000		75,000	1,25,000

Find out (1) Current Ratio (2) Stock Turnover Ratio (3) Gross Profit Ratio (4) Liquid Ratio (5) DebtorRatio (working days 300) (6) Return on Equity Capital employed (7) Ownership Ratio.

Solution - 7

1. Current Ratio =	$\frac{\text{Current Assets}}{\text{Current liabilities}}$	
	Current Assets = Stock + debtors + Bills receivable + Cash & Bank Balance	
	Current Liabilities = Creditors + Bills payable + O/s Exp. + PF	
	2002: $= \frac{10,000 + 7,500 + 5,000 + 2,500}{5,000 + 3,750 + 1,250 + 7,500}$	
	$= \frac{25,000}{17,500}$	
	= 1.43 :1	
	2003-04: $= \frac{12,500 + 10,000 + 7,500 + 5,000}{6,250 + 7,500 + 3,750 + 5,000}$	
	$= \frac{35,000}{22,500}$	
	= **1.56 : 1**	

2. Stock Turnover Ratio =	Cost of goods sold Avg. Stock
	Avg. stock = Opening Stock + Closing Stock 2
	2002-03: 5000 + 10000 2 = 7,500 **2003-04:** 10000 + 12500 2 = 11,250
	Gross Profit = Sales + Closing Stock - (Opening Stock + Purchase) **COGS =** Sales - GP
	2002: = 62,500 + 10,000 - (5,000 + 37,500) = 30,000 **COGS =** 62,500 - 30,000 **=** 32,500
	2003: = 1,12,500 + 12,500 - (10,000 + 47,500) = 67,500 **COGS =** 1,12,500 - 67,500 = 45,000
	2002-03: **=** 32,500 7,500
	= **4.33 times**
	2003-04: = 45,000 11,250
	= 4 times

3. Gross Profit Margin =	Gross profit Sales	**X** 100
	GP = Sales - COGS **2002-03:** **2002:** **=** 62,500 + 10,000 - (5,000 + 37,500) = 30,000 **2003-04:** **=** 1,12,500 + 12,500 - (10,000 + 47,500) = 67,500	
	2002-03: = 30,000 62,500	**X** 100
	= 48%	
	2003-04: = 67,500 1,12,500	**X** 100
	= 60%	

4. Liquid Ratio =	Liquid Assets Liquid liabilities	
	(Liquid) Quick Assets = Current Assets - Stock	
	(Liquid) Quick Liabilities = Current Liabilities – BOD	
	2002-03: = 25,000 - 10,000 17,500	
	= 15,000 17,500	
	= 0.86 :1	
	2003-04: = 35,000 - 12,500 22,500	

= 22,500 22,500	
= **1 : 1**	

5. Debtors Ratio = **(Avg. debt collection period)**	Debtors + Bills receivable Credit sales	**X** 300 days
	2002-03: = 7,500 + 2,500 62,500	**X** 300 days
	= 10,000 62,500	**X** 300 days
	= 48 days	
	2003-04: = 10,000 + 5,000 1,12,500	**X** 300 days
	= 15,000 1,12,500	**X** 300 days
	= 40 days	

6. Rate of return on Equity Shareholders Fund:		
	2002 = PAT – Pref. Div. ESHF	**X** 100
	ESHF = Eq. Sh. Cap. + Reserves & Surplus – Fictitious Assets	
	ESHF = 1,00,000 + 12,500 + 10,000 - 7,500 **= 1,15,000**	
	= 17,500 1,15,000	**X** 100
	= 15.22 %	
	2003:	

ESHF: 1,25,000 + 15,000 + 7,500 - 5,000 = 1,42,500	
= 30,000 / 1,42,500	**X** 100
= **21.05%**	

7. Ownership Ratio =	Shareholders' Funds / Total Assets	
	SHF = Eq. Sh. Cap. + Reserves & Surplus – Fictitious Assets	
	Total Assets = Total Assets – Fictitious Assets	
	2002 = SHF = 1,00,000 + 12,500 + 10,000 - 7,500 = 1,15,000	
	TA = 1,40,000 - 7,500 = 1,32,500	
	= 1,15,000 / 1,32,500	
	= 0.87 : 1 **OR** **= 87%**	
	2003 = SHF = 1,25,000 + 15,000 + 7,500 - 5,000 = 1,42,500	
	TA = 1,70,000 - 5,000 1,65,000	
	= 1,42,500 / 1,65,000	
	= 0.86 : 1 **OR** **= 86%**	

Problem - 8

Following are incomplete Trading & Profit and Loss A/c. and Balance Sheet.

Trading A/c.

Particular	Rs.	Particular	Rs.
To Op. stock	3,50,000	By Sales	(?)
To Purchase	(?)	By Closing Stock	(?)
To Purchase Return	87,000		
To Gross Profit			
	14,96,710		14,96,710

Profit & Loss A/c.

Particular	Rs.	Particular	Rs.
To Office Exp.	3,70,000	By Gross Profit	7,18,421
To Int. on Deb.	30,000	By Commission	(?)
To Tax. Provision	18,421		
To Net Profit			
	(?)		(?)

Balance Sheet

Particular	Rs.	Particular	Rs.
Paid Up Capital	5,00,000	Plant & machinery	7,00,000
General Reserve	(?)	Stock	(?)
P & L a/c.	(?)	Debtors	(?)
10% Debenture	(?)	Bank	62,500
Current Liabilities	6,00,000	Other Fixed Assets	(?)
	(?)		(?)

Find out missing items with the help of other details are as under:

1. Current Ratio was 2:1.
2. Closing Stock is 25% of Sales.
3. Proposed Dividend was 40% of paid up capital.
4. Gross profit Ratio was 60%.
5. Amount transfer to General Reserve is same as proposed Dividend.
6. Balance of P & L Account is calculated 10% of proposed dividend.
7. Commission income is 1/7 of Net profit.
8. Balance of General reserve is twice the current year transfer amount.

Solution - 8

Trading A/c.

Particular	Rs.	Particular	Rs.
To Op. stock	3,50,000	By Sales (?)	**11,97,368**
To Purchase (?)	**3,41,289**	By Closing Stock (?)	**2,99,342**
To Purchase Return	87,000		
To Gross Profit	7,18,421		
	14,96,710		**14,96,710**

Profit & Loss A/c.

Particular	Rs.	Particular	Rs.
To Office Exp.	3,70,000	By Gross Profit	7,18,421
To Int. on Deb.	30,000	By Commission (?)	**50,000**
To Tax. Provision	18,421		
To Net Profit	3,50,000		
	7,68,421		**7,68,421**

Balance Sheet

LIABILITIES	AMOUNT	ASSETS	AMOUNT
Paid Up Capital	5,00,000	Plant & machinery	7,00,000
General Reserve (?)	**6,00,000**	Stock (?)	**2,99,342**
P & L a/c. (?)	**20,000**	Debtors (?)	**8,38,158**
10% Debenture (?)	**3,00,000**	Bank (?)	62,500
Current Liabilities	6,00,000	Other Fixed Assets	**1,20,000**
	20,20,000		**20,20,000**

1. Gross Profit Margin =	$\frac{\text{Gross profit}}{\text{Sales}}$	**X** 100
	$60 = \frac{7,18,421}{\text{Sales}}$	**X** 100
	$\text{Sales} = \frac{7,18,421}{60}$	**X** 100
	Sales = 11,97,368	

2. Closing Stock =	**Sales x 25%**
	11,97,368 x 25%
	CS = 2,99,342

3. **Proposed Dividend** =	Paid up Capital x 40%
	= 5,00,000 x 40%
	PD = 2,00,000

4. General Reserve =	GR find out as per Proposed Dividend
	Proposed Dividend is 2,00,000
	So that Proposed Dividend = General Reserve
	GR = 2,00,000

5. Commission =	It is 1/7 part of Net Profit
	Commission = 3,50,000 x 1/7
	Commission = 50,000

6. Profit & Loss Account =	It is 10% of Proposed Dividend
	P & L A/c. = 2,00,000 x 10%
	P & L A/c. = 20,000

7. Debenture =	Rate of Interest is 10%
	Interest amount is Rs. 30,000
	So that, Debenture value is = 30,000 x 10/100
	= 3,00,000

8. Current Ratio =	$\frac{\text{Current Assets}}{\text{Current liabilities}}$	
	$2 = \frac{\text{Stock + debtors + Bank Balance}}{\text{Current Liability}}$	
	$2 = \frac{2,99,342 + \text{debtors} + 62,500}{}$	

6,00,000	
12,00,000 = Debtors + 3,61,842	
Debtors = 12,00,000 - 3,61,842	
Debtors = 8,38,158	

8. Current Ratio =	$\frac{\text{Current Assets}}{\text{Current liabilities}}$	
	$2 = \frac{\text{Stock + debtors + Bank Balance}}{\text{Current Liability}}$	
	$2 = \frac{2,99,342 + \text{debtors} + 62,500}{6,00,000}$	
	12,00,000 = Debtors + 3,61,842	
	Debtors = 12,00,000 - 3,61,842	
	Debtors = 8,38,158	

8. Balance of General Reserve =	It is twice of current year provision for General Reserve
	Current year provision is Rs. 2,00,000
	So that, Balance of G. R. = 2,00,000 x 2
	Balance of GR = 4,00,000
	Now, General Reserve = 4,00,000 + 2,00,000
	GR = 6,00,000

Problem -9

From the following information, prepare the Balance Sheet of ABB Ltd. Showing the details of working:

Paid up capital	Rs. 50,000
Plant and Machinery	Rs. 1,25,000
Total Sales (p.a.)	Rs. 5,00,000
Gross Profit	25%
Annual Credit Sales	80% of net sales
Current Ratio	2
Inventory Turnover	4
Fixed Assets Turnover	2
Sales Returns	20% of sales
Average collection period	73 days
Bank Credit to trade credit	2
Cash to Inventory	1 : 15
Total debt to current Liabilities	3

Solution - 9

1. Net Sales =	Total Sales - Sales Return
	= 5,00,000 - 1,00,000
	= Rs. 4,00,000
2. Credit Sales =	80% of Net Sales
	= 4,00,000 x 80%
	= Rs. 3,20,000
3. Gross Profit =	25% of Net sales
	= 4,00,000 x 25%
	= Rs. 1,00,000
4. Cost of Goods Sold =	Net Sales - Gross Profit
	= 4,00,000 - 1,00,000
	= Rs. 3,00,000
5. Inventory =	$\frac{\text{Cost of Goods Sold}}{\text{Inventory Turnover}}$
	$= \frac{3,00,000}{4}$
	= Rs. 75,000
6. Receivable Turnover =	$\frac{365}{73}$
	= 5

Receivables =	Credit Sales / Receivables Turnover
	= 3,20,000 / 5
	= Rs. 64,000
7. Cash =	1/5 of Inventory
	= 1/5 x 75,000
	= Rs. 5,000
8. Total Current Assets =	Inventory + Receivables + Cash
	= 75,000 + 64,000 + 5,000
	= Rs. 1,44,000
9. Total Current Liabilities =	Current Assets / 2
	= 1,44,000 / 2
	= Rs. 72,000
10. Bank Credit =	2/3 **x** Current Liabilities
	= 2/3 x 72,000
	= Rs. 48,000
11. Trade Credit =	1/2 of Bank Credit OR 1/3 of Current Liabilities
	Rs. 24,000
12. Total Debt =	Current Liabilities x 3
	72,000 x 3
	= Rs. 2,16,000
13. Long term debt =	Total Debt - Current Liabilities
	= 2,16,000 - 72,000
	= Rs. 1,44,000
14. Fixed Assets =	1/2 of Net Sales =
	1/2 x 4,00,000
	= Rs. 2,00,000
15. Other fixed Assets =	Fixed Assets - Plant & Machinery
	= 2,00,000 - 1,25,000
	= Rs. 75,000
16. Total Assets =	Fixed Assets + Current Assets

	= 2,00,000 + 1,44,000
	= 3,44,000
17. Net worth =	Total Assets - Total Debt
	3,44,000 - 2,16,000
	= Rs. 1,28,000
18. Reserves & Surplus =	Net worth - Paid Up capital
	= 1,28,000 - 50,000
	= Rs. 78,000

Balance Sheet

LIABILITIES	AMOUNT	ASSETS	AMOUNT
Paid Up Capital	50,000	Plant & machinery	1,25,000
Reserves & Surplus	78,000	Other Fixed Assets	75,000
Long term Debt	1,44,000	Inventory	75,000
Bank credit	48,000	Receivables	64,000
Trade credit	24,000	Cash	5,000
	3,44,000		**3,44,000**