Chapter III

Section “I” (Conceptual Exposition)
FINANCIAL STATEMENTS & ANALYSIS

3.1. INTRODUCTION:-
The conventional financial statement serves two fold purposes

1. To find out the results of operations of the organization for the period under consideration, and

2. To know the assets and liabilities of the organization as on particular data.

However, in order to measure accurately and precisely the financial health of the concern, it is necessary to regroup and rearrange the figures as disclosed by these conventional statement and then to draw conclusions. This is known as analysis and interpretation of financial statements.

3.2 WHAT IS “ANALYSIS”?
‘Analysis’ means “Resolving of anything into its constituent elements” or basic elements. The ‘analysis’ of financial data, would therefore consist in breaking down “a complex set of facts into simple elements i.e. the dissection of the complex statements into different components.

3.2.1 AN ANALYSIS OF FINANCIAL STATEMENTS WOULD INVOLVE:-

i. In case of profit and loss Account – breaking it down into various elements viz, gross sales, net sales, cost of sales, gross margin, operating expenses, operating net profit, non-operating incomes and expenses, net profits before and after tax the retained profits carried forward to next year.

ii. In case of balance sheet – breaking it down into total funds employed in the business, viz. proprietors’ funds and outside fixed liabilities and their employment in fixed assets, working capital and investments. Preparing the Balance Sheet and the Profit and Loss account in a vertical format with different grouping is mainly done to facilitate faster analysis of financial statements.

3.3 WHAT IS ‘INTERPRETATION’?
The term ‘Interpretation’ goes beyond the term ‘analyses. Interpretation means explanation, it means bringning the meaning of the financial statements with the help of the analysis. The term ‘interpretation’ of financial statements would consist in
explaining the real significance of the analysed statements. Thus an ‘analysis’ is a pre-requisite to ‘interpretation’.
‘Analysis’ therefore involves rearranging and regrouping of the financial statements into more simplified statements so as to facilitate “interpretation” and “interpretation” would involve coming to conclusion of forming an opinion or explanation of the significance of the financial statements with the help of their analysis.

3.3.1 OBJECTS OF ANALYSIS AND INTERPRETATION: -
Analysis and interpretation of the financial statements is normally undertaken to measure the current financial condition and the past profitability of an enterprise. From these measurements the next step is to draw conclusions about future. It is normally not possible to come to any conclusions from a mass of figures included in the usual annual financial statements. It is only the process of analysis and interpretation of these statements that would help in making these inferences.
Financial statement analysis technique is valuable both to the management as well as persons outside the business. Internally they assist in measuring and maintaining efficiency at various managerial levels. Externally they help in determining the desirability of otherwise of dealing with the enterprise. For instance, the banks or lenders would be assisted by the analysis of financial statements to determine whether and to what extent loan facilities or credit facilities can be granted and / or continued to an enterprise.

3.3.2 TYPE OF ANALYSIS OF FINANCIAL STATEMENTS: -
The analysis of financial statements may be broadly divided into:
1. Trend Analysis, which is also known as Dynamic Analysis of the Horizontal Analysis of financial Statements.
2. Structural Analysis, which is also known as Static Analysis of the Vertical Analysis of financial statements.

3.3.3 TYPES OF FINANCIAL STATEMENTS ANALYSIS: -
The financial statements analysis may be broadly divided into:
1. Trend analysis, which is also known as Dynamic analysis or the Horizontal analysis of financial statements.
2. Structural analysis, which is also known as Static analysis or the Vertical analysis of financial statements.
3.3.4 TRENDS ANALYSIS:-
The financial analysis, in this case, is made of the annual financial statements over a period of years, to study the trend of the affairs of the business of the enterprise. This is done by preparing the horizontal columnar comparative financial statements. The trend of movement in the assets, liabilities, expenses, incomes and profits of the enterprise are studied in such trend analysis.

3.3.5 STRUCTURAL OR STATIC ANALYSIS:-
The structural or static analysis of financial statements is an analysis of the position of the concern as on a particular date as disclosed by one set of financial statements. In this case, internal relationships within the statements are studied, for instance, the relationship between gross profit and sales or between current assets and current liabilities and so on. [1]

3.3.6 TOOLS OF FINANCIAL ANALYSIS:-
The financial analysis of the statements can be made with the help of various tools. The main tools of financial analysis are:-

1. Comparative statements
2. Common size statements
3. Ratio Analysis
4. Funds flow and Cash flow analysis.

3.3.7 FINANCIAL STATEMENTS ANALYSIS AND THEIR VERTICAL PRESENTATION:-
Before applying the various tools of financial management like ratio analysis, it is necessary that the complex financial statements are broken into simplified statements, so as to bring out the significance of various elements of these financial statements. The analysis of profit and loss account would involve its dissection into various components like gross sales, net sales, and cost of sales, gross margin, operating expenses, operating net profit, non-operating incomes and expenses, net profit before and after taxation, retained profit carried forward to next year. Similarly, the analysis of balance sheet would involve the determination of funds employed, its composition into own funds and owed funds, the employment of such funds in fixed assets and working capital. Making of such an analysis is made easier with the vertical presentation of financial statements. This form of presentation is also referred to as multistep financial statements.
Therefore before we study ratio analysis of financial statements, we must know how to convert the conventional financial statements into multi-step financial statements.

3.3.8 FINANCIAL ANALYSIS:-

Financial Analysis is the process of identifying the financial strength and weaknesses of the firm by properly establishing relationship between the items of balance sheets and the profits and loss Account. Financial Analysis as the name implies means the determination of Company’s financial condition at any particular point during its life cycle. A company provides financial information to the user through financial statements and Annual Reports. This is the means to present the Companies situation to owners, creditors and the general public.

The primary purpose of preparing the Financial Statements is to assist management in decision making.

1. To provide reliable and meaningful financial information about economic activities of the companies.
2. To provide Reliable information about changes in net resources of the company.
3. To provide financial information that assets in estimating and forecasting the earnings the companies.
4. To provide other needed information about changes in economic resources and obligations.
5. To disclose other information related to the financial statement that is relevant to user.

3.4 FINANCIAL RATIO:-

Financial Ratio indicates about the financial position of the company. A company is deemed to be financially sound if it is in a position to carry on its business smoothly and meet all its obligations both long-term as well as short term without strain. Thus, its financial position has to be judged from two angles long as well as short term. It is a sound principle of finance that long-term requirements of funds should be met out of long-term fund and short term requirements should be met of short-term funds. [2]

3.5 RATIO ANALYSIS:-

The performance of a Company can be said to be good or bad when the figures are compared with previous year or other Company. The relationship between two accounting figures expressed mathematically is known as financial ratio. A ratio helps an analyst to make qualitative judgment about the Company financial position and
performance. For instance current ratio is calculated by dividing current assets by current liabilities the ratio indicates a quantified relationship between current assets and current liabilities. This relationship is an index or yardstick which permits a qualitative judgment to be made about company ability to meet its current obligations. The ratio indicates quantitative relationship which may be used to make a qualitative judgment.

The method of using financial ratio is very common. Several Ratios are worked out using the financial data drawn from the balance sheet and profit and loss account. There are then studied each by itself and also in conjunction with other Ratio in order to give critical insight. [3]

The absolute accounting figures reported meaningful understanding of the performance and financial position of a company. An accounting figure conveys meaning when it is related to some other relevant information.

To measure the financial conditions of company there is a need of certain yardsticks. The yardsticks frequently used are a Ratio to each other. Analysis and Interpretation of various Ratios should give experienced skilled analyst a better understanding of the financial condition and performance of the firms than they would obtain from analysis of the financial data alone.

Financial Ratio Analysis is both a Science and an Art. The science part is the calculation of Ratio. The Art being their meaningful interpretation the latter requires considerable skill and experience and judgment on the part of financial analyst. The Ratio Analysis involves comparison for a useful interpretation of the financial statement. A Single Ratio in itself does not indicate favorable or unfavorable condition. It is to be compared with some standard. The comparison can be made with the following:-

1. Ratio calculated from the past financial statements of the same company.
2. Ratio of the selected companies specially the not progressive and successful at the same point in time.
3. Ratio of the Company. The simplest way to assess the performance of an industry is to compare its current year Ratio with past year Ratio. When such a comparison is made it shows the direction of change and indicates company financial position improved deteriorated or remained constant over the period. This kind of comparison is meaningful and valid only changed in the past. [4]
3.6 TYPES OF RATIO:-
Several Ratios can be calculated from the Accounting Data. They can be grouped in various classeses according to financial activity or function to be evaluated. Researchers, Creditors and investors do financial analysis to know the liquidity of profitability, efficiency and financial position of a company. On the other hand management is interested evaluating every aspect of the companies performance. Keeping in view the requirement of the various users, Ratio are classified

1. Liquidity Ratio.
2. Leverage Ratio
3. Activity Ratio.
4. Profitability Ratio.

Liquidity Ratio measures the Company ability to meet current obligation.
Leverage Ratio shows the proportion of debt and equity in financing the assets of the firm.
Activity Ratio indicates the firm efficiency in utilizing its assets.
Profitability Ratio measures the overall performance of the company.

3.6.1 LIQUIDITY RATIO
Liquidity Ratios measures the ability of the firm to meet its current obligations. In fact analysis of liquidity needs the preparation of cash obligations. In facts analysis of Liquidity needs the preparation of cash budgets and cash flow statements but liquidity Ratio by establishing a relationship between cash and other current assets to current obligation provides a quick measure of liquidity. It is necessary to have a proper balance between high liquidity and poor liquidity. Two important Ratios are used to measure liquidity. [5]

i. Current Ratio
ii. Quick Ratio

3.6.1.1 CURRENT RATIO:-
According to Donald Miller, “Current Ratio is generally recognized as the patriarch among Ratio” Current Ratio is calculated by dividing current assets by current liabilities.
Current Ratio = \( \frac{\text{Current Assets}}{\text{Current Liabilities}} \)

Current Assets included cash and those assets which can be converted into cash within a year like debtors, stocks, etc. All Debts maturing within a year are included in current liabilities. They include Creditors, Bills payable, overdraft, accrued expenses, Income Tax Liability and the other Debts maturing in the Current year. The current Ratio is a measure of the Company’s Short Term Solvency. It indicates the availability of current assets to meet current liabilities. “Current Ratio measures the number of items that Current Assets cover Current Liabilities as shown in the Balance Sheet.”

A Current Ratio of 2:1 has been considered satisfactory but at the same time indiscriminate use of this standard is unsound. A Ratio of greater than one means that the company has more current assets than current claims against them. A relatively low value of current ratio show low liquidity and a relatively high value of current ratio are considered as an indication that the company is liquid and are able to pay its debts.

The ratio of 2:1 which is considered as satisfactory can vary from industry to industry and within the same industry from company to company and within the same company from season to season. Ratio measures the number of times that current assets cover current liabilities. Current ratio is a crude and quick measure of the firm liquidity.\(^6\)

3.6.1.2 QUICK RATIO:-

Quick Ratio is also known as acid Test Ratio. This ratio established a relationship between Quick or Liquid Assets and Current Liabilities. An Asset is liquid if it can be converted into cash immediately without loss of value. Cash is the most Liquid Asset. The other Assets which are considered to be relatively liquid and included in Quick Assets are Debtors, Bills Receivable, Marketable securities Stock and prepaid expenses are considered to be less liquid the inventories take normally long time to be converted into cash. “Recognizing that inventory might not be very his ratio takes the Quick realizable assets and measure them against current liabilities”, The Quick or liquid assets are separated from current assets for calculating the quick or acid test
Ratio. The Quick Ratio is found out by dividing the Quick Assets by Current Liabilities.

\[
\text{Quick Ratio} = \frac{\text{Quick or Liquid Assets}}{\text{Current Liabilities}}
\]

Generally a Quick Ratio of 1:1 is considered as satisfactory. The Quick Ratio is a more rigorous and penetrating test of the liquidity position of the firm. “The usefulness of the ratio lies in the fact that it is widely accepted as the best available test liquidity position of a firm. [7]

3.6.2 LEVERAGE OR CAPITAL STRUCTURE RATIO OR STABILITY RATIOS

A Company should have a strong short-term as well as long-term financial position. To judge the long-term financial position of the firm, leverage can work in opposite direction. If the cost of debt is higher than firms’ overall rate of return the earnings of shareholders will be reduced. In addition, there is threat of insolvency. Leverage ratio is determining the proportion of debt. In total financing many variations of these ratios exist but these entire ratios indicate the same thing the extent to which the firm has relied on debt. Funds in financing assets [8]

3.6.2.1 DEBT EQUITY RATIO:-

The debt Equity ratio is the measure of relative claims of creditors and owners against the firm’s assets. “The debt – equity ratio shows the relationship between the long term funds provided by the creditors and those provided by the firm’s owners” debt Equity ratios is calculated in various ways one way is to calculate debt- equity ratio (D / E Ratio) as long – term debts (non-current liabilities) divided by the shareholders equity common.

\[
\text{Debt Equity Ratio} = \frac{\text{Long – Term Debt}}{\text{Shareholders equity}}
\]

Shareholders equity is equity to the net worth. Therefore, this ratio is called debt – To – net worth ratio. Debt equity ratio shows the extent to which debt. Financing has been used in the business. A considerable degree of risk is involved when a business is financed to a large extent by creditors. Creditors are greater than those of owners in high Debt – equity ratio. The utility of this ratio is that it reveals the long terms solvency. The normal and safe ratio is 2:1. If the ratio is higher it indicated that the
firm is depending heavily on creditors. If the ratio is low it means firm is depending mainly on internal sources and owner’s funds.

3.6.2.2 DEBT TO TOTAL CAPITAL RATIO:-

The Debt to total capital ratio is a variation of debt – equity ratio.

Debt to total capital ratio = Long Term debt / Permanent Capital.

The permanent capital includes the common shareholders, equity, preference, shareholder equity and long term debts. Ratio is equivalent to the total debt to total assets ratio, since permanent capital plus current liabilities represent the funds used to finance the assets. A low ratio represents security to creditors in extending credit. A high ratio represents a greater risk to creditors and also to shareholder under adverse business conditions. A very low ratio can worry the shareholders as the company is not using debt to their best advantage.

3.6.3 ACTIVITY RATIO:-

The funds of creditors and investors are invested in various kinds of assets to generate sale and profits by the company. Activity ratios are employed to evaluate the efficiency with which the company manages and utilizes its assets. These ratios are also called as turnover ratio. Because they indicate the speed with which assets are being converted or turned over into sales. Activity ratios measure how effectively the firm employs the resources at its command. The ratios involve comparison between the level of sales and the investment in various asset accounts. [9]

3.6.3.1 INVENTORY TURNOVER RATIO:-

The inventory turnover shows how rapidly the inventory is turning into receivable through sales. A high inventory turnover indicates good inventory management and lower inventory turnover suggests an inefficient inventory management. It is calculated by dividing the cost of goods sold by the average inventory. But the average inventory is calculated by adding the opening stock and closing stock and dividing it by two.

Inventory turnover = Cost of good Sold / Average Inventory
3.6.3.2 DEBTORS TURNOVER AND COLLECTION PERIOD:--

The debtor’s turnover shows the number of times on the average that debtor’s turnover each year. The higher the value of debtor’s turnover the more efficient is the management of assets.

Debtors turnover = \( \frac{\text{Total Sales.}}{\text{Debtors}} \)

Along with debtors turnover ratio average collection period ratio is also an important ratio which shows the average time to collect the debt.

Average collection period = \( \frac{\text{Debtors} \times \text{Days in years}}{\text{Sales}} \)

3.6.3.3 FIXED ASSETS TURNOVER RATIO:--

The fixed Assets Turnover ratio measures the efficiency with which the company is utilizing its investment in the fixed assets like land, plant and machinery furniture etc. This ratio is calculated by dividing the sales with fixed assets.

Fixed Assets Turnover = \( \frac{\text{Sales}}{\text{Fixed Assets}} \)

A high fixed assets turnover ratio show efficient utilization of fixed assets in generating sales. Mostly higher fixed assets turnover are preferred of course the calculated value is meaningful only when viewed in light of the firm’s past performance or an industry Average. \(^{[10]}\)

3.6.3.4 TOTAL ASSETS TURNOVER RATIO:--

The total assets turnover ratio measures the efficiency of the company in utilizing all the assets in generating sales and profit.

Total Assets Turnover = \( \frac{\text{Sales}}{\text{Total Assets}} \)

A high total assets turnover ratio indicates efficient assets utilization. This ratio increases there is more revenue generated total investment in assets.
3.6.4 PROFITABILITY RATIO:-
A profitability ratio is calculated to measure the operating efficiency of the company. The management creditors and investors are interested in the profitability of the company. Two major types of profitability ratios are calculated.

1. Profitability in relation to sales.
2. Profitability in relation to investment.
A company should produce adequate profit on each sale. [11]

3.6.4.1 NET PROFIT RATIO:-
The Net Profit Ratio measures the relationship between net profit and the sales. It is calculated by dividing net profit by sales.

\[
\text{Net Profit Ratio} = \frac{\text{Net Profit after taxes}}{\text{Sales}}
\]

This Ratio is the overall measure of company’s ability to turn each point of sales into net profit. If the Net Margin is inadequate the company will fail to achieve satisfactory return on owner’s equity. The higher the firm’s Net Profit the better.

3.6.4.2 RETURN ON INVESTMENT (ROI):-
The Profitability of the firm is also measured in relation to investment. Following are the important profitability ratios which are measured in relation to investment.

1. Return on Assets (ROA)
2. Return on Capital Employed (ROCE)

3.6.4.3 RETURN ON ASSETS (ROA):-
The return on assets in Net Profit divided by total assets

\[
\text{Return on Assets} = \frac{\text{Net Profit after Taxes}}{\text{Total Assets}}
\]

This Ratio excludes interest charges from the Net Profit figure. Therefore, to arrive at real earning the interest charges should be included in the Net Profit after taxes.

\[
\text{Return on Assets} = \frac{\text{Net Profit after Taxes} + \text{Interest}}{\text{Total Assets}}
\]
The return on assets is a useful measure of the profitability of all financial resources invested in company assets. It evaluates the use of total funds without any regard to the sources of funds.

3.6.4.4 RETURN ON CAPITAL EMPLOYED (ROCE):-

Return on Capital Employed indicated the relationship of Net Profit with permanent capital – non current liabilities plus shareholders equity. There are three variations of the return on capital employed.

1. ROCE = Net Profit after Taxes / Capital Employed

2. ROCE = Net Profit after Taxes + Interest / Capital Employed


The Return on Capital Employed indicates how well management has used the funds supplied by creditors and owners. The higher the ratio the more efficient the company in using funds. This Ratio when compared with the industry average or the ratio of the similar company in the industry or that of the same company over a period of time would provide sufficient insight into how efficient the long term funds of shareholders and creditors are being utilized.
Section “II” (Conceptual Exposition)
STATISTICAL ANALYSIS

3.7 MEANING AND USES OF STATISTICS:-
According to Samuel Hays “The Word statistics was first used in the eighteenth century to refer to collection and arrangement of facts mainly of a numerical type relating to the state and it is said to be derived from the Italian word ‘Statistica’ meaning statesman.
The terms ‘Statistics’ is now commonly used in two senses first as a plural noun, it means a collection of numerical facts like statistics of production, sales population etc. Secondly as a singular noun it denotes the methods adopted in the collection and analysis of such fact. Thirdly is used in variety of ways, each correct in its own sphere.
The definition so Statistics differ but essentially Statistics is a scientific approach to information presenting itself in numerical form which enables us to maximize our understanding of such information. The fundamental concepts of statistics are the same in all fields but these concepts are emphasized and utilized differently in each field.
The science of Statistics deals with:-
1. Collecting and summarizing data.
2. Designing experiments and surveys
3. Measuring the magnitude of variation in both experimental and survey data
4. Estimating and forecasting and determining accuracy of estimated
5. Studying relationship among data items

3.7.1 STATISTICS IN BUSINESS:-
Every Business today appreciates the value of accurate and regular financial statements in the conducts of its business. The widespread expansion in management accounting in recent years is attributable to the growing realization on the part of industrial community that without facts concerning output, cast turnover expenses etc. The development of statistics has provided that many aspects of progress depend on the correct analysis of numerical information particularly in economics and commerce. Increasingly figures have become the basis of rational decisions based on
figures give better results. Statistics is a valuable tool for business research. The role of statistic in business research is to function as a tool in analyzing its facts and drawing conclusions. In economic/financial research, statistical methods are almost indispensable. Various popular statistical tools like statistical averages, dispersion, skewness, time series analysis, correlation, and regression, etc., are commonly used for measuring liquidity, profitability, etc. The comparisons are made to draw conclusions. The factors affecting the profitability, liquidity, solvency, etc., of the business can be studied and analyzed using statistical tools such as averages, dispersion, correlation, and regression.

These measures help in reducing the size of data and enable us to make comparative studies of related variables and draw meaningful conclusions. Financial tools coupled with statistical tools facilitate better analysis of profitability, liquidity, etc., in the research of business and commerce. These techniques of quantitative data facilitate in drawing qualitative conclusions.

**3.8 MEAN DEVIATION:**

The measure of dispersion range, interquartile range, and quartile deviation takes into consideration two extreme values and does not consider all the observations of a series. Mean Deviation of a series is the arithmetic average of the deviation of various items from a measure of central tendency. Mean Deviation from median and mean is commonly used. Mean deviation is also known as the first moment of dispersion. Mean deviation from the mean is calculated by the following:

\[ DX = \frac{\sum |d_x|}{n} \]

If mean deviation is computed from the median, then the formula is

\[ DM = \frac{\sum |d_z|}{n} \]

Mean Deviation from the mode is calculated as

\[ DZ = \frac{\sum |d_z|}{n} \]
\( d = \) Deviation from mean or median or made mean deviation is an absolute measure of dispersion.

For relative measure Coefficient of mean deviation is calculated. Thus mean Coefficient of mean deviation is calculated. This mean Coefficient of dispersion from mean (m), median (M) and made (Z) would be respectively:

\[
\frac{\delta x}{m}, \quad \frac{\delta m}{M} \quad \text{and} \quad \frac{\delta z}{Z}.
\]

In case of discrete series the mean deviation is calculated by multiplying the deviation with respective frequency to obtain \( \int dm, \int dx, \int dz \). The total of products is divided by the total of frequency.

The calculation of mean deviation is continues series is done by the same procedure by which it is done in discrete series and consider the mid point of class interval.

**3.9 STANDARD DEVIATION:**

Standard deviation is the most commonly used measure of dispersion. It is an ideal measure of dispersion; standard deviation is the square root of the arithmetic average of the square of deviations measured from the mean. For calculating standard deviation mean is first calculated and deviation of various items from mean are squared and totaled and it is divided by the number of items symbolically.

\[
s = \sqrt{\frac{\sum d^2}{n}}
\]

\( s = \) Standard deviation.

\( \sum d^2 = \) Sum of the squares of the deviations from mean

\( n = \) Number of items.

Standard deviation is also an absolute measure of dispersion. For comparison purpose relative measure standard Co-efficient of dispersion or Co-efficient of standard deviation is calculated symbolically Coefficient of standard deviation: \( s/m \)

In continuous series the procedure is some like discrete series.
The method of calculating the coefficient correlation as per ‘Kar Pearsons’ formula is widely used in financial analysis because it indicates the co-variation of two series of factors and also indicates the direction of relationship. Correlation, Regression analysis is extensively used in business of financial analysis Regression analysis is used for predicting and forecasting future profits and investments sales etc. The index number is also a popular tool in business and economics. To sum up there are number of statistical techniques which are used in business and commerce for analysis and evaluation of financial data.

\[ r = \frac{\sum dx \cdot dy}{\sqrt{\sum dx^2 \cdot \sum dy^2}} \]

\[ dx = x - m_x \]
\[ dy = y - m_y \]

\[ m_x = \text{mean of } x \text{ series} \]
\[ m_y = \text{mean of } y \text{ series} \]
REFERENCES:-


6. Ibid.p42
7. Ibid.p43
8. Ibid.p44


20. S.P Gupta., Statistical methods, Sultan Chand and Sons, New Delhi 2002