CHAPTER 4
CONCEPTUAL FRAMEWORK OF
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4.1 MEANING OF FINANCIAL PERFORMANCE

The word ‘Performance’ is derived from the word ‘parfourmen’, which means ‘to do’, ‘to carry out’ or ‘to render’. It refers the act of performing, execution, accomplishment and fulfillment. In a border sense, performance refers to the accomplishment of a given task, measured against preset standards of accuracy, completeness, cost and speed. In other words, it refers to the degree to which an achievement is being or has been accomplished.

In the words of Frich Kohlar “The performance is a general term applied to a part or to all the conducts of activities of an organization over a period of time often with reference to past or projected cost efficiency, management responsibility or accountability or the like”. Performance is used to indicate firm’s success, conditions and compliance. In short, “performance” refers to overall conclusion of enterprise activities.

Financial performance means performing financial activities about any organization or business. We can decide the financial soundness of organization by analyzing financial performance. Financial performance refers to the act of performing financial activity. In a broader sense, financial performance refers to the degree to which financial objectives being or has been accomplished. It is the process of measuring the results of a firm’s policies and operations in monetary terms. It is used to measure firm’s overall financial health over a given period of time and can be also used to compare similar firms across the same industry or to compare industries or sectors in aggregation.

There are many different ways to measure financial performance, but all measures should be taken in aggregation. Line items such as revenue from operations, operating income or cash flow from operations can be used, as well as total unit sales. Furthermore, the analyst or investor may wish to look deeper into financial statements and try to find out margin growth rates or any declining debt.
4.2 MEANING OF FINANCIAL PERFORMANCE ANALYSIS

The financial performance analysis identifies the financial strengths and weaknesses of the firm by properly establishing relationships between the items of balance sheet and profit and loss account. The first task of financial performance analysis is to select the information relevant to the decision under consideration from the total information contained in the financial statements. The second is to arrange the information in a way to highlight significant relationships. The final task is interpretation and drawing of inferences and conclusions. In short, “financial performance analysis is the process of selection, relation and evaluation.”

Measurement of performance through the financial statement analysis provides a good knowledge about the behavior of financial variables for measuring the performance of different units in the industry and to indicate the trends of improvement in the organizations. The important areas of performance are as given below:

- Profitability performance,
- Liquidity performance,
- Working capital performance,
- Fixed assets performance,
- Fund flow performance,
- Social performance, etc.

The performance evaluation of any organization is depends upon the final accounts prepared and published by the organization. Performance evaluation of any organization is varying similar to the concept of checking human body. As we need medical checkup and routine examination for our bodies to maintain our fitness, likewise the performance appraisal of any organization is needed periodically as well as regularly.

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The need and importance of financial performance analysis rise for the viewpoint of different parties which are actively interested in the financial statements of any organization. The financial performance of the organization is very important for various parties like management, money lenders, government, public, investors, trade unions, public and many more.

In short, the firm itself as well as various interested groups such as managers, shareholders, creditors, tax authorities and others seeks answers to the following important questions:

i. **What is the Financial Position of the firm at a given point of time?**

ii. **How is the Financial Performance of the firm over a given period of time?**

These questions can be answered with the help of financial analysis of a firm. Financial analysis involves use of financial statements. Financial statements represent a summary of the financial information prepared in the required manner for the purpose of used by managers and external stakeholders. Financial reports are prepared basically to communicate with external shareholders about the financial position of the company that they own. Financial statement analysis is useful to anticipate future conditions at starting point for planning actions that will improve the firm’s future performance.
4.3 FINANCIAL STATEMENTS

The process that leads to the measurement of financial performance of an enterprise, passes through various stages such as an analysis of business transactions which are being expressed in terms of money, documentation of business transaction, recording of vouchers in a day book called “Journal”, classifying the transactions recorded by their nature called “Ledger”, summarizing the transactions so classified to understand and analyze the total effect of various activities called “Trial balance” and bifurcating the trial balance into “profit and loss account” and “balance sheet” to measure the financial performance and position of the enterprise.²

One of the most important functions of the accounting process is to accumulate and report historical accounting information. The most important general purpose reports are financial statements showing an organization’s financial position and results of its operations. These financial statements are the end result of financial accounting process.³

A financial statement is an organized collection of data according to logical and consistent accounting procedure. Its purpose is to convey an understanding of some financial aspects of a business firm. It may show a position at a moment in time in the case of a balance sheet, or may reveal a series of activities over a period of time, as in the case of an Income statement. Thus, financial statements are summarized periodical reports of financial and operating data accumulated by an enterprise in its books of accounts. Financial statements are periodical statements and the period for which they relate is known as accounting period, usually of one year’s duration.


In the words of Hampton, “A financial statement is an organized collection of data organized according to logical and consistent accounting procedures.”

In the words of Myer, “The term financial statements, as used in modern business, refer to the two statements which the accountants prepares at the end of a period of time for a business enterprise. They are the balance sheet or statement of financial position and the income statement or profit and loss statement.”

As McMullen has stated, “The principal financial statements published for the information of outsides are the balance sheet, the income statement, the statement of retained earnings or owner’s equity and the statement of changes in financial position (formerly usually known as the statement of sources and application of funds)”.

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4.4 TYPES OF FINANCIAL STATEMENTS

Financial statements comprise income statement, balance sheet and other statement that reveal the financial position and performance of a firm. They are the end products of the financial accounting process. The principle financial statements published for information of outsiders are the balance sheet, the income statement, later report such as statement of retained earnings, sources and uses of funds, fund flow and cash flow statements.\(^7\)

Figure 4.1

Types of Financial Statements

Income Statement:

The income statement usually designated as profit and loss account for the relevant financial year shows the net profit or net loss resulting from the operations of business during a specified period of time. It is a performance report recording the changes in income, expenses, profit and loss as a result of business operations during the year between two balance sheet dates. The income statement suggests a long range view of a business and shows where it is going.

In the words of Walgenbach, Dittrich and Hanson, “to show the net results of operations for a period, an income statement is prepared, which lists the revenues and expenses and presents the resulting net income amount”.  

Balance Sheet:

The balance sheet is a statement of assets and liabilities of a firm or what it owns and what it owes, as on a given date. In a balance sheet, the assets and liabilities are equal to each other. A balance sheet is a status report and as such it shows “what we have” and from “where” on the last date of the accounting year. The balance sheet is also known as “Statement of Financial Condition”, “Statement of Financial Position”, “Statement of Assets and Liabilities”, “Statement of Resources and Liabilities”, “Statement of Assets, Liabilities and Capital”, “Statement of Worth” and “Financial Statement”.

In the words of Pyle, white and Larson, “A balance sheet is so called because its two sides must always balance, the sum of the assets shown on the balance sheet must equal liabilities plus owner equity.”

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In the words of Block and Hirt, “the balance sheet indicates what the firm owns, and how these assets are financed in the form of liabilities or ownership interest.”

- **Statement of Retained Earnings:**

  Retained earnings represent the sum of earnings which have been kept by the enterprise over the years, that is, earnings not paid out in dividends. The statement of retained earnings indicates the magnitude and causes of changes in the retained earnings of the enterprise due to the year’s activities. The statement of retained earnings serves as the link between the income statement and the balance sheet. Thus, changes in the equity accounts between balance sheet dates are reported in the statement of retained earnings.

  As defined by Walgenbach and Dittrich, “A retained earnings statement is an analysis of the retained earnings accounts for the accounting period and is usually presented with the other corporate financial statements.”

- **Statement of Changes in Financial Position:**

  The statement of changes in financial position has recently become a required component of published corporate reports, equal in status to the balance sheet and the income statement. The statement of changes in financial position indicates both the sources and application of working capital. Thus, it reveals the sources from which funds have been received during the year and

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how these funds were used within the enterprise. The difference in the sources and application represents either net increase or decrease in working capital.

According to Hampton, “This statement shows the movement of funds into the firm’s current asset accounts from external sources such as stockholders, creditors and customers. It also shows the movement of funds to meet the firm’s obligations, retires stock or pay dividend.\textsuperscript{12}

This statement shows changes occur in working capital between two balance sheet dates. In this statement variation in the flow of funds and their sources is measurable and it is used for operating and financial analysis.

4.5 FINANCIAL STATEMENT ANALYSIS

Financial statement analysis consists in separating facts according to some definite plan, arranging them in a group according to certain circumstances and finally presenting them in a convenient readable and understandable form. Financial statement analysis is a process of getting an insight into the operating activities of a business enterprise. The first step is to select information from the total information available about a business data which are relevant to the decision under consideration. The second is to arrange the relevant data in a way that it will bring out significant relationships. The final step is to study these relationships and evaluate or interpret the results.

Information contained in balance sheet and profit and loss account is often in the form of raw data rather than as information useful for decision making. The process of converting the raw data contained in the financial statements into meaningful information for decision making is known as financial statement analysis. An analysis of both statements such as balance sheet and profit and loss account gives a comprehensive understanding of business operations and their impact on the financial health.

The process of analysis of financial statements involves the collection, comparison and study of financial data and the preparation, study and interpretation measuring devices used such as ratios, trends and percentages.

In the words of Hampton, financial statement analysis means “It is the process of determining the significant operating and financial characteristics of a firm from accounting data.”\(^{13}\)

According to Kennedy and McMullen, “The analysis of financial statements is an attempt to determine the significance and meaning of the financial

statement data so that a forecast may be made for prospects of future earnings, ability to pay interest and debt maturities (both current and long-term) and probability of a sound dividend policy.”

In the words of Metcalf and Titard, “Analyzing financial statements is a process of evaluating relationship between component parts of financial statements to obtain a better understanding of a firm’s position and performance.”

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4.6 OBJECTIVES OF FINANCIAL STATEMENT ANALYSIS

In a modern business organization, the analysis of financial statement has become of general interest to gain insight into operating and financial problems confronting the firm.\(^{16}\)

The purpose of financial statement analysis is to establish and present relationship and trends which inhere in the data contained in financial statements. The main objective of financial statements analysis are to know the profitability, solvency, financial strength, capability of payment of interest and dividend, trend of business, efficiency of management and to make comparative study with other firms and provide valuable information to the management to take necessary actions to overcome from its shortcomings.\(^{17}\)

In the words of Myer, “The analysis and interpretation of the financial statements of a business enterprise usually has as its objective the formation of an opinion with respect to the financial condition of that enterprise, that is, with respect to the status of that business in the economic world.”\(^{18}\)

The main purpose of financial statement analysis is to assist statement users in predicting the future by means of comparison, evolution and trend analysis. Thus, analysis of financial statement is important to the users who are interested in the functioning of a particular business.

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4.7 IMPORTANCE OF FINANCIAL STATEMENT ANALYSIS

The main importance of financial analysis is the pointing the strength and weakness of a business enterprise by regrouping and analyzing the figures contained in financial statements i.e. balance sheet and profit and loss account. An analysis of financial statements is more useful to the management and other interested parties.

- It is useful to management of an enterprise for measuring the success or the failure of the operations and controlling such operations.
- It is important to management for determining the relative efficiency of departments and process.
- It is useful for making sound decision relating to all the sectors of a firm.
- To judge the solvency of the undertaking and trade creditors who are mainly interested in assessing the liquidity position for which they look to the assets.
- In case of institutional investors financial analysis useful to identify the growth potential and sound financial base for a firm.
- Government uses financial analysis for the purpose of formulation of policies, regulations and administration of the economy.
4.8 LIMITATIONS OF FINANCIAL STATEMENT ANALYSIS

An analysis of financial statement helps the different groups to make an assessment of the earning capacity and financial soundness of the business. But it has some limitations also, which should always be born in mind while relying on it.

- First we should not forget that financial statements are essentially interim report and not final. Because these are prepared for one year or sometimes half yearly, quarterly but actual profit or loss of the enterprise can only be known when the business is closed down.
- Secondly, qualitative aspects of business enterprise such as changes in management, honesty, dynamism and efficiency of management, goodwill of business, relationship between labour and management, ability to develop new products and customer satisfaction which have significant bearing on the progress and future prospects of an organization are ignored and omitted because all of these cannot be expressed in monetary terms. Hence such analysis will not be reliable, meaningful and productive.
- Thirdly, different accounting policies are adopted by different firms, for calculating depreciation, valuation of closing stock, etc. So that true comparison may not be possible.
- Fourthly, financial analysis suffers from some limitations of financial statements such as influence of accounting concepts and conventions, personal judgment and disclosure of monetary facts only. Fifthly, financial analysis is based on financial statements; these statements are prepared on the basis of historical cost. They do not record changes on account of changes in the price level.
- Lastly, the main limitation of financial statement analysis is that the modern business is changing and developing at a very faster rate, as stated earlier financial statements are based on historical facts, the analysis of past information may not be of much useful in forecasting.
4.9 TOOLS AND TECHNIQUES OF FINANCIAL STATEMENT ANALYSIS

Profit & loss account, balance sheet and other financial statements prepared at the end of the year therefore they do not convey real significance of operating results and financial health of the business to the users of the financial statements. The tools of analysis of financial statements are intended to show relationships and changes between financial data.

Analysis of financial statement may be done horizontally and vertically both. In horizontal analysis, financial statements for a number of years are compared with base years. In horizontal analysis increase and decrease of items represented in absolute figure as well as in percentage form. Horizontal analysis is based on data from year to year rather than only one year therefore it is called “Dynamic analysis”.

In case of vertical analysis, financial statement for a single year or on a particular date are reviewed and analyzed. In a vertical analysis, an analysis is based on the data of a single year therefore it is also known as “Static Analysis”.

In order to make a proper analysis, the user depends to the many techniques which may be used analyzing the financial statements. These techniques may be classified as follows:

- Accounting Techniques
- Statistical Techniques
- Mathematical Techniques

➤ Accounting Techniques:

There are many accounting techniques and tools which are used for financial analysis such as ratio analysis, common size statement analysis, trend analysis, comparative statement analysis and many more. The analysts use any suitable technique for their requirement on the basis of data available to them.
Ratio Analysis:

To evaluate the financial condition and performance of an enterprise, the financial analyst needs certain yardsticks. One of such yardsticks frequently used is a ratio or index, relating two pieces of financial data to each other. Ratios, as a tool of financial management, can be expressed as (i) percentage, (ii) fraction and (iii) a stated comparison between numbers.

In the words of Hunt, Williams and Donaldson, “Ratios are simply a means of highlighting in arithmetical terms the relationships between figures drawn from financial statements.”\(^{19}\)

According to Betty, “The term ‘accounting ratios’ used to describe significant relationships which exist between figures shown on a balance sheet, in a profit and loss account, in a budgetary control system, or in any other part of the accounting organization.”\(^{20}\)

Helfert defines Ratio analysis as, “Ratio analysis provides guides and clues especially in spotting trends towards better or poor performance, and in finding out significant deviation from any average or relatively applicable standard.”\(^{21}\)

As Herbert suggested, “Four types of financial ratios are commonly used – (1) Liquidity ratios, (2) Profitability ratios, (3) Activity ratios and (4) Leverage ratios.”\(^{22}\)

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• **Trend Analysis:**

Trend analysis is a horizontal analysis of financial statements, often called as ‘pyramid method’ of ratio analysis – a guide to yearly changes. Trend analysis makes it easy to understand the changes in an item or a group of items over a period of time and to draw conclusions regarding the changes in data.

In the words of Walgenbach, Dittrich and Hanson, “One of the most useful forms of horizontal analysis is trend analysis. It is especially helpful in revealing proportionate changes over time in selected financial statement data.”

This method involves the computation of the percentage relationship that each statement item bears to the same item in the ‘base year’. Trends and percentages show changes in the financial and operating data between specific dates or periods and study of comparative financial statement data.

• **Common Size Statement:**

The common size statements are known as “Component percentage statements or vertical statements.” In this technique, total assets or liabilities and the figures of net sales are taken equal to 100 and the percentages of individual items are calculated on this base. Common size financial statements are very useful for pointing out important changes in the components from one year to the next year when comparative common size financial statements are prepared.

• **Comparative Statement Analysis:**

It is another technique used in analyzing financial data. Comparative financial statements are statements of financial position of a business so designed as to provide the perspective to the consideration of various elements of financial position. For this purpose the Balance sheet and Profit & Loss account are

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prepared in comparative form. These statements also show changes from one year to another in a percentage form.

➢ **Statistical Techniques:**

The use of statistical techniques has become a normal phenomenon for any type of analysis. The statistical techniques which are proposed to be used in financial statements analysis are Measures of central tendency, Measures of dispersion, Correlation and regression analysis, Analysis of time series, Analysis of variance, Chi-square test, t test, index number and diagrammatic and graphic presentation of data.

Brief descriptions of these techniques are as follows:

- **Measures of Central Tendency:**

For the purpose of the analysis of financial statements user may need a value from the collected data which may represent the whole data. This can be possible by selecting any one or more of the methods used to measure central tendency. As the name suggests a measures of central tendency gives the central value of the variable which representative of values in the mass of data has been taken.

In the words of Brittle, “The most useful way of locating the data is to compute a measure of central tendency. The measure of central tendency will give us one summary statistic indicating the location of data.”

Tuttle has explained “The measures of central tendency as an average and observes that the centre of a distribution of numbers is called an average of the distribution.”

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Croxton, Cowden and Klein defines there are five measures of central tendency – (i) the arithmetic mean, (ii) the median, (iii) the mode, (iv) the geometric mean, and (v) the harmonic mean.\(^{26}\)

The measures of central tendency occupy an important place in the techniques of statistical analysis because many other techniques of statistical analysis depend upon this measure. The average reduces the large number of observations to one figure. The main object of a measure of central tendency is to give a brief picture of a large group which it represents and to give a basis of comparison with other groups.

- **Measures of Dispersion:**

The measures of dispersion give an idea of the extent to which the data are “spread out” or “scattered”. The dispersion is also referred as spread, scatter, deviation, variability or non-uniformity.

According to Levin, “Dispersion refers to the spread of the data, that is, the extent to which the observations are scattered.”\(^ {27}\)

Riggleman and Frisbee describes, “There are four common measures of dispersion: the range, the quartile deviation, the average deviation and the standard deviation.”\(^ {28}\)

These measures can be stated in two ways. One method of statement shows the absolute amount of deviation, while the other presents the relative amount of deviation. For the purpose of comparison, the absolute amount of measurement is not always as valuable as an expression of the relative amount. The measures of dispersion which are expressed in terms of the

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original units of a series are termed as ‘absolute measure’. Relative measures of dispersion are obtained as ratios or percentages known as ‘co-efficient’ which are pure numbers independent of the units of measurement. Therefore for the purpose of comparison of variability the relative measures of dispersion should be computed.

- **Correlation and Regression Analysis:**

This method describes the average relationship between two or more variables. Correlation analysis is a technique used to test the association between two sets of paired data, while regression analysis is a technique to test the functional relationships between two sets of paired data. Both correlation and regression analysis are tools which are used to analyze a specific type of paired data. These are different methods and they may be used jointly but they have entirely different meanings.

In the words of Greenwald, “Correlation and regression consist of a body of methods for summarizing, quantitatively, the relations between two or more variables.”

- **Analysis of Time Series:**

The time series is an arrangement of statistical data in accordance with the time of its occurrence. Such series are important in the field of population, bank deposits, output, sales and profit. Time series is used to detect patterns of change in statistical information over regular intervals of time.

According to Wessel, Willett and Simone, “The variation of time series is usually broken down into four component elements: secular trend, seasonal variation, cyclical variation and random or irregular influences.”

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According to Greenwald, “A time series is a temporal sequence or distribution with the observations chronologically arranged. Since time is present explicitly as a variable, time series analysis often is considered a study of dynamic variability.”  

The changes in data are the results of the combined impact of these four components. Thus, one can say that the original data (Y) is equal to the sum of components:

\[ Y = T + S + C + I \]

Where, \( Y \)=original data,

- \( T \)= Secular trend,
- \( S \)=Seasonal variation,
- \( C \)=Cyclical variation,
- \( I \)=Irregular influences.

This is an expression of the original series in the elements of the time series.

- **Diagrammatic and Graphic Presentation of Data:**

Diagrams and graphs are visual aids which give a bird’s eye view of a given set of numerical data. They present the data in a simple, readily comprehensible and intelligible form. Graphical presentation of statistical data gives pictorial effects to what would otherwise be just a mass of figures. Diagrams and graphs depict more information than the data shown in the table. These clarify the existing trend in the data and how the trend changes.

In the words of Mills, “When the results of observations or statistical investigations have been secured in quantitative form, one of the first steps

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towards analysis and interpretation of the data is that of presenting these results graphically.\(^\text{32}\)

The various types of diagrams used are:

i. **One Dimensional Diagram:**
   - Line diagram,
   - Simple bar diagram,
   - Multiple bar diagram,
   - Sub-divided bar diagram,
   - Percentage sub-divided bar diagram,
   - Other bar diagrams.

ii. **Two Dimensional Diagram:**
   - Rectangles,
   - Squares,
   - Circular or pie diagram.

iii. **Three dimensional diagram**

iv. **Mapographs, etc.**

Like a diagram many numbers of graphs are used in practice. The main types of graphs are:

I. **Graphs of frequency distribution**

II. **Graphs of time series.**

The most commonly used frequency distribution graphs are Histogram, Frequency curves, Frequency polygon, Cumulative curve and the various types of time series graphs are net balance graphs, range or variation graphs, components or brand graphs, horizontal line graphs, etc.

For presenting the data in a simple and intelligible form the techniques of diagrammatic as well as graphic presentation of data are proposed to be applied.

- **Analysis of Variance:**

This is another most important tool of statistical analysis which has been developed specially to test the hypothesis whether the means of several samples have significant differences or not. The analysis of variance furnishes a technique for testing simultaneously the significance of the differences among several means. From this technique one is able to determine whether the samples have the same mean as the population from which they have been drawn.

According to Levin, “Analysis of variance is the test for the significance of the difference between more than two sample means. Using analysis of variance, we will be able to make inferences about whether our samples are drawn from populations having the same mean.”

- **Index Numbers:**

In the simplest form index number is nothing more than a relative number, or a “relative” which express the relationship between two figures, where one of the figures is used as a base.

Croxton and Crowden describe index number as, “Index numbers are devices for measuring differences in magnitude of a group of related variables.”

According to Lawrence J. Kaplan an index number is a statistical measure of fluctuations in a variable arranged in the form of a series and using a base for making comparison. The index number is used to represent diverse changes in a group of related variables. It represents changes in terms of rates, ratios

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or percentages called ‘relatives’ such as ‘price relatives’ and ‘quantity relatives’. 

- **Chi-Square Test:**

The Chi-Square Test ($X^2$) is one of the simplest and most widely used non-parametric tests in statistics.

In the words of, Jersome D. Bravesman, “The Chi-Square distribution is a continuous probability distribution which has the value zero at its lower limit and extraction. Negative value of Chi-Square is impossible.”

The formula used for calculation of chi-square is as follows:

$$\text{Chi – square} = \frac{(O-E)^2}{E}$$

Reject: $X^2 > \text{Table value}$ & Accept: $X^2 \leq \text{Table value}$

Where “O” refers the observed values and “E” refers to the expected values. Chi-Square has an approximate Chi-Square distribution and critical values of Chi-Square are obtained from the tables of Chi-Square distribution. The expected values will be determined with help of assumption that the data come from the hypothesized distribution. The expected value will be calculated with help of regression Analysis and Time – series Analysis.

- **t-test:**

t-test applies only in case of small samples when population variance is unknown. It is based on t-distribution and is considered appropriate test for judging the significance of difference between the means of two samples in case of small sample(s) when population variance is not known. In case of two samples pared t-test is used for judging the significance of the mean of difference between the two related samples. It can also be used for judging

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the significance of the coefficients of simple and partial correlations. The relevant test statistic, \( t \), is calculated from the sample data and then compared with its probable value based on t-distribution (from the table) at a specific level of significant for concerning degrees of freedom for accepting or rejecting the null hypothesis.

\[
t = \frac{\bar{x} - \mu}{\sigma / \sqrt{n}}
\]

Reject: \( t > \) Table value and Accept: \( t \leq \) Table value.

- **Kruskal Wallis One way Analysis of Variance Test:**

According to James V. Bradely, “This test is the rank randomization analogue of the observation – randomization test.”\(^{36}\)

In the words of William J. Stevenson, “it is a one way analysis of variance test that employs ranks rather than actual measurements and its assumptions concerning data are relatively weak.”\(^{37}\)

The calculations are accomplished by converting each observation to a rank. While ranking the observations, all the values are treated as if they belong to one sample. The ranks are given from the lowest number to the highest number.

The sum of ranks in each sample, the sample size and the total number of observation are used to compute statistic ‘H’ where,

\[
H = \frac{12}{N(N+1)} \sum_{j=1}^{k} \frac{R_j^2}{n_j} - 3(N+1)
\]

Where: \( N \): Total number of observations


K: Total number of samples
N_{ij}: The number of observation in the jth sample
R_j: The sum of ranks in jth sample.

➤ **Mathematical Techniques:**

The use of various mathematical techniques is also common for financial analysis. The mathematical tools generally applied are – Programme Evaluation and Review Techniques (PERT), Critical Path Method (CPM) and Linear Programming which gives better analysis and interpretation of financial data.
4.10 RATIO ANALYSIS

Ratio analysis is a comprehensive tool of analysis which seeks to measure and establish cause and effect relationships between two items of balance sheet like current ratio i.e. ratio of current assets to current liabilities, or profit and loss account like gross profit ratio i.e. gross profit to sales, or both balance sheet and profit and loss account like return on net worth i.e. profit after tax to net worth. Ratios are used to assess the return on investment, solvency, liquidity, profitability, resource efficiency, capital market and valuation of the company.

Thus ratio analysis relatively more focused analysis of financial statements. It is also used in further analysis of other tools. Ratio analysis has significance in the following cases:

- Inter firm comparison
- Intra firm comparison
- Comparison against industry benchmarks
- Analysis of chronological performance over a long period.
Return on Investment Ratios (ROI)

Maximization of return on investment is the ultimate objective of the company management. It is the expectation of a high return that motivates equity shareholders to continue with the company and new investors to put in their money in the company’s equity. It is also the ultimate measure of the efficiency of performance of a management. The major ratios included in this group are:

- **Return on Net Worth – RONW**
- **Earnings Per Share – EPS**
- **Cash Earning Per Share – CEPS**
Return on Net Worth – RONW:

This ratio measures the net profit earned on the equity shareholders funds. It is the measure of overall profitability of a company after discharging cost of borrowed capital and income tax payable to the government. This ratio is also known as Return on Equity Ratio. This ratio is important not only to equity shareholders but also to the all stake holders. A high ratio usually refers a high dividend, more internal accruals, loyal customers, reasonably assured quality products, high valuation in the capital market, better ability to retain and attracts talented employees and greater contribution to the economy and the society.

\[
RONW = \frac{(PAT - \text{Preference Dividend}) \times 100}{\text{Equity Shareholder’s Funds or Net Worth}}
\]

Where, \(PAT = \text{Profit After Tax}\)

Net Worth = Equity capital + Reserves & Surplus – Miscellaneous Expenditure not written off.

Earnings Per Share – EPS:

This ratio measures the overall profitability in terms of per equity share of capital contributed by the owners. This ratio most widely used in industries and capital market. It is the first and most important ratio which strikes in the mind of shareholders and analysts while looking into the performance of company. This ratio does not provide any basis for the valuation of shares at the time of mergers and acquisition, take over and valuation of the shares in case of strategic investments made by capital partners.

\[
EPS = \frac{PAT - \text{Preference Dividend}}{\text{Weighted average No. of equity shares outstanding}}
\]

Cash Earning Per Share – CEPS:

This ratio measures the overall cash profitability in terms of per equity share of capital contributed by the owners. It is a refinement of EPS and it takes into
account the cash earning and not accrued based earnings. Here adjustments of non cash charges like depreciation, amortization, miscellaneous expenditure w/o, provisions, etc. are required in accrual based profit. This ratio is important for long gestation projects and start up cases, where company might report a loss it may still be able to serve its obligations towards its lenders and meet its operating expenses.

\[
\text{CEPS} = \text{PAT} - \text{Preference Dividend} + \text{Non Cash Charges}
\]

Weighted average No. of equity shares outstanding

➢ **Liquidity Ratios**

The capacity of a company to discharge its suppliers and service providers and to meet its day to day expenses indicates its liquidity and ensures smooth continuity of operations, which in turn have a strong bearing on the long term survival of the company. The liquidity position of a company is determined by analyzing the structure of current assets and liabilities, credit period allowed to the customers, credit period received from suppliers and inventory holding of the company. The major ratios in this group are:

- **Current Ratio,**
- **Quick Ratio,**
- **Collection Period Allowed to Customers,**
- **Suppliers Credit and**
- **Inventory Holding Period.**

**Current Ratio:**

This ratio helps in studying the structure of the current assets and liabilities of a company with the objective of assessing its capacity to discharge its day-to-day obligations. Generally a company needs to possess adequate level of current assets over its current liabilities to be able to do so. This ability enables it to attract cheaper credit and puts the suppliers and institution in a more comfortable position.
Current Ratio (Times) =

\[
\text{Current Ratio} = \frac{\text{Current Assets, Loans and Advances} + \text{Short Term Investments}}{\text{Current Liabilities} + \text{Provisions} + \text{Short Term Debt}}
\]

- **Quick Ratio:**

This ratio is further refinement of current ratio with more realistic properties. This ratio measures as how quick the ability of a company to discharge its current liabilities net of working capital limits, as when they fall due, out of cash or current assets net of inventories that it possesses. Inventory takes the longest of all the current assets to convert into cash. Working capital limits are sanctioned and renewed on a yearly basis and not settled daily. Hence both are excluded. This ratio is also known as **Acid-test ratio.**

\[
\text{Quick Ratio} = \frac{\text{Current Assets, Loans and Advances} - \text{Inventories} + \text{Short Term Investments}}{\text{Current Liabilities} + \text{Provisions} + \text{Short term Debt net of working capital limits}}
\]

- **Collection Period Allowed to Customers:**

This ratio helps analysts understand the credit period extended by a company to its customers as well as the credit enjoyed from its suppliers. This ratio measures the credit period allowed to the customers on credit sales or how fast a company realizes its outstanding dues. A company needs to follow a shorter duration for collection of dues by which more cash liquidity is possible for a firm.

\[
\text{Collection Period Allowed to Customers (Days)} = \frac{\text{Receivables} \times 3}{\text{Credit Sales}}
\]

- **Suppliers Credit:**

This ratio helps in analyst to understand the credit policy extended to a company by its suppliers as well as credit allowed to its customers. This ratio measures the average credit period availed by a company from its suppliers
on credit purchases or how much leverage it possesses to settle its outstanding payable.

\[
\text{Suppliers credit (Days)} = \frac{\text{Payables} \times 365}{\text{Credit Purchases}}
\]

- **Inventory Holding Period:**

This ratio measures the period of the inventory build up or the number of days that cash is blocked in inventory or how fast a company is able to convert its inventory into cash. The inventory levels need to be such that they allow a company to block minimum cash into them without the risk of servicing the customers. A more investment in inventory results in less liquidity for a firm therefore firm should avoid this type of situation.

\[
\text{Inventory Holding Period (Days)} = \frac{\text{Inventory} \times 365}{\text{Cost of Goods Sold (COGS)}}
\]

- **Turnover Ratios / Resource Efficiency Ratios**

It is observed that efficient utilization and optimum capital structure are the key drivers of Return on Investment Ratios but the efficiency with which the assets and resources of a company are utilized in generating operational revenue has a direct bearing on the top line. Therefore it is important for analyst to study the major turnover ratios. The major ratios in this group are:

- Fixed Assets Turnover Ratio,
- Net Worth Turnover Ratio,
- Debtors Turnover Ratio,
- Inventory Turnover Ratio,
- Working Capital Turnover Ratio and
- Creditors Turnover Ratio.
- **Fixed Assets Turnover Ratio:**

This ratio measures the extent of turnover or volume of gross income generated by the fixed assets of a company. In other words, it represents how efficiently the company utilized its fixed assets. Fixed assets are the income generating assets of a company. Therefore, the more efficiently it utilized, the more they contribute towards operating revenues. This ratio plays a very important role in improving the overall profitability and financial position of a company.

\[
\text{Fixed Assets Turnover Ratio (Times)} = \frac{\text{Net Sales}}{\text{Net Block of Fixed Assets}}
\]

- **Net Worth Turnover Ratio:**

This ratio measures the extent of turnover or volume of gross income generated by the net worth of a company. An optimum capital structure provides leverage advantage to the equity holders. Therefore, an analyst needs to study and assess the net worth efficiency of a company together with its fixed assets efficiency. Hence, these ratios are the most important in improving the overall profitability and financial position of a company.

\[
\text{Net Worth Turnover Ratio (Times)} = \frac{\text{Net Sales}}{\frac{\text{Equity Shareholders Funds}}{\text{Net Worth}}}
\]

Where, \( \text{Net Worth} = \text{Equity capital + Reserves & surplus} - \text{Miscellaneous expenditure not written off} \).

- **Debtors Turnover Ratio:**

This ratio indicates the relationship between net credit sales and trade debtors. It shows the rate at which cash is generated by the turnover of debtors. A higher debtor’s turnover ratio indicates that debts are being collected more quickly. The changes in the ratio show the changes in the company’s credit policy or changes in the ability to collect from its debtors.
Debtors Turnover Ratio (Times) = \( \frac{\text{Credit Sales}}{\text{Average Debtors}} \)

- **Inventory Turnover Ratio:**

  This ratio establishes the relationship between the cost of goods sold during a given period and the average amount of stock carried during the period. This ratio indicates the efficiency of a firm’s inventory management. This ratio indicates the rate at which stocks are converted into sales and then into cash. A low inventory turnover ratio is an indicator of poor business, accumulation of inventory, over investment in inventory or unsalable goods. Higher the inventory ratio indicates a good position because sales are high and investment in stock is less.

  Thus a too high and too low inventory turnover ratio may not be good and should be avoided therefore a company should have a proper inventory turnover ratio so that it is able to earn a reasonable margin of profit.

  \[ \text{Inventory Turnover Ratio (Times)} = \frac{\text{Cost of Goods Sold (COGS)}}{\text{Inventory}} \]

- **Working Capital Turnover Ratio:**

  This ratio indicates the efficiency or inefficiency in the utilization of working capital in making sales. A high working capital turnover ratio shows the efficient utilization of working capital in generating sales. On the other hand, a low ratio indicates excess of net working capital. Thus this ratio shows that whether working capital is efficiently utilized or not. This ratio gives a better picture of working capital position because it covers whole working capital.

  \[ \text{Working Capital Turnover Ratio} = \frac{\text{Sales} / \text{Cost of sales}}{\text{Net Working capital}} \]

  Where, Net Working Capital means current assets minus current liabilities.
- **Creditors Turnover Ratio:**

This ratio shows the relationship between credit purchases and average account payable. The significance of this ratio lays that creditors constitute one of the important item of current liabilities and this ratio indicates how many days purchase are tied up in the amount of creditors. A higher the ratio indicates that time duration for payment to creditors is high and a liberal credit policy maintained by the suppliers.

\[
\text{Creditors Turnover Ratio} = \frac{\text{Net Credit Purchase}}{\text{Average Accounts Payable}}
\]

- **Solvency Ratios**

The capacity of a company to discharge its obligations towards long term lenders indicates its financial strength and ensures its long term survival. It is important for analyst to study the solvency position or leveraging capacity of a company. It is important to analyze the capacity of a company to raise further capital and borrowings. These ratios are useful to banks, financial institutions and other lenders to assess the credit worthiness of a company. The major ratios covered under this group are:

- **Net Asset Value (NAV),**
- **Debt Equity (D/E) Ratio,**
- **Interest Coverage Ratio,**
- **Debt Service Coverage Ratio (DSCR),**
- **Proprietor’s Ratio and**
- **Capital Gearing Ratio.**

- **Net Asset Value (NAV):**

This ratio measures the net worth or net asset value per equity share. Thus it seeks to assess that at what extent the value of equity share of a company contributed at par or at premium has grown or the wealth/value has been created for the shareholders. It is also known as net worth per share or book
value per share. Higher the ratio, higher the capacity of a company to increase further borrowed fund or owner’ fund.

\[
\text{NAV (Rs.)} = \frac{\text{Equity Share Holders Funds}}{\text{No. of Equity Shares o/s}}
\]

- **Debt Equity Ratio:**

  This ratio measures the proportion of debt and capital – both equity and preference in the capital structure of a company. Thus this ratio measures the extent of assets financed through the long term borrowings. This ratio helps in assessing whether a company is relying more on debt or capital for financing assets. Higher the debt more is the financial risk of default in interest and debt service. Therefore company needs an optimal capital structure in the form of equity and debt.

  \[
  \text{Debt Equity Ratio (Times)} = \frac{\text{Long term debt}}{\text{Total Net Worth}}
  \]

  Where, Net Worth = Equity Share Holders Funds + Preference Capital.

- **Interest Coverage Ratio:**

  This ratio measures the capacity of a company to pay the interest liability which it has incurred on its long term borrowings out of its cash profits. It is also known as Times-Interest Covered. This ratio helps in assessing whether a company is comfortably placed to service its interest obligations out of revenues it generating. This ratio shows that the higher the ratio, the greater the ability of a company to pay its interest. And lesser the financial risk of default and higher the comfort level for lenders.

  \[
  \text{Interest Coverage Ratio (Times)} = \frac{\text{PAT} + \text{Interest on Long Term Debt} + \text{Non Cash Charges}}{\text{Interest on Long Term Debt}}
  \]
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- **Debt Service Coverage Ratio (DSCR):**

This ratio measures the capacity of a company to pay the installments of the principal due and the interest liability it has incurred on its long-term borrowings, out of its cash profits. This ratio helps in assessing whether company is comfortable placed to service its due outstanding long term loans and interest obligations thereon out of the revenues it is generating. This ratio represent that higher the ratio greater the ability of a company in debt service, lesser the financial risk of default and higher the comfort level for lenders.

\[
DSCR \text{ (Times)} = \frac{\text{PAT} + \text{Interest on Long Term Debt} + \text{Non Cash Charges}}{\text{Interest on Long Term Debt} + \text{Installments of Principal Due}}
\]

- **Proprietor’s Ratio:**

This ratio measures the relationship between shareholder’s fund and total assets. This ratio shows the extent to which shareholders own the business and thus indicates the general financial strength of the business. The higher the proprietary ratio, the greater the long term stability of the company and gives a better protection to creditors. However too much higher ratio does not indicates a good sign because it shows a less use of borrowed funds and shows that firm may not be able to take advantage of trading on equity.

\[
\text{Proprietor’s Ratio} = \frac{\text{Shareholder’s Funds}}{\text{Total Assets}}
\]

- **Capital Gearing Ratio:**

Capital gearing (leverage) refers to proportion of fixed cost capital (preference shares and debentures) to non-fixed cost capital (equity shares). A proper proportion between the two funds is necessary to keep the cost of capital at the minimum. This ratio indicates “the extent of trading on equity and extra residual benefits accruing to the equity shareholders”.

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Capital Gearing Ratio = \( \frac{\text{Loan Capital} + \text{Preference Capital}}{\text{Equity Capital}} \)

> **Profitability Ratio**

ROI ratios attempt to analyze the overall profitability of a company in relation to the shareholders funds employed. Thus they link a net profit to the capital employed. However, it is equally important to analyze the profitability of a company at different steps in relation to sales and operating income of an enterprise, expenses to sales, extent of other operating income as well as non-operating, extraordinary items and prior year adjustments in sales and PBT and the impact of tax planning resorted bearing on the ROI ratios. The major ratios analyzed for this purpose are:

- Gross Profit Ratio,
- Net Profit Ratio,
- Raw Material Consumed,
- Other Income to PBT,
- Effective Tax Rate,
- Return On Share Holders Fund Ratio,
- Return on Equity Capital,
- Operating Ratio,
- Expenses Ratio and
- Return on Capital Employed.

**Gross Profit Ratio:**

This ratio assess business performance at different intermediate levels starting from GP and finally PAT. Thus, they enable an analyst to understand how the profit margins are behaving and moving towards the ultimate margin, i.e. PAT.

\[
\text{Gross Profit Ratio} \ (\%) = \frac{\text{Gross Profit}}{\text{Net Sales}} \times 100
\]
- **Net Profit Ratio:**

This ratio represents the relation of net profit to net sales. The net profit ratio is the overall measure of a firm’s ability to turn each rupee of sales into profit. It indicates the efficiency with which a business is managed. A firm with high net profit margin is advantageous to survive in the face of rising cost of production and falling selling prices. Whereas the net profit ratio is low it is difficult for a firm to survive in adverse situations. An increase in the ratio over the previous period indicates improvement in the operational efficiency of the business provided the gross profit ratio is constant.

\[
\text{Net Profit Ratio (\%)} = \frac{\text{Net Profit}}{\text{Net Sales}} \times 100
\]

- **Raw Material Consumed:**

This ratio seeks to measure the opposite of multi step profit margins to sales ratios. They measure the proportion of all individual items of cost and expenses, which go into the determination of profits in net sales. This ratio is very crucial to the profitability of a company. They help to analyst to study which items of costs require attention for minimization. They also help to the management to concentrate on cost reduction, particularly during period of stagnation in the business activity.

\[
\text{Raw Material Consumed (\%)} = \frac{\text{Raw Material Consumed}}{\text{Net Sales}} \times 100
\]

- **Other Income to PBT Ratio:**

This ratio seeks to measure the extent of other income, extraordinary items and prior period adjustments in the PBT and net sales and their impact on PBT. They help to an analyst in ascertaining the quality of earnings of a company.

\[
\text{Other Income to PBT Ratio (\%)} = \frac{\text{Other Income}}{\text{PBT}} \times 100
\]
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- **Effective Tax Rate:**

  This ratio measures the actual effective rate at which a company pays income tax on its PBT as against the statutory rate of income tax. This ratio only considers current income tax provision and not deferred tax. It contains provisions which enable a company to reduce its tax liability and thus have more disposable profit. This ratio helps an analyst to understand how efficiently a company is managing its tax liabilities in accordance with the law of the land.

  \[
  \text{Effective Tax Rate (\%) = \frac{\text{Current Income Tax} \times 100}{\text{PBT}}}
  \]

- **Return On Share Holders Fund Ratio:**

  This ratio measures net profit to owner’s equity. This ratio is an effective measure of the profitability of an enterprise. It also compare with other similar companies to determine whether the rate of return is attractive facts. It is an important ratio to analyze the relationship between financial statement analyses.

  \[
  \text{Return on Share holders fund Ratio = \frac{\text{Net profit after Tax and Interest} \times 100}{\text{Share holder’s Funds}}}
  \]

- **Return on Equity Capital:**

  This ratio establishes the relationship between the net profit available to equity shareholders and the amount of capital invested by them. This ratio shows the profit percentage for equity shareholders. This ratio used for inter firm comparison. A high rate of return on equity shareholders funds is favored by investors and a higher market valuation is placed on such shares.

  \[
  \text{Return on Equity Capital = } \frac{\text{Net profit after Interest, Taxes and Preference Dividend} \times 100}{\text{Equity Shareholder’s Funds}}
  \]
Operating Ratio:

This is also an important profitability ratio. This ratio explains the relationship between cost of goods sold and operating expenses on the one hand and net sales on the other. The operating ratio is the yardstick to measure the efficiency with which business is operated. A high operating ratio is considered unfavorable because it leaves a smaller margin of profit to meet non-operating expenses. On the other hand a lower operating ratio is considered a good sign.

\[
\text{Operating Ratio} = \frac{\text{Cost of Goods Sold} + \text{Operating Expenses}}{\text{Net Sales}} \times 100
\]

Expenses Ratio:

These ratios present the relationship that exists between each item of expenses and the net sales. It indicates the portion of the sales which is consumed by the various items of operating cost. This ratio provides breakup of the operating ratio.

\[
\text{Expenses Ratio} = \frac{\text{Expenses}}{\text{Net Sales}} \times 100
\]

Return on Capital Employed (Return On Investment):

This is the most important test of profitability of a business. It measures the overall profitability. It is ascertained by comparing profit earned and capital employed to earn it. It is the only ratio which measures satisfactory the overall performance of a business from the point of view of profitability. This ratio indicates how well the management has utilized the funds supplied by the owners and creditors. This ratio shows that the higher the ratio more efficient the management is considered to be in using the funds available. This ratio is useful for judging the performance of different firms and also useful to management for decision making purpose.
Return on Capital Employed = Profit before Interest & Taxes \times 100 \over \text{Capital Employed}

Where, Capital Employed = \text{Equity capital} + \text{Preference share capital} + \text{Reserves & Surplus} + \text{Borrowed funds} - \text{Miscellaneous Expenditure not written off.}

➢ Du Pont Analysis

The Du Pont Model of Financial Analysis was made in 1920 by F. Donalson Brown, an electric engineer in Du Pont Corporation. This model has received widespread of recognition and acceptance. It remained the dominant form of financial analysis until the 1970s.

The Du Pont Model used to analyze profitability of a firm using traditional performance tools like net profit margin and asset turnover ratio. To enable this Du Pont Model integrates elements of the income statements with those of the balance sheet into summary measures of profitability.

Return on Total Assets (ROA) is calculated with the following formula:

\[ \text{ROA} = \text{Net Profit Margin} \times \text{Total Assets Turnover} \]

\[ = \frac{\text{Net Income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total Assets}} \]

\[ = \frac{\text{Net Income}}{\text{Total Assets}} \]

As above formula gives a better understanding that how ROA influenced by the net profit margin and total assets turnover.
The left hand side of above Figure mentions the details of net profit ratio. It also helps to improve net profit margin by reducing cost in the component of total cost. While the right hand side of the above Figure mention total assets turnover ratio. An analyst can get a clear picture of efficiency of components of total assets turnover ratio like fixed assets turnover and current asset turnover ratios. The Du Pont Model (ROE) has three components:

I. Operating Efficiency (Profit Margin)

II. Asset use Efficiency (Total Assets Turnover)

III. Financial Leverage (Equity Multiplier)
ROE = Profit Margin \times \text{Total Assets} \times \text{Equity Multiplier}

\[
= \frac{\text{Net Income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total Assets}} \times \frac{\text{Total Assets}}{\text{Total Equity}}
\]

Therefore, \( \text{ROA} \times \text{Equity Multiplier} \).

High equity multiplier indicates more debt which will increase ROE, and vice versa.

- **Capital Market Ratios**

Capital market has become a major source of capital for equity as well as bonds or debentures. The ability of a company to raise capital is largely dependent on the quality of promoters and projects in the case of first time entrants and then on the performance, financial position and investors servicing track record of the company. Investors in the capital market put value on a company’s equity share based on the analysis of its RONW, EPS and dividend track record. The Net Asset Value structure of debt and equity, expansion plans and future prospects subject to the state of capital market and volatility prevailing therein. They also study how the market has been responding towards the share price. It is important for prospective investors to study all these crucial aspects of a company before taking an investment decision.

The major ratios under this group are:

- Earnings Per Share,
- Price Earnings Ratio,
- NAV,
- Market Price to NAV,
- Market Capitalization and
- Yield to Investors.
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- **Earnings Per Share – EPS:**

  This ratio measures the overall profitability in terms of per equity share of capital contributed by the owners. This ratio widely used in industries and capital market. It is the first and most important ratio which strikes in the mind of shareholders and analysts while looking into the performance of company. This ratio does not provide any basis for the valuation of shares at the time of mergers and acquisition, take over and valuation of the shares in case of strategic investments made by capital partners.

  \[
  \text{EPS} = \frac{\text{PAT} - \text{Preference Dividend}}{\text{Weighted average No. of equity shares outstanding}}
  \]

- **Price Earnings Ratio:**

  This is most widely used ratio for valuation purpose. This ratio measures how many times an equity share is priced in the stock markets in relation to its EPS or in other words at what rate of expected return the price is being discounted by the capital market players. Market price is taken from the quotation in the exchanges where the equity is listed. As an extension to EPS this ratio plays the most crucial role in the valuation of shares in the initial public offerings, secondary capital markets and valuation of companies at the time of mergers, acquisition and takeovers.

  \[
  \text{Price Earnings Ratio (Times)} = \frac{\text{Market Price of the Equity Share}}{\text{EPS}}
  \]

- **Net Asset Value (NAV):**

  This ratio measures the net worth or net asset value per equity share. Thus it seeks to assess that at what extent the value of equity share of a company contributed at par or at premium has grown or the wealth/value has been created for the shareholders. It is also known as net worth per share or book value per share. This ratio represent that higher the ratio, higher the capacity of a company to raise further capital such as borrowed and equity.
NAV (Rs.) = Equity share holders Funds

No. of equity shares o/s

- **Market Price to NAV:**

  This ratio measures the market price of a share vis-à-vis its NAV. While the NAV is based on historical values, the market price is based on current value. Generally the market price of share is higher than NAV, however for various reasons such share price is undiscovered due to various reasons like size of the equity being very large, lower market price than the NAV, etc. Thus this ratio reflects the investment potential of a share. It also offers an opportunity to a company to buy back its own shares from the market.

  \[
  \text{Market Price to NAV (Times)} = \frac{\text{Market Price of the Equity Share}}{\text{NAV}}
  \]

- **Market Capitalisation:**

  This ratio provides a base for total valuation of a company based on the market price of its equity. The main use of this ratio arises at the time of merger, acquisitions and disinvestment. This ratio measures the total market value of the number of equity shares of a company outstanding. Thus it provides a macro view of the share price.

  \[
  \text{Market Capitalisation (Rs.)} = \text{No. of equity shares o/s} \times \text{Market price}
  \]

- **Yield to Investors:**

  This ratio helps to the investors to understand the return being earned and loss being suffered by them on their investment in a company’s shares. The total gain is calculated with reference to the dividend paid by the company and market appreciation, positive or negative, during the period. This ratio is helpful at the time of investment decisions to potential investors.

  \[
  \text{Yield to Investors (\%)} = \frac{\text{Dividend Received} + \text{Market Appreciation}}{\text{Initial Investment}} \times 100
  \]
Advantages of Ratio Analysis

Ratio analysis is one of the most important tools in financial analysis. Financial health of a business can be diagnosed by this tool. Such an analysis offers the following advantages:

- Ratio analysis is the most important tool available for analyzing financial statements, i.e., profit and loss account and balance sheet, such an analysis is made not only for the management but also for outside parties like bankers, creditors, investors, and many more.
- Ratio analysis provides data for interfirm comparison. Ratio highlights the factors associated with successful and unsuccessful firms. Therefore, this analysis reveals strong and weak firms, overvalued and undervalued firms.
- Ratio analysis helps in planning and forecasting. Over a period of time, a firm or industry develops certain norms that may indicate future success or failure. This ratio provides an idea on trends and future problems at the time of relationship changes in firm's data over different time periods.
- Ratio analysis also makes possible intramural comparison of the performance of the different divisions of the firm. These ratios are helpful in deciding about their efficiency or otherwise in the past and likely performance for the future.
- Ratio analysis also useful to represent complex data of financial statements in simplified, summarized and systematized form.
Limitations of Ratio Analysis

Ratio analysis is a very useful technique but one should also be aware of its limitations as well. The following limitations also should be kept in mind while making use of Ratio analysis in interpreting the financial statements.

- Ratio analysis is based on reliability and correctness of the financial statements, if the figures of balance sheet and profit and loss account are unreliable, it will be a mistake to put any confidence on the ratio.
- When the ratios of two firms are being compared, it should be remembered that different firms may follow different accounting practices. Such differences will not make proper use of the accounting ratios.
- Ratios are as a matter of fact, tools of quantitative analysis. It ignores qualitative factors which sometimes are equally or rather more important than the quantitative factors. As a result of this conclusion from ratio analysis may be distorted.
- Ratios are only indicators; they cannot be taken as final regarding good or poor financial position of the business. Other things also have been seen at the time of analysis such as brand, goodwill, employees, management and other variables of the firm.
- Financial analysis based on accounting ratios which will give misleading results if the effects of changes in price level are not taken into account. For example firms established in different period, comparison is not possible due to price fluctuation.
- Ratios of a company have meaning only when they are compared with standard ratios with the other firms or with previous year, which are time consuming and lengthy process.
- As ratio compare past data so the reliability of past data is less and it is less useful for future decisions because future is uncertain.
4.11 REFERENCES


