

CHAPTER-III

THEORETICAL FRAMEWORK FINANCIAL ANALYSIS

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III.1 MEANING OF FINANCIAL ANALYSIS :

Financial analysis is the analysis of financial statements. The financial statements contains summarised information of the firms financial affairs organised systematically. They are the means to present the firms financial situation to owners, creditors and the general public. Preparation of financial statements is the responsibility of top management. Financial statements are prepared from the accounting records maintained by the firm. The generally accepted accounting principles and procedures are followed to prepare statements. The basic objective of financial statements is to assist in investment decision making. Balance sheet and profit and loss account are two basic financial statements.

Financial analysis is the process of identifying financial strength and weakness of the firm by properly establishing relationship between the items of Balance sheet and profit and loss account.

Financial analysis may be internal or external. External analysis is made by those who do not have access to the books of accounts of the company i.e. creditors, shareholders etc. They obtain certain information about company to assess its financial position and to decide about the conditions on which the funds are to be made available to it. The internal analysis is undertaken by management of the company concerned with a view to improving its financial position and profitability. For this

purpose, the management may call for detailed statements on various matters including statements of internal control, primarily the cash and capital budgets, for taking objective and rational decisions.

III.2 OBJECTIVES OF FINANCIAL ANALYSIS :

Financial analysis serves the following objectives :

- 1) Liquidity
- 2) Safety
- 3) Solvency
- 4) Profitability
- 5) Efficiency.

- 1) Liquidity ✓

Trade creditors are interested in the fact that the firm should be able to meet their claims over a very short period of time. Their analysis will, therefore, confine to the evaluation of the firms liquidity position.

- 2) Safety

Investors, who invested their money in the firms shares, are most concerned about the firms earnings. They vestreve more confidence in those firms that show steady growth in earnings. As such, they concentrate on the analysis of the firms present and future profitability. They are also interested in the firms

financial position to the extent it influences the firms earnings ability.

3) Solvency

The suppliers of the long term debt are interested in the firms long term solvency or survival.

4) Profitability

Long term creditors do not only analyse the hisottical financial statements, but require the firm to supply projected or profoma financial statements to make analysis about the firms future profitability and solvency.

5) Efficiency

Management of the firm would be interested in every aspect of financial analysis. It is their overall responsibility to see that the resources of the firm are used most effectively and efficiently and that the firms financial condition is sound.

III.3 IMPORTANCE :

Financial analysis is an attempt to determine the significance and meaning of the financial statements data so that a ferecast may be made of the prospects for future earning, ability to pay interest, debt maturities both current as well as long term and profitability of sound dividant policy.

According to Mayer financial statement analysis is a largely study of relationship among the various financial factors in a business as disclosed by a single set of statements and a study of trend of these factors, as shown in a series of statements.

III.4 FUNCTIONS :

The analysis consists of breaking down a complex set of facts or figures into simple elements and arranging them in such a manner that they can be easily understood.

The analysis of profit and loss account consists of breaking it down into various elements as under. Gross sales, net sales, cost of goods sold gross margin, operating expenses, operating net profit, operating incomes and expenses, net profit before tax, net profit after tax etc.

The analysis of balance sheet consists of proprietors funds, other debts, total funds, employed, fixed assets, current assets, current liabilities and working capital.

III.5 VARIOUS TOOLS ; BRIEF EXPLANATION :

The analysis of financial statement consists of a study of relationships and trends to determine whether or not the financial position and results of operations as well as financial progress of the company are satisfactory or not. The fundamental

object of using any analytical tool is to simplify or reduce the data under review to more understandable terms. Tools used in analysing financial statements are -

- i) Comparative financial and operating statements.
 - ii) Statement of changes in net working capital.
 - iii) Trend Ratios.
 - iv) Common size percentages.
 - v) Individual Ratios.
 - vi)
- i) Comparative Financial and operating statements.

The changes in the financial data over a period of two or more years are placed side by side in adjustment columns. Such statements are called comparative financial statements. By comparing the change in various items period by period, the analysts will be able to get some valuable clues as to the growth and other important trends relating to the business.

The analysis of financial statement involves a study of the relationship and trends to determine whether or not the financial position and the results of the operations to measure the relationships among the financial statements items of single set of statements and the changes that have occurred in these items as shown by the financial statements of subsequent periods. The work of analyst consists of reducing data in an understandable manner analysing and interpreting the same. The study of financial

positions of a company and the results of its operations for a period is more meaningful if the analyst has available the statements of financial position and income statements for several periods when comparison is made. If two or more financial statements are available, the trends can be better assessed. Statements of three years are usually prepared by large companies for purpose of comparison. For effective analysis the statements to be compared must be based on the consistent application of generally accepted accounting principles.

We know financial statements one is balance sheet and the other is trading and profit and loss account or income statement.

Comparative Balance Sheets

Increases and decreases in various assets and liabilities as well as in proprietors equity or capital brought about by the conduct of business can be observed by a comparison of the balance sheet at the beginning and end of the period. Such observation often yields considerable information which is of value in forming an opinion regarding simple device known as the comparative balance sheet may be used.

The single balance sheet shows the balances of accounts after closing the books on a certain date. The comparative balance sheet shows not only the balances of accounts as on different dates but also the extent of their increases and decreases between these dates. Thus, while in the single balance sheets the

emphasis is on status in the comparative balance sheet it is an change. The changes are the outcome of operations, the conversion of assets, liability and capital forms into others as well as the various interactions among assets, liabilities and capital.

Though the balance sheet is a useful statement the comparative balance sheet is even more useful for it contains not only the data of single balance sheet but also those which may be used in studying the trends in an enterprise. Information regarding trends indicating the direction in which a business is headed is usually more significant to the analyst than that concerning the book values of assets and liabilities. As the income statement presents the review of the operating activities of the business and the comparative balance sheet shows the effects of operation on its assets and liabilities, the latter contains a connecting link between the balance sheet and the income statement.

The form of 'comparative balance sheet' consists of two columns for the data of the original balance sheet and a third column for increases and decreases in various items. A fourth, column containing the percentage of increase and decrease, may be added.

Comparative Income Statement

An income statement shows the net profit or net loss resulting from the operation of a business for designated period of time. A comparative income statement shows the operating

results for a number of accounting periods so that changes in absolute data from one period to another may be stated in terms of money and percentages.

The comparative income statement contains the same columns as the comparative balance sheet and provides the same type of information - the account balances, increases and decreases in money amounts, if desired, the percentages of increase or decrease.

ii) Statement of Changes in
Net Working Capital or
Funds Flow Statement

In order to ascertain the increase or decrease in the working capital between the two dates of the balance sheets, a statement is prepared containing the current assets and current liabilities. Current assets such as cash, temporary investments, stock, debtors less provision for doubtful debts and prepaid expenses are taken and current liabilities such as sundry creditors, taxation due, expenses outstanding, dividend payable, bank overdraft are deducted from the total of current assets. The net balances at the two dates represent the net current assets or working capital. The difference between the two dates will indicate either increase or decrease in working capital. The decrease will appear as a source and the increase as application.

This statement reflects the changes in the composition of the working capital. This can also be prepared by showing the changes in each item of current assets and current liabilities

for the two years. Sometimes the changes in the working capital may be greater than the net income as disclosed in the income statement.

iii) Trend Ratios :

A series of financial statements may be analysed by determining and studying the trends of the data shown in statements. This method of analysis is one of direction - upward or downward - and involves the computation of the percentage relationship that each statement item bears to the same item in the base year which may be the earliest year involved in the comparison or the latest year or any intervening year. Trend percentages are relative to the base year, emphasize changes in the financial operating data from year to year and make possible a horizontal study of the data.

Also known as trend ratios these percentages may be thought of as index numbers showing relative changes in the financial data resulting with a passage of time.

✓ Computation of trend percentages

1) A statement is taken as the base with reference to which all other statements are to be studied.

2) Every item is to be stated as 100 in the statement which is taken as the base.

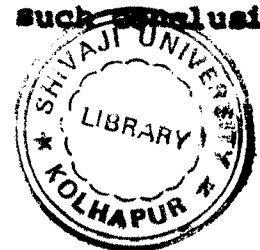
3) If the amount of an item in another statement is less than that in the base statement, the trend percentage will be below 100 and if the amount is more than the base amount the trend percentage would be above 100 percent.

4) Trend ratios can be computed by dividing each amount in the statements with the corresponding item in the statement taken as the base.

Trend ratios are generally not computed for all the items in the statements as the fundamental objective is to make comparisons between items having some logical relationship to one another.

Evaluation of trend percentages ✓

Any one trend by itself is not very informative and, therefore, comparison to related trends alone is valuable to the analyst. To illustrate an upward trend for inventories, bills receivable and sundry debtors, coupled with a downward trend for sales, would usually reflect an unfavourable situation; a continued downward trend of sales volume accompanied by a marked increase in plant investment especially if this increase has been financed by incurring fixed interest obligation would again represent an unhealthy financial development; an increase in the trend of total current assets, in concert with a downward trend of current liabilities would usually be viewed favourably. All such conclusions



throw light on one or more aspects of the financial position and have to be reconciled with those from other aspects. Illogical conclusions may result if percentages and ratios are born from the data from which they have been derived.

Thus it must be noted that though trend ratios show whether an item has increased or decreased as well as the degree of change, they are valuable only to the extent to which they provide clues to favourable or unfavourable tendencies and point the way for further analysis.

The comparability of trend ratios is adversely affected to the extent to which accounting principles and policies reflected by the accounts have not been followed consistently throughout the period being studied. Comparability of the data is also adversely affected when the price level has changed materially during the years under review. Some analysts deflate the statement data by deviding the money amounts with the related price index thereby providing figures that will give a broad idea of changes in physical quantity and volume exclusive of price changes.

Despite this, the measurement of variations in terms of percentages is extremely useful because the rate of change is more vital than the quantum of change.

On the contrary, there is danger that undue importance might be given to percentages. In cases in which the base is a small number, a little variation might be disproportionately

enlarged by the percentage of change. Another weakness of trend percentage method of analysis is that the selected base year may not be typical, especially for some of the items in the statements so that the percentage results may give a distorted picture of the change. This analysis is referred as horizontal.

iv) Commonize Statements :

Common size Balance sheet ✓

In analysing the balance sheet a statement is prepared to work out the ratio of each asset to total assets and each liability and capital to total liabilities and capital. This statement is known as common size or 100 percent balance sheet. This is so called because the total of the assets and also the liabilities and capital is 100 percent. This statement discloses the relationship of each asset to total assets and each liability and capital item to total liabilities and capital.

The common final balance sheet is converted into common size balance sheet by dividing each item by total assets and arriving at a percentage figure. The income statement is also converted by dividing each item by sales. The financial statements of different periods are compared on an item by item basis so as to detect differences in percentage for a given item between the financial periods.

In order to find out the proportion of a group of sub-group which a single item in the group represent in financial statement, analysing of common size statements is made. The assets, liabilities and capital are each expressed as 100 percentage and each item in the group is expressed as percentage of the respective total. In the income statement the net sales is taken at 100 percent and every item in the statement is expressed as a percentage of the net sales. This kind of analysis as already explained is referred to as vertical analysis. This is an analysis of the internal structure of the financial statements. The common size balance sheets analysis reveals the source of capital and all sources and the distribution of capital sources in the assets of an enterprise.

Comparison of the common size balance sheet of a single enterprise over the years is very useful as the changing proportions in the components within the group. It must be remembered that the percentages as disclosed in the common size balance sheet show only the relation of each of the assets to the total assets for each year. When the common size balance sheet is analysed and scrutinised horizontally the trends of the individual items in the balance sheet give in information in respect of the same but they will fell their relationship only to the total, it is very difficult to interpret the trends. If the trends are to be correctly interpreted, it is necessary to determine the normal percentage of individual assets to the total assets. It is, therefore, advisable to use common size balance

sheet to study only proportions therein. Comparison of the comparative balance sheets of two enterprises at a certain date is also done to compare the financial position of the one with the other. This is possible only when the two statements are prepared by the adoption of uniform accounting methods.

Common-size Income Statement : ✓

Just as the common size balance sheet is prepared, the common size income statement is prepared with view to compare the various items in the statement to the total amount of sales e.g. items such as cost of goods sold, selling, administrative expenses and also items of income are reduced to percentage by taking the sales figures as 100%. The changes in the cost of goods sold to sales are very important in financial statements analysis. The difference represent the gross margin which must be sufficient enough to cover the fixed assets incurred in running the business. The net income is arrived at after adjustment of expenses against gross profit. The net income of the business should be reasonable when compared to sales similar to common size balance sheet a vertical common size income statement is prepared. We have seen that in the common size balance sheet, each item of asset is compared to total assets and the item of each liability is compared to total liabilities. Similarly the cost of goods sold and item of each expenses are compared to sales. Each item of expenses is

expressed in percentage comparing the total amount of sales which is taken as 100. Common size income statement can also be prepared in a horizontal form. It is easy to construct the ratios of the various items of expenses to sales for a number of periods and easily interpreted. This will disclose the trend of expenses items to sales. It is also the practice to prepare the common size income statements of two concerns so that the results of the operations are compared to the other. As already pointed out here also difficulty arises in the matter of value stated there in. It is necessary for the analyst to satisfy himself whether the same accounting methods are adopted by the two companies. It must be noted that the success of the comparison depends upon the valuation of inventory. The cost of goods sold will be affected by the basis upon which the inventory is valued, since the two companies may be adopting two different methods in valuation. We have seen that when the income statement is analysed horizontally, the statement will disclose the rate of change in the items affecting the income and if analysed vertically shows the distribution of the income from sales among the items responsible to produce the same. Unlike the common size balance sheets, there is no difficulty in the case of common size income statement in the matter of analysis as decrease in the expenses to net sales. It is advisable to use both the statements so that the analyst can get supplementary information for the variation noted in the horizontal analysis by reference to the vertical statement.

3.7 RATIO ANALYSIS :

Introduction :

Definition :

The presentation of an elaborate system of ratio analysis was made in 1919 by Alexander Wall. Ratio is simply one number expressed in terms of another. It is a statistical yardstick that provides a measure of relationship between two figures. The relationship between two figures may be expressed as rate, percent or as a quotient.

Accounting ratios focusses attention on relationship which significant. Ratios are aid to analysis and interpretation. They are substitute for sound thinking. They help to examine in detail the overall picture portrayed by the financial statements by analysis and comparison to ensure that the financial position of the concern is sound and that there is satisfactory return on the investment of the business. They are employed to the test of solvency, the liquidity of the assets and the profitability of the concern.

Limitations :

Ratio analysis is the study of specific relationship and forms the heart of statement analysis. Ratio link parts of the financial statements in order to provide clues about the status of particular aspects of the business. This requires a

basis for comparison. Accordingly figures have little meaning of themselves. They take an meaning only when compared to something. The only way to determine whether an amount is adequate, improving or deteriorating in or out of proportion is only by relating to other items. Some comparison is essential to put the analysis into proper perspective. Different basis of comparisons are used in different circumstances. They do not all necessarily lead to the same judgements. The starting point is to relate specific statement items to each other. The study of the specific statement relationships is called ratio analysis. The ratio themselves should be evaluated by comparison with similar ratios.

1) Ratios are in the nature of generalisations and reflect conditions at a particular time. A particular ratio may be satisfactory at only certain circumstances and the same may not be satisfactory at different circumstances. With the continuity of the operations of the business, the ratios are liable to change with the result, they may give misleading conclusions as regards financial position of a business and therefore, at times unreliable. To get a correct picture of the business, in addition to employment of ratios, non-financial information should also be analysed and both employed. In order that the ratios may be meaningful it must be related to the entire business unit. The ratio may fluctuate considerably during the course of the year.

2) Although the shareholder is interested in a reasonable return on the investment, yet payment of dividends depends upon the liquid position of the concern which can be ascertained only from the balance sheet. In order to assess the liquid position of a company, the working capital position is essential. This can be constructed from the current assets and current liabilities.

3) As the statements are prepared for the use of an average reader it will not be possible to satisfy the requirements of the user for special purpose.

4) The financial statements do not contain full details necessary for the proper assessment of the company's position as regards profitability and solvency. There are many factors which do not form part of financial statements and which have important bearing on the financial position. Unless the data contained in the statement are converted into ratio and percentages, they cannot be said to disclose the real position of the understandings.

5) The values of assets contained in a balance sheet do not reflect market value at the date of the balance sheet. It is only historical document and therefore, does not purport to show the realisable value of the assets appearing therein. It is not a statement of net worth of an undertaking. A balance sheet is prepared on the basis of going concern concept and as such the assets are stated at their historical cost. The assets do not

reflect what they will fetch if the business is sold. Items of deferred revenue expenditure like preliminary expenses, advertising suspense and discount on issue of debentures appearing as assets in the balance sheet have no value in liquidation. Even though the rupee values contained in the statements may be accurate, they may be different on the basis of concept of value ascribed by the reader of the statements. The user has to make his own assessment of value. He must be aware of the methods adopted for valuation in the financial statements. Investors rely upon the balance sheets in appraising their holdings in a company. They are interested only in the market value of the assets viz. the investments, inventory and fixed assets. The balance sheet contains only the historical costs and therefore, not useful to them. The value of the rupee is markedly falling with the result that its purchasing power has recorded a downward trend. For example a machine which was erected 20 years ago cannot now be replaced even for its twice original cost. Therefore, depreciation charged on this machine will only be a fraction of the amounts to be charged on replacement basis. If there is increase in sale value, the increase may not necessarily be due to increase in number of units sold but it may be due to increase in the selling price without a similar increase in costs.

6) Financial statements prepared are only interim period and therefore, cannot be considered final. To determine the accurate profit or loss of an undertaking a long period of

time is required. For various reasons, it has been found necessary to have the accounting period generally for a period of twelve months and the statement have to be prepared for that period. Transactions affecting income and expenses have to be 'cut off' at the date of closing the accounts and in this regard, numerous differences of opinion are experienced. As the fixed assets are used for a longer period, the uses to which they are put in the business is based only on estimates. There is therefore, greater amount of uncertainty in the financial statements and the data contained in the financial statements cannot be considered to be accurate.

The statements include primarily only information that can be stated in monetary units and hence represents only a portion of the total information required for many decisions.

7) Financial statements do not reflect many factors affecting financial conditions because they cannot be recorded in the books in monetary terms. Examples are - Goodwill created by a company, efficiency in the management of business operations, the reputation of the company and the company's cordial relationship with its employees. They do not contain information as regards the quality of research and development, plant efficiency, marketing organisation, product levels and future planning. In the absence of uniform unit measurement financial statements cannot be reliable.

8) It will be very difficult to correctly understand the position of a company if the financial statements have been prepared under abnormal conditions. During the war period if production is concentrated by an undertaking in different types of goods for supplies to war and thereby production and sales volumes increase and when normal policies of production and sales are not followed, it is natural that the items contained in the financial statements may result in over statement or under statement.

9) As the financial statements to be presented involve highly complex and diverse economic activities, it is necessary to portray the same in a simple and summarised form to enable the user of the data to understand the same without difficulty. In most cases in the financial statements prepared, simplicity is not achieved. If the statements are to be kept within reasonable size, high degree of summarisation is involved not only at the time of recording the transactions but also in presentation of the statements. In this process comprehensive-ness and clarity are usually lost. Financial statements include only selected quantitative terms which for further clarity are condensed. In order to be useful, unbiased and not misleading financial statements should disclose all significant financial data essential for making rational economic decision.

Classification of Ratios :

Many types of financial ratios may be used and the purpose for which analysis is made will usually suggest emphasizing one set of ratios in preference to another. To illustrate, the lender of short term credit places reliance on the current position of the borrower because, from his point of view, profitability is less important than the availability of borrower's current assets but a long range investor in a business places for greater emphasis on earning capacity than on the pledge of assets, business executive is mainly interested in knowing the profitability of his concern and the factors leading to any rise or fall in the profit. So that he studies gross profit in relation to different elements of cost. Thus there are sound reasons for selecting different kinds of accounting ratios for different types of situation. Further the kind of data available also sometimes determines the nature of analysis.

In general accounting ratios may be classified on the following bases leading to leading to somewhat overlapping categories.

- A) Traditional classification or classification according to the statement from which ratios are derived

A bases of classification of ratios which readily suggests itself is according to the statement to which the determinants of a ratio belong. By far the most convenient mode of classification, it has the sanctity of tradition in as much as, since

the advent of ratio analysis, ratios have been grouped in this manner. From this angle, ratios are classified as thus :

a) Balance sheet ratios or Financial Ratios - They deal with the relationship between two items or groups of items which are together in the balance sheet e.g. Debt Equity Ratio.

b) Revenue Statement Ratio - Sometimes also referred to as operating ratios, these establish relationship between two items, or groups of items, which are in the revenue statement e.g. Stock Turnover Ratio.

c) Inter statement Ratios or Combined Ratios - These ratio portray the relationship between items one of which is a part of the balance sheet and the other of the revenue statement e.g. Asset Turnover or Debtors Turnover.

B) Classification According to Test satisfied or functional classification

In the view of Robert N. Anthony, ratios are grouped in accordance with certain tests which are intended to subserve from the view point of various parties having a financial interest in an enterprise. These tests are :

- a) Liquidity
- b) Test of Profitability
- c) Market Tests.

c) Classification from the point of view of financial management classification according to nature

This standard of classification envisages the organisation of accounting ratios into four fundamental types which are as follows :

a) Liquidity Ratios :

These ratios constituting ratio analysis of the short term financial position are intended to derive a picture of the capacity of a firm to meet its short term obligations out of its short term resources. A core of liquidating ratio has emerged over the years which, when viewed in their totality and with respect to risk, is expected to yield a rough approximation of the capacity of business to pay its current liabilities as and when they fall due for payment.

b) Activity Ratios :

Activity ratios are intended to measure the effectiveness of the employment of resources, the command over which has been financed by the firm. They not only analyse the use of the total resources of the firm but also the use of the components of total assets. Activity analysis together with the degree of leverage employed by the firm, is a key factor in determining profitability.

c) Leverage Ratios :

They measure the contribution of financing by owners compared with financing provided by the outsiders. In case owners provide very small proportion of total financing, the risk of the enterprise are borne mainly by the creditors and, if the undertaking earns more from the funds than it pays for the debt it has incurred, the return to the owner gets inflated. If handled properly, leverage has a much more important bearing has a much more important bearing on profitability than does liquidity. Leverage ratios also provide some measure of the risk of debt financing by calculation of coverage of fixed charges.

d) Profitability Ratios :

They are designed to highlight end result of business activities which in the perfect word of is the safe criterion of the overall efficiency of a business unit. The important point about profitability ratio is that, while the analysis may use only one measure of profitability, it is always necessary to bring into play at least three or four measurers for a dependable analysis. This is necessary because, owing to different valuations histories and sale volume policies, any single profit measure by itself has severe limitations. Despite the fact that more than one measure of profitability have been used, the results must be viewed cautiously.

All these four categories of ratios are inter-linked when the term liquidity is used in its comprehensive sense i.e. in the sense of the entire financial position of the firm, it includes leverage ratios and activity ratios. Profitability ratios are, in fact, a resultant of the pattern of liquidity ratio, leverage ratio and activity ratio.

D) Classification according to Importance

Naturally some ratios are more important than others though the conclusions derived from them have to be read together for getting an idea about the financial position of the firm. This basis of classification of ratios has been recommended by the British Institute of Management for inter-firm comparisons and following categories have been suggested by the Institute.

a) Primary Ratios :

As the principal motivating force for any commercial undertaking is profit, success is measured by the size of profit in relation to capital employed and this has been termed as a 'Primary Ratio'.

b) Secondary Ratio :

This basis of classification being primarily from the point of view of interfirm comparisons, if the earning power of the unit as depicted by the primary Ratio does not at least equal that of similar concerns, there is probably some factor

or combination of factors, which does not permit a business to be operated efficiently. Such factors may be isolated by means of other types of ratios, referred to as 'Secondary Ratio' which are further divided into following sub-classes :

i) Supporting Ratios :

Unless sale of goods are effected there can be no profit and, therefore, the size of the total sales to operating profit and to assets employed are important ratios in bringing so light strategic facts in the profit earning structure.

ii) General Explanatory Ratios :

Size of sales can be further analysed by the ratio of sales to fixed assets and sales to current assets. Further ratio of operating profit to sales can be broken down into ratios of departmental cost to sales and gross profit to sales.

iii) Specific Explanatory Ratios :

The ratio of sales to current assets, in the case of distributive trades, can be further amplified by the ratio of sales to stock turnover and sales to debtors turnover, while in case of manufacturing industries, it can be supplemented by ratio of sales on one hand to material stocks or work-in-progress or finished goods stock or debtors on the other. A further break-up of profit to sales ratio for a manufacturing industry would be factory cost of goods sold to sales analysed into individual

items of production costs to sale value of production. This classification of ratios into primary and secondary has been made from the standpoint of inter-firm comparisons, it can also be adopted in other cases and in fact, to the entire ratio analysis. It is possible that some enterprise may decide upon a 'hard core of ratios', which it considers important from its own point of view and this may be designated as 'Primary Ratios' leaving the rest in the 'Secondary Ratios' category.

This classification of the structure of ratio analysis cuts across a various bases on which it has been made. Thus, the determinants of activity and profitability ratios are drawn partly from the balance sheet and partly from the income statement; ratios fulfilling the test of liquidity of the items of both the position statement and the income statement, some activity ratios coincide with those satisfying the test of liquidity; some leverage ratios belong to the category of income statement. This clearly indicates that one basis of classification shades into the other.

However, for the purpose of consideration of individual ratios, it is better if they are categorised on the functional basis as has been done by Anthony. Such an approach would only be in the fitness of things because the ratios can earn their keep, as tools of financial analysis, only if they are instrumental in the discharge of certain clear-cut functions - meaning the capability of satisfying certain tests subsequently, the ratios have been dealt with on this pattern.

Nature of Ratio Analysis :

Despite the fact that there is no special magic in ratio analysis as such, most creditors and investors intending to have some financial commitment in a firm automatically turn to a core of relationships for guidance as people prefer to work with data which appear to be concrete in nature. This is primarily due to the fact that judgements seem to be made more easily when they can be rationalised with numbers. In view of this, suppliers of capital and lenders of funds have always attached importance to quantitative data and ever the years, they have developed a series of relationships in which they have reposed a high degree of confidence. However quantitative relations of the kind represented by ratios analysis are not an end in themselves but are a means to understanding a firms financial position. Quantitative ratio analysis is not capable of providing precise answers to all the problems faced by financial manager or a potential fund supplier unless several ratios, often related to one another, are computed and, then alone, the whole of ratio analysis acquires some significance from the point of view of its users.

In this way, the stature of ratios is partly derived from the analysis capacity to quantify available data in a systematic manner. In order to reach a decision based on such analysis he has to use some norms regarding the financial

position of the firm under review so that a given firm's financial status, as depicted by a series of ratios, may be compared with some standards and deviations from it may be explained. As these norms cannot be used as an objective for a firm to achieve owing to their mere averages, they have to be used with considerable care and caution and must be tempered to meet whatever extending circumstances may arise. There are a number of ratios which conceivably can be computed from a single set of financial statements but only a few are used in any particular situation to throw light on certain salient aspects of the financial position. From this point of view, while tackling a particular problem no useful purpose would be served by first calculating all the ratios and then attempting to find some justification for them; rather the procedure should be first to decide what, if any, ratios might be helpful and then to compute these and only these ratios.

Thus there is a core of relationships customarily used for the ratio phase of financial analysis and other ratios are mostly a modification or extension of this ratio.

Interpretation of Ratios :

The importance of interpretation of ratios arises if they are to prove a useful tool to the financial analyst. Broadly speaking these are four different ways in which ratios may be interpreted.

I) The individual ratio, by itself may have significance of its own. Thus if the current ratio persistently falls to and even goes below, one it may indicate impending insolvency. Such cases may be created as unusual because, under normal circumstances, one generally cannot arrive at meaningful conclusions when individual ratios are studied in isolation. Moreover, single ratios are studied with reference to certain popular rules of the thumb which are at best only approximations and can, therefore, lead to erroneous conclusions.

II) Ratios may be interpreted by expanding the analysis and considering a group of several related ratios. In this way, the ratios, whose significance is not fully understood, are made more meaningful by the computation of additional ratios. To illustrate the utility of profit-on-sales figure is enhanced by a ratio showing the number of times an owner's investment is turned over in sales every year.

III) The third approach to the interpretation of ratios involves making comparisons over time. Under this the same ratio or for that matter a group of ratios, is studied over a period of years with the result that significant trends indicating rise, decline or stability are highlighted. Sometimes, the average value of ratios for a number of years in the past can serve as a standard against which to judge current performance.

IV) The ratio of any given firm may be compared with the ratios of other firms in the same industry. This is also known as 'inter-firm comparisons' such comparisons are usually significant, as in most cases, members of the same industry face the same or similar financial problems. These comparisons are often facilitated by the use of tables summarizing the ratios of the first in a particular industry. Such tables are usually prepared by trade associations or financial or credit rating groups.

As a matter of fact, any thorough investigation of the financial position of a firm will bring into play all these approaches - ratios will be scanned for any intrinsic meaning they may possess; they will be supplemented by further ratio analysis; they will be studied over time; and they will be compared with the ratios of other members of the industry in order to determine both firm's relative position as well as the degree of the conformity of its trend to industry trends. That way alone, much useful information can usually be brought to bear on the firm under study.

Ratio Analysis :

Analysis of short term financial position or test of liquidity.

Commercial banks and other short term creditors are primarily concerned with the analysis of short term financial position or test of liquidity, it is valuable aid to management in checking the efficiency with which working capital is being employed in the

business. It is also of importance to shareholders and long term creditors in determining to some extent, at least the prospects of dividend and interest payment. The questions to be studied in connection with the ratio analysis of the short term financial position are :

- i) will the company be able to pay its current debts promptly ?
- ii) is staff utilising working capital effectively ?
- iii) is the current financial position improving ?

1) Current Ratio :

Meaning :

Known also as working capital ratio, solvency ratio and 2:1 ratio. Expresses the relation between the current assets and current liabilities.

Formulation :

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

Components :

Current assets includes cash, bank, stock, debtors, bills of exchange investments which are held by the business for the purpose of immediate conversion into cash. Marketable securities, prepaid expense, work-in-progress, while current liabilities are composed of sundry creditors, bills payable, outstanding and accrued expenses, income-tax payable, bank overdraft, etc.

Significance :

This ratio is very commonly used for finding out the test of the credit strength of a concern. It is common feature that a business will be able to meet its current liabilities provided it has equal current assets, but liabilities have to be paid only when they become due and by then the current assets should be sufficient. Even after the current liabilities are paid, fresh liabilities may be treated. This ratio indicates the amount of conversion of current assets for meeting current liabilities. This is called working capital ratio as it represents the working capital being the excess of the current assets over the liabilities. It is traditionally held that the ratio of current assets to current liabilities should be 2 to 1 but it should not be taken for granted since in some cases even though the ratio is 2:1 yet the balance sheet of a business may be strained one, and in other cases where it is less than 2 it may be very healthy. Further where there is temporary surplus of working capital due to increase in stock to meet seasonal sales, the increase should be viewed with favour. The present tendency is to determine acceptable standards prevailing within the industry.

Current ratio gives the analyst a general picture of the adequacy of working capital and of the comparity ability to meet its day-to-day payment obligations. It measures the margin of safety provided for paying current debts in the event of reduction in the value of current assets. The current ratio

tests quantity not quality. It measures only total value of assets and total rupees worth of liabilities. Experience taught that the current ratio is subject to further questioning for the margin of error involved in blind reliance on a 2 to 1 figure which has proved to be too great. The influence of inventory on current ratio has to be considered. Its impact on liquidity or debt paying ability is greater than account receivable. The values of inventory fall with economic cycles and owing to fall in purchasing power. Therefore, there is considerable reason to review inventory as unreliable.

2) Acid Test Ratio or Quick Ratio : 
Liquid Ratio Meaning :

Acid Test Ratio is concerned with the relationship between liquid assets and liquid liabilities to supplement the information given by the current ratio. In many lines of businesses a concern whose current assets consist largely of inventory can very easily become technically, if not actually, insolvent within a very short period of time and this is rationale of the term 'acid test ratio' the name being preferred by some writers. Sometimes as a conservative measure of the liquid position, this ratio relates liquid assets to current liabilities.

Formation :

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

Components :

Quick assets include all current assets excepting stock securities which are held temporarily and which can be realised without difficulty are also included. In case of debtors if there are any bad debts necessary provision should be made. Stock is not a liquid asset in as much as it cannot be immediately converted into cash. Quick liabilities include all current liabilities excepting bank order draft since the same is normally a permanent arrangement like a fixed liability except when the business is called upon to pay immediately.

Significance :

This ratio is a true test of a business. If the quick assets exceed a equal to quick liabilities, it indicates that the financial position of the concern is very satisfactory. It is a measure of the extent to which the liquid assets are available to meet the quick or immediate liabilities. This indicates the ability of the business to meet its commitment without delay.

3) Absolute Liquidity Ratio :

The logical consequence of the concept of eliminating inventories as a liquid asset in the acid test ratio owing to their questionable value in liquidation is the elimination of debtors from the total of current assets in the compilation of absolute liquidity ratios. Though receivables are generally more

liquid in nature than inventories, there may be doubts concerning their liquidity also. Therefore, absolute liquidity ratio relates the sum of cash and marketable securities to the total quick liabilities.

Determination of the rate at which various short term assets are converted into cash is another important dimension of liquidity and has, therefore, often been a concomitant of the analysis of short term financial position. Following ratios are included in this category.

4) Inventory Turnover Ratio :

Meaning :

Inventory turnover ratio is also known as stock turnover ratio in the traditional language usually establishes relationship between the cost of goods sold during a given period and the average amount of inventory outstanding during that period.

Inventory turnover ratio can be looked at from another point of view. While it helps in determining the liquidity of a firm in as much as it gives the rate at which inventories are converted into sales and then into cash, it assists the financial manager in evaluating inventory policy, finding out the reasonableness of such a policy at a given level to avoid any danger of over stocking as a prelude to the effective utilization of the resources of the firm.

Formulation :

$$\text{Inventory Turnover Ratio} = \frac{\text{Cost of goods sold}}{\text{Average inventory at cost}}$$

Components :

Theoretically, inventory turnover rate is best expressed through the relationship between cost of goods sold and average inventory at cost but ratio of sales to inventory may be used as a substitute for the ratio of cost of goods sold to average inventory in case the cost of goods sold is not available. Though it may serve as an approximate measure of turnover, the analyst should always be conscious of the fact that it is only a rough approximation. Over and above these some firms, like departmental stores customarily valuing their inventories at selling prices, and using the so called retail method for the purpose, compute inventory turnover as the ratio between net sales and average inventory at selling price.

For greatest accuracy in the calculation of inventory turnover ratio, monthly inventories should ordinarily be used and this is specially desirable if the size of inventories fluctuates substantially in the course of the year. Thus average inventory for a year is the sum of inventory at the beginning of the year and inventory at the end of every month, the total to be divided by 13. However in most cases, the external analyst has to be satisfied with the inventory at the end of the accounting period or the average of inventories at the beginning and the end of accounting

period or the average of inventories at the beginning and the end of accounting period. Many firms, operate on the basis of a 'fiscal year' other than the 'calendar year' due to the reason that they want their annual operations to conclude at a time when inventories are at a near their lowest level as well as due to the considerations of effecting appreciable economics in the work of stock taking and valuation. For a firm in such position, a turnover ratio computed on the basis of the average of opening and closing inventories would be much higher than one computed on the basis of monthly inventories so that it would be quite misleading.

Significance :

If the ratio is high it indicates the ability of the management to move the stocks quickly and that they are maintaining high quality goods capable of being turned out rapidly. It signifies the ability of management in stock control.

If the ratio is low, it signifies the existence of slow moving, obsolete and shop-sold goods of low value or poor quality goods not capable of being pushed through.

Although high turnover is usually a sign of good management, the ratio varies widely from one business to another. A high volume with low margin business can turn its inventory move often than a similar business having a low volume of high margin policy.

5) Debtors Turnover Ratio :

Meaning :

The debtors turnover ratio or receivables turnover ratio as it is called, matches net credit sales of a firm to recorded trade debtors thereby indicating the rate at which cash is generated by turnover of receivables or debtors. However, this is not immediately apparent from the debtors turnover ratio and therefore, it has to be supplemented by average collection period.

Debtors turnover ratio, together with Average Collection Period, involves the following steps :

a) Calculation of daily sales - This is obtained by deviding number of working days during a year into net credit sales for the year.

b) Calculation of average collection period - This is done by deviding sales per day is arrived at by Step No. 1 into the amount of trade debtors. The quotient represents the number of days sales tied up in receivables.

Formula :

$$\text{Debtors Turnover Ratio} = \frac{\text{Trade Debtors}}{\text{Sales per day}}$$

$$\text{Sales per day} = \frac{\text{Net Sales}}{\text{No. of working days}}$$

Components : ✓

The word trade debtor for the purpose of this ratio is used in a comprehensive sense and also includes the amount of bills receivable alongwith book debts at the end of the accounting period. Moreover debtors which do not arise from regular sales should, if possible, be excluded e.g. a bill receivable from the buyer of fixed assets. Sometimes the ratio is computed from the average of debtors at the beginning and at the end of the year. Another important point in connection with the ratio is that Reserve for Bad and Doubtful Debts is not deducted from the total amount of trade debtors in order to avoid the impression that a larger amount of receivables have been collected.

Due to the absence of the break up of sales into cash and credit sales in published accounts, the analyst has to use the total sales for computation of the ratio with the result that to the extent cash sales are included, the ratio tends to be overstated. In many companies all sales are made on credit but even where cash sales are significant a comparison of the collection period of two companies would be reasonable if both of them have the same proportion between cash and credit sales.

So far as the calculation of daily sales is concerned, the denominator is to be the number of working days of the business during the year and while it is customary to use 360 days basis rather than 365 days exact. Some writers are of the opinion that the denominator should only 300 owing to the remainder of days being holidays when no business is transacted and further go to the

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extent of suggesting that the number of working days would be further reduced if week of lesser working days is instituted in industry or business.

The turnover of debtors - the collection ratio - can also be determined by multiplying the ratio of trade debtors to net sales with the number of working days.

Significance :

There should always be a relationship between the period of credit allowed by a business and debtors turnover ratio. This serves as a check on collection of outstandings. If the average date is high immediate steps should be taken to collect the outstandings. The debtors balance should be examined and if there are bad debts they should be written off. Since the policy of the management is to earn real profits a prompt action in collection policy is essential some leading accountants are of opinion that the average collection policy is essential. Some leading accountants are of opinion that the average collection period should be 'no more than one third higher than the net selling terms.

6) Debt to Equity Ratio :

Meaning :

Debt to equity ratio relates all recorded creditors claims on assets to the owners recorded claims in order to measure the firms obligations to creditors in relation to funds provided by

the owners. It is also known as external internal equity ratio.

Formula :

$$\text{D.E. Ratio} = \frac{\text{External Equities}}{\text{Internal Equities}}$$

$$\text{D.E. Ratio} = \frac{\text{Outsiders Fund}}{\text{Shareholders Fund}}$$

Components :

The creditor category includes all debts whether long-term or short-term or whether in the form of mortgages bills or debentures, while the claim of owners consists of preference shares, equity shares, capital reserve, retained earnings and any reserves representing earmarked surplus like reserve for contingencies, reserve for plant expansion etc. In some financial circles, this ratio is also computed with preference shares classed as creditors rather than as ownership claims, because preference shares are ownership commitments only in the eyes of law and usually do not exhibit either characteristics of an ownership security. Thus there are differences of opinion regarding the treatment of preference shares as a creditor or ownership claim which depends upon the nature of the preference shares and the purpose of financial analysis.

Significance :

The purpose of the debt equity ratio is to derive an idea of the amount of capital supplied to the firm by the owners and of assets available to creditors on liquidation. The inter-

pretation of the ratio, however, depends almost entirely on the financial and business policy of the enterprise from this point of view, the importance of the ratio lies in highlighting the seemingly irreconcilable view points of the owners and creditors regarding the method of financing the business - the former having always the temptation of doing business with other peoples funds and the latter insisting that the owners should at least have as large an investment as creditors. Therefore, on the average debt to equity ratio 1:1 is acceptable. Theoretically, higher the interests of the proprietor as compared with that of the creditors the sounder would be the financial structure but this should not be treated as a generalisation. In the analysis of long term financial creditors of a business, the ratio enjoys the same importance as the current ratio in the analysis of short-term financial position.

7) Proprietary Ratio :

A variant of debt to equity ratio is the proprietary ratio which establishes relationship between proprietors funds and the assets. The difference between this ratio and 100% represents the ratio of total liabilities to total assets debt to equity ratio or Proprietorship Ratio is also analysed into the following :

a) Ratio of fixed assets to Proprietors funds :

Meaning :

This ratio shows the extent to which ownership funds are sunk into assets with relatively low turnover.

Formula :

$$100 \times \frac{\text{Depreciated book value of fixed assets}}{\text{The amount of proprietors funds}}$$

Components :

Fixed assets consists of tangible assets and proprietors funds consists of share capital and reserves and surplus.

Significance :

When the amount of proprietors fund exceed the value of fixed assets, a part of the net working capital is supplied by the shareholders, provided that there are no other noncurrent assets, creditors obligations have been used to finance a part of the fixed assets. The yardstick for this measure is 65% for industrial undertakings.

8) Ratio of Current Assets to Proprietors Funds :

Meaning :

This ratio is the relationship between current assets and the share capital and reserves and surplus.

Formula :

$$= \frac{\text{Current Assets}}{\text{Proprietors Funds}} \times 100$$

Components :

All current assets under the heading current assets loans and advances in companies balance sheet and items under the heading reserves and surplus.

Significance :

If the percentage of the current assets is higher than that of fixed assets it is an indication of the company's financial strength.

9) Interest Coverage Ratio :

Meaning :

This ratio is also known as debt service ratio. This ratio is used to test the firm's debt servicing capacity. The interest coverage ratio is the sum of net profit net profit before interest and taxes divided by interest charges.

Formula :

$$\text{Interest Coverage} = \frac{\text{Net profit before interest and taxes}}{\text{Fixed Interest charges}}$$

Components :

The two variables involved in this ratio are fixed interest charges and net profit. There is some controversy regarding the connotation of the word 'net profit' - whether the item to be taken into consideration is before or after the deduction of income tax.

Though there are arguments on both the sides, it can be stated in a nutshell that net profit before income tax is to be used in the computation of the ratio because income tax is paid after the deduction of fixed interest charges with the result that the ability of the business to meet these charges is not affected by levy of income tax.

Significance :

The ratio gives an idea of the extent to which a firm's earnings may contract before it is unable to meet interest payments out of current earnings. It is used in external financial analysis and is watched more closely by external analysts, than any other ratio. The standard for this ratio for an industrial company is that its fixed interest charges should be covered six to seven times. The weakness of the ratio would make the financial manager experience difficulty in raising additional funds from debt sources.

The assumption underlying this relationship is that the average historical performance of the firm under review will be its average performance in future, which may or may not be true, in the absence of evidence to the contrary historical data will be used by suppliers of capital to make such judgements regarding the future.

10) Gross Profit Ratio :

Meaning :

It expresses the relationship of gross profit on sales to net sales in terms of percentage, representing the percentage of gross profit earned on sales.

Formula :

$$\frac{\text{Gross Profit}}{\text{Net Sales}} \times 100$$


Components :

The determinants of this ratio are the gross profit and sales, which mean net sales, obtained after deducting the value of goods returned by the customers from total sales. Gross profit results from the difference between net sales and cost of goods sold without taking into account expenses generally charged to profit and loss account. It is thus clear that operating expenses are not involved.

Cost of goods sold in the case of a trading concern is the purchase price of goods and all expenses directly connected with the purchase of goods while in case of manufacturing concern it consists of the purchase price of raw materials and all manufacturing expenses.

Significance :

Gross profit ratio indicates the degree to which selling prices of goods per unit may decline without resulting in losses on operations for the firm from a different angles, it shows the average mark-up obtained on products sold but it does not necessarily represent the mark-up on individual products or products lines. There is no noun for judging the gross profit ratio and, therefore, evaluation is a matter of judgement. In order to analyse the gross profit margin effectively, information should be available with respect to purchasing mark-ups and mark-downs, credit and collections as well as general merchandising policies. However, these data are not usually available to the external analyst.

The gross profit should be adequate to cover the operating expenses and to provide for fixed charges, dividends and building up of reserves.

A low gross profit may indicate unfavourable purchasing and mark up policies, the inability of management to develop sales volume, thereby making it impossible to buy goods in large volume, marked reduction in selling prices not accompanied by proportionate decrease in cost of goods, over expansion or over-investment in plant facilities, unfavourable property locations and excessive competition.

On the other hand, an increase in the gross profit ratio may reflect an increase in the sale price of goods sold without any corresponding increase in costs, a decrease in cost without its impact on the sale price of goods; stock at the commencement of the trading period valued at a figure lower than it should have been, artificial inflation of sale figures of the inclusion therein of goods sent on consignment while the same are included in closing stock, omission of purchase invoices from accounts, over valuation of stock of goods at the end of accounting period.

11) Operating Ratio :

Meaning :

Operating ratio matches cost of goods sold plus other operating expenses, on one hand, with net sales, on the other. The ratio is closely related to the ratio of operating profit to net sales which can be obtained by subtracting the operating ratio from 100.

Formula :

$$\text{Operating Ratio} = \frac{\text{Cost of goods sold} + \text{operating expenses}}{\text{Net sales}}$$

Components :

Operating expenses consists of the following :

a) Selling and distribution expenses, like salaries of salesman, advertising and travelling expenses.

b) Administrative expenses like rent, insurance, salaries of office clerks, directors fees, legal expenses etc.

Significance :

The ratio shows the percentage of net sales that is absorbed by the cost of goods sold and operating expenses. Naturally higher the operating ratio, the less favourable it is because it would leave a smaller margin to meet interest, dividends and other corporate needs. It can also be used as a partial index of overall profitability but cannot be used as a test of financial condition without taking into account financial and extraordinary items. In interpreting the operating ratio full recognition must be given to the possibility of variations in expenses from year to year, or company to company, due to changes or differences in policies involving expenses that are subject to managerial decisions. In general for manufacturing concerns, operating ratio is expected to touch a percentage of 75 to 85%.

The ratio of operating profit to sales, which is deducted from the operating ratio, reveals the profitableness of sales and indicates the portion remaining out of every rupee worth of sales after all current operating costs and expenses have been met.

12) Expenses Ratio :

Meaning :

These supplement the information given by operating ratio. This ratio indicates a portion of net sales revenue which is consumed by various operating expenses.

Formula :

$$\frac{\text{Each individual expenses}}{\text{Net Sales}}$$

Components :

Factory overheads, administrative overheads, distribution overheads etc. and sales.

Significance :

Expenses ratios represents summation of changes in net sales and in the expenses items, are valuable in componing similar business or operating data from year to year for same business. In interpreting the ratios, it must be kept in view that if an expense is a fixed amount e.g. building a tax, the ratio of the item would decrease as the value of sales increases but a variable expense, like commission on sales should remain at about the same percentage.

13) Net Profit Ratio :

Meaning :

This ratio goes beyond the gross profit margin and indicates a firms ability to cover administrative and selling costs. These costs requires cash outlets and depreciation which a company must ultimately provide for.

Formula :

$$\frac{\text{Net profit}}{\text{Sales}} \times 100$$



Components :

Its components are non-operating income, like interest or dividend on investments etc. to operating profit and deducting non-operating expenses, such as loss on the sale of old assets, provision for legal damages etc. from such profits.

Significance :

This is an effective measure to check the profitability of a business. This is an indication of the company's performance and its sales promotion. This shows that portion of sales which is left over after deduction of all expenses.

14) Return on Shareholders Investment :

Meaning :

Return on shareholders investment also called Return on proprietors funds is the ratio of net profit to proprietor's fund as shown by the balance sheet which are the same as total assets less liabilities.

Formula :

$$= \frac{\text{Net profit}}{\text{Shareholder's Fund}}$$

Components :

Shareholders investment includes all categories of share capital, capital reserve, all revenue reserves and accounts of appropriations profits. It is usual for the calculation of this ratio to take into consideration the average of the figures

relating to shareholders investment in the beginning and ending balance sheets.

So far as profits are concerned, they are to be visualised from the view point of the return to shareholders with the result that they should be arrived at after payment of taxes and interest on long term liabilities. This is so because this income alone would be available to the shareholders for dividends.

Significance :

This ratio indicates the actual return on shareholders investment in the company. If the percentage is high, the shares have a good marketable value and if low the return to the shareholders is very poor.

15) Return on Equity Capital :

Meaning :

Another aspect to be considered in the analysis of overall profitability is the Rate of Return on Equity Capital which relates the net profits available to equity shareholders to the amount of capital invested by them.

Another way of looking at the rate of return as equity capital is to divide the net profit available to equity shareholders by the number of outstanding equity shares in order to calculate earning per equity share.

There are several interpretations of return on equity capital and by the most important has been the one in which it is looked upon as return on total capital employed. According to this interpretation, net profit available to equity shareholders are related to recorded claims of these residual claimants including equity share capital, revenue reserves and appropriation of profits.

Formula :

$$= \frac{\text{Net Profit} - \text{Dividend due to profit Shareholders}}{\text{Equity Share Capital}}$$

Earning per equity share capital

$$= \frac{\text{Net Profit} - \text{Dividend due to pref-shareholders}}{\text{Number of equity shares}}$$

Components :

For the purpose of calculating this return, net profits are arrived at after deducting the dividend due to preference shareholders, if any. Moreover if preference shareholders have a right to participate further in the profits after a certain rate of dividend has been paid to equity shareholders, such participating dividend would also have to be subtracted in order to arrive at profits due to equity shareholders.

Significance :

This rate of return is designed to show what percentage, the earned profit of the period bears to the amount of capital

invested by equity shareholders. It is used to compare the performance of a company's equity capital with those of other components so that if two companies are alike in quality. We equally well-known, have different rates of return on equity capital and there is no indication of the future being in any way different from the past, the company with higher return on equity capital will be favoured by the investors and a greater market valuation will be placed on its shares.

16) Return on Capital Employed :

Meaning :

The capital employed in a business may be defined in a number of ways but the two most widely accepted definitions are 'gross capital employed and net capital employed. Another interpretation of the term is 'Proprietors Net Capital Employed' which has already been discussed under 'Return on Shareholders Investment'. The interpretation to be brought into play depends upon the purpose for which 'Capital employed' figure is to be used. If the purpose is to show the shareholders what is being earned for them the use of 'Proprietors Net Capital Employed' or Return on Shareholders Investment or Return on Capital Contributed' is appropriate. However, for studying the economics of a particular line of business or for evaluating the efficiency of internal management, gross or net capital employed concept is more appropriate. It is always better to use them together and also to supplement the conclusions derived by calculating the return on shareholders investment so that these criteria of management efficiency are put to test in concert.

Gross capital Employed usually comprises the total assets used in the business while 'Net Capital Employed'. Consists of total assets used in the business while 'Net Capital Employed' consists of total assets of the business less its current liabilities. However, in the commonly accepted sense, the term covers capital capital reserves, revenue reserves including profit and loss account balance and long term loans such as debentures. Nevertheless, there is a good deal of controversy among accountants over the items to be included in the term capital employed.

Formula :

$$= \frac{\text{Profit before tax and interest}}{\text{Average capital employed}} \times 100$$

Components :

All fixed assets, like land and buildings, plant and machinery, furniture and fitting, motor vehicles etc. should be included. As regards the valuation of these assets there are three recognised alternatives - gross value, net value and replacement cost. Gross value represents the original cost of the asset while the net value is the written down value. Though both these methods have their own supporters, latter one is preferred on balance. However, owing to the continuing problem of inflation during recent years, accountants have increasingly become conscious of the defects of the historical costs and the advantages of replacement cost. The replacement cost basis of valuation envisages the revaluation of fixed assets by assessing their current market values either by reference to reliable

published index number or an valuation of experts. Thus, in calculating capital employed, the choice lies between the net value or replacement cost of the assets, with the latter steadily gaining ground due to a more realistic assessment of the financial position that it presents. In case replacement cost basis is adopted, it would call for the recalculation of the provisions for depreciation because charges in profit and loss account would be based on the original cost of the assets.

If any assets are idle for a considerable period e.g. due to obsolescence or short working, it is considered advisable to exclude them from capital employed.

Following points are important regarding the calculation of capital employed.

i) Though idle assets are excluded from capital employed, stand by plant and equipment essential to the normal running of a machinery should not be excluded.

ii) Intangible assets, like goodwill, patent and trademarks are generally excluded, unless they have potential sale value, because intangible assets should be written off as quickly as possible.

iii) Where investments have been made outside the business, they are to be excluded but those made for the bonafide purposes of business are included.

iv) Fictitious assets like preliminary expenses, account of deferred revenue expenditures are excluded.

v) All stocks, raw materials, work-in-progress and finished goods - are included in capital employed by valuing them on a consistent basis, generally at cost.

vi) Normal trade debtors are included in capital employed after taking into account provisions for doubtful debts.

vii) Any balance at bank in excess of the normal requirements of a business may be excluded.

There are differences of opinion regarding the calculation of capital employed. These differences arise owing to the desire to introduce as much accuracy as possible in the estimates of return on capital employed. Some people are of the view that the figure of capital employed must be such that it may fairly represent the capital investment throughout the year and therefore, they bring in the concept of average capital employed. The logic behind this is that usually, a business earns profits all through the year and the same remain in the business. Only at that end of the year, they are distributed as dividends with the consequence that this factor has to be reckoned in the calculation of 'capital employed' and this is done either finding the simple arithyed at the beginning as well as at the end of the year or by adjusting half of the profits after tax and interest to the capital employed on the assumption that profits have been evenly earned throughout the year.

If the 'net capital employed' has been calculated from the asset side half of the profits earned during the year are deducted in order to arrive at 'average net capital employed'. In case 'net capital employed' is being computed with the help of items on the liabilities side, of which profit and loss account is one, half of the profit earned during the year have to be subtracted for obtaining the figure of 'average net capital employed' but if profit and loss account is not one of the items on the liabilities side, this portion of profits is to be added for reaching 'average net capital employed.'

However, if the concepts used in one of gross capital employed no such adjustments are necessary.

Income, or net profit for the purpose of computing return on capital employed, will be determined according to the base used if gross capital is taken, profit should relate to gross capital is taken, profit should relate to gross capital and if net capital concept is used profit should be what is earned by that capital. Therefore, the figure of profits, as used in the calculation of capital employed, is the net profit with adjustments made, if necessary for :

- a) Any abnormal or non-recurring losses or gains.
- b) Depreciation based on the replacement cost of the assets.
- c) Income from investments outside the business.

- d) As long term liabilities are included in capital employed interest on such liabilities should be added back to the 'net profit' for the sake of consistency. In the case of gross capital employed even interest on short term liabilities, if any, should be added because such liabilities are part of 'gross capital employed.'
- e) 'Net profits' to be taken into consideration should be before the payment of income tax so that income tax paid, or provision for the same, made in accounts, has to be restored to profits. This is so because tax has nothing to do with the earning capacity of the business and is paid after the profits have been earned.

In this way, the profit is brought into line with that use for capital employed for the sake of management planning and control. All these adjustments are made to net profits because 'return on capital employed' is a measure of the economic justification of a particular line of business requiring the 'net income' to reflect the economic facts relating thereto. It should never be confused with 'return to shareholders' as is sometimes done, which is an entirely different concept.

Summary of items included in 'capital employed'.

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1) First Alternative

a) Fixed Assets -

Land and building
Plant and Machinery
Fixtures and furniture
Motor vehicles

b) Investments made in the business

c) Current Assets -

Stock
Debtors - R.D.D.
Bank Balance
Cash in hand

d) Current Liabilities -

Creditors
Bank overdraft.

2) Second Alternative

Issued share capital
Capital Reserves
Revenue Reserves
Debentures.

Significance :

The concept of 'return on capital employed' has been given much attention in recent years, particularly in the field of financial management where it is used to determine

whether a certain goal has been achieved or whether an alternative use of capital is justified. Further it is also used as a basis for various managerial decisions.

In fact, the starting point of business budgeting should be the determination of a minimum rate of profit on capital investment which is then worked backwards for planning the detail of business operations. This is the minimum return expected on capital employed and in order to attract capital to a particular business, a fair return has to be paid. Then, the laying down of a minimum return is also essential from the point of view of making a correct choice of investments so that if adequate return is not forthcoming in a particular line, the same may be discarded in the favour of a more creative alternative. There is hardly any criterion for determining the minimum returns with reference to which return on capital investment may be judged.

'Return on capital employed' is the only measure which can be said to show satisfactorily the overall performance of an undertaking from the stand point of profitability - the benefits being obtained in the shape of income for the sacrifice involved in the form of capital invested. It enables the management to show whether the funds entrusted to it have been properly used or not. Thus it can become an integral part of the budgetary control system in order that the management may be able to follow the progress being made and to corrective action, if necessary.

17) Capital Gearing Ratio :

Meaning :

The term capital gearing is used to describe the ratio between the equity shares capital and fixed interest bearing securities of a company. Where the holders of fixed income bearing securities have acquired a lions share in the income of a business enterprise, it is said to be 'highly geared'. The situation is manifested most commonly where there is a small equity holding compared with fixed income bearing securities.

Formula :

$$= \frac{\text{Equity Capital}}{\text{Fixed Interest Bearing Securities}}$$

Components :

Equity capital, preference share capital, debentures.

Significance :

Capital gearing ratio belongs to the family of leverage ratios and is important and not only to prospective investors but also to the company. It must be carefully planned in as much as it affects the company's capacity to maintain an even devided distribution policy during difficult trading periods that may occur. Moreover, its immediate effect may be to enable a company to pay higher equity dividends when there is

only a narrow margin of profit but its long range effects on the efficiency of a company are far-reaching. Distribution policies and the building up of reserves, as well as a stable dividend policy, are all affected by company's 'gear-ratio'.

Though capital gearing ratio together with the debt to equity ratio are by far the most important means of the analysis of the capital structure, following ratios are also used to throw light on certain aspects of the capital structure.

18) Total Investment to long-term Liabilities :

Meaning :

This ratio is the proportion of share capital and loan capital.

Formula :

$$= \frac{\text{Share capital}}{\text{Loan capital}}$$

Component :

Equity share, capital and preference share capital.

Significance :

This makes the different approach to the method of financing the business and is based on the principle that there should not be too high a proportion of long-term liabilities.

19) Current Liabilities to Proprietors Funds :

Meaning :

This ratio is the proportion of current liabilities and proprietors funds.

Formula :

$$= \frac{\text{Current Liabilities}}{\text{Proprietors Funds}}$$

Components :

Current liabilities includes credits, bank aid, bills payable, provision for income tax, outstanding expenses and proprietors funds includes all type of share capital, capital reserve, and all revenue reserve and accounts of appropriation of profits.

Significance :

This ratio measures the amount of funds raised by the proprietors as against those raised by short term borrowings. A high ratio indicates that the firm will be slow in paying its bill because, if the owners have not put enough of their own funds in the business, suppliers of long-term funds would be unwilling to expose themselves to the risks and the firm will have to resort to short term stop-gap financing to a large extent. The standard for the ratio is 35 percent.

20) Ratio of Reserves to Equity Capital :

This ratio establishes relationship between reserves and equity capital.

Formula :

$$= \frac{\text{Reserves}}{\text{Equity capital}}$$

Component :

Reserves includes all types of reserves and equity capital.

Significance :

This ratio reveals the policy pursued with regard to growth shares. If a conservative policy regarding the distribution of dividend is followed the ratio may be unduly high. It also indicates the extent to which value of equity shares has gone up by the ploughing back of profits.

21) Sundry Measuring Devices :

Fixed Assets Turnover Ratio :

Fixed assets turnover ratio measures the efficiency with which the firm is utilising its investment in fixed assets.

Formula :

$$\text{Fixed assets turnover} = \frac{\text{Sales}}{\text{Net fixed assets}}$$

Components :

Fixed assets consists of land, building, plant and machinery, furniture, etc. with their depreciated value and sales is the another important component.

Significance :

The firms fixed assets turnover ratio should be compared with past and future ratios and also with the ratio of similar firms and the industry average. Generally a high fixed assets turnover ratio indicates efficient utilisation of fixed assets in generating sales. While a low ratio indicates inefficient management and utilisation of fixed assets. However, the analyst should be cautious in deriving conclusions from the fixed assets turnover ratio. To obtain fixed assets turnover ratio, sales are divided by depreciated value of fixed assets, not the market value. Thus a firm whose plant and machinery has considerably depreciated, may show a higher fixed assets turnover ratio than the firm which has purchased plant and machinery recently. By comparing the fixed assets turnover ratio of the two firms it cannot be concluded that the former is efficient in managing fixed assets. Both the firms may be, in fact, equally efficient or the second firm may be more efficient.

21) Working Capital Turnover :

This ratio is the relationship between net sales and net working capital. In order to test efficiency working capital turnover ratio is calculated.

Formula :

$$= \frac{\text{Net sales}}{\text{Net working capital}}$$


Components :

Working capital and sales are two component. Working capital is arrived at by deducting current liabilities from from current assets. Current assets includes Bank, stock, cash, debtors, bills receivables account and current liabilities consists of bank overdraft, creditors, bills payable, income tax dividend etc.

Significance :

Larger the net sales in comparison with net working capital the less favourable the situation is likely to be if the resultant net working capital turnover has been made possible by the use of an excess amount of current credit. The real danger lies in the possibility of a decline in sale due to unforeseen circumstances, like cancellation of orders, strikes, depressions and competitions.

A high working turnover may be the result of favourable turnovers of inventories and receivables or may reflect an inadequacy of net working capital accompanied by a low turnovers of net working capital may be the outcome of an excess of net working capital, slow turnover of inventories and receivables, a large cash balance or investment of working capital in the form

of temporary investments. Thus in interpreting the net working capital turnover, the analyst should exercise considerable caution because the working capital turnover ratio is a composite of a number of relationships, each one of which should be analysed carefully to account for changes from year to year or between companies.

22) Ratio of Operating Profit
to total operating assets :

Meaning :

This ratio is the relationship between operating profit and total operating assets used in regular conduct of the business.

Formula :

$$= \frac{\text{Operating profit}}{\text{all assets except investments}}$$

Components :

The operating profit figure should not include other income and expenses income tax or extraordinary items. Total operating assets figure should include all assets except long period investments and other assets not used in connection with obtaining a major revenue or sales income. The accumulated provision for depreciation must be deducted from the assets.

Significance :

The ratio is an index of the economic productivity of the funds invested in the business and is an overall measure of the efficiency of the business. It shows the earning on assets independently of the sources of funds invested in them. However, caution must be exercised in studying this ratio for different companies because of the possible presence of uncomparable data arising due to variations in asset valuation and amortisation methods, difference in the composition of assets, income and expenses items, absence of coincidence of accounting periods and different depreciation and amortisation policies.

23) Total Assets Turnover :

Meaning :

This ratio is the relationship of total assets and sales in a business.

Formula :

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

Components :

Total assets includes fixed assets as well as current assets and the another important component for calculating this ratio is sales.

Significance :

A high ratio indicates over trading of fixed assets while a low ratio shows excessive investment - a symptom of idle capacity. The traditional standard for the ratio is two times. Some people use cost of goods sold in numerator instead of sales.

24) Earning per share :

The profitableness of common shareholders investment can be measured in many other ways. One such measure is to calculate the earning per share. The earning per share are calculated by deviding net profit after taxes less preference dividend by total number of common share outstanding.

$$\text{EPS} = \frac{\text{Net profit after taxes preference dividend}}{\text{Number of common shares outstanding}}$$

The earning per share calculations made over year indicates whether or not the firms earning power on per share basis changed over that period. The earning per share of the company should be compared with the industry average and the earnings per share of other firms. The earning per share measures simply shows the profitability of the firm on a per share basis. It does not reflect how much is paid as dividend and how much is retained in the business. But as a profitability index it is valuable and widely used ratio.

25) Dividends per share :

The net profits after taxes belong to shareholders. But the income which they really receive is the amount of earnings distributed and paid as cash dividends. Therefore, a large number of present and potential investors are more interested in the dividend per share, rather than the earnings per share. The dividend per share is the earnings distributed to common shareholders divided by number of common shares outstanding.

$$\text{DPS} = \frac{\text{Earning paid to shareholders}}{\text{No. of common shares outstanding}}$$

26) Dividend Pay-out Ratio :

The dividend pay-out ratio sometimes simply called as pay out ratio is the dividends per share or total dividends divided by the earning per share or total shareholders earning.

$$\text{Payout Ratio} = \frac{\text{Dividend per share}}{\text{Earning per share}}$$

27) Dividends and Earnings yields :

The dividend yield is the dividends per share divided by the market value per share and earning yield is the earnings per share divided by the market value per share.

$$\text{Dividend yield} = \frac{\text{Dividends per share}}{\text{Market value per share}}$$

$$\text{Earnings yield} = \frac{\text{Earning per share}}{\text{Market value per share}}$$

The dividend yield and earning yield evaluate the shareholders return in relate to the market value of the share. The information on the market value per shares is not generally available from the financial statements it has to be collected from external source such as stock exchanges. The earnings yield is also called the earning price ratio.

28) Price Earning Ratio :

The reciprocal of the earning yield or the earning price ratio is called the price earnings ratio. Thus,

$$\text{Price earning ratio} = \frac{\text{Market value per share}}{\text{Earning per share}}$$

The price earning ratio (P/E ratio) is widely used by the security analyst to evaluate the firms performance as expected by investors. It indicates investors judgement or expectations about the firms performance as expected by investors. Management is also interested in this market appraisal of the firms performance and will like to find the causes if the P/E ratio declines.

Price earning ratio reflects investors expectations about the growth in the firms earnings. Industries differ in their growth prospects accordingly, the P/E ratio for industries vary widely.

29) Earning Power :

The two ratios employed to measure the firms operating efficiency are :

- a) the net profit margin and
- b) the investment turnover.

Individually these ratios do not give a complete picture of the effectiveness of the firms operations. For example the net profit margin does not consider the profitability of investments. While the investment turnover fails to consider the profitability on sales. It is the return on investment ratio, which is an adequate measure of the firm's operating efficiency. This ratio indicates the firms earning power and is the product of net profit margin and the investments turnover.

$$\text{Earning Power} = \frac{\text{Return on investment}}{\text{Net profit margin} \times}$$

Investment turnover

As stated earlier the term investment may refer to total assets, capital employed or shareholders equity. Here we shall use investment in the sense of 'capital employed'. This earning power may be calculated as -

$$\begin{aligned} \text{Earning Power} &= \frac{\text{Net profit after taxes}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Capital employed}} \\ &= \frac{\text{Net profit after taxes}}{\text{Capital employed}} \end{aligned}$$

30) Efficiency Ratio :

This ratio is defined as the standard hours, equivalent to the work produced expressed as a percentage of the actual hours spent in producing the work.

$$\frac{\text{Standard Hours}}{\text{Actual Hours}} \times 100.$$

Standard hours are = Actual output x $\frac{\text{budgeted direct labour hour}}{\text{budgeted output}}$

This is the relationship between the actual number of working hours and the budgeted number.

31) Activity Ratio :

This is defined as the number of standard hours equivalent to the work produced expressed as a percentage of the budgeted hours.

$$\frac{\text{Standard Hours}}{\text{Budgeted Hours}} \times 100$$

Role Played by Ratio Analysis :

Basically, ratio analysis is useful to the same extent and in the same way, for financial analysis as statistics are useful in the study of the numerical aspect of a problem. It simplifies, summarizes and systematizes a long array of accounting figures. Its main contribution lies in bringing into bold relief the interrelationship which exists between various segments of business, as expressed through accounting segments and to avoiding any distortions that may result from an absolute study of counting information.

It is an instrument for diagnosis of the financial health of an enterprise. This is done by evaluating, in a broader context, important aspects of the conduct of business like liquidity, solvency, profitability, capital gearing etc. Such an evaluation enables conclusions to be drawn regarding the financial requirements and the capabilities of business units, which conclusions cannot be easily derived from the usual tenor of financial statements.

Further, the ratio analysis can be of invaluable aid to management in the discharge of its basic functions forecasting, planning, co-ordination, communication and control. By an analytical study of the past performance of the business, it helps in predicting and projecting the future; it assists in communication by conveying information, which is pertinent and purposeful to those for whom it is meant; it promotes co-ordination by a study of the efficiency of the business, it paves the way for effective control of business operations by undertaking an appraisal of both the physical and monetary targets. Hence ratio analysis becomes an integral part of budgetary control system.

An important point in connection with use of the ratios, is that, in numerous situations, a few ratios portray a certain aspect of the conduct of business. Thus a credit manager who has a large number of invoices flowing across his table each day may limit himself to three ratios or evidence of whether the prospective buyer of goods would pay promptly - current ratio to

ascertain the capacity of the buyer to meet his short term obligations, debt to equity ratio to determine the quantum of proprietors funds in the business and one of the profitability ratios to assess the future prospects of the firm. A sales manager will normally be interested in ratios on sales, selling costs and related aspects while the production manager will be interested in ratios relating to the production function.