# Unit 4: Ratio analysis

**4.0 Aims and Objectives**

This unit aims at discussing the meaning, importance and limitations of ratio analysis. It also explains the different ratios and their uses.

After reading this unit, you will be able to:

* grasp the significance of ratio analysis
* understand the limitations of ratios
* classify the ratios
* calculate the ratios and interpret the different kinds of the specific purposes.

**4.1 Introduction**

The preceding unit is about the meaning and importance of financial statement analysis, and also the various tools or techniques of financial analysis including the simple and commonly used tools of analysis, viz., comparative statements and common size statements. But these simple tools will not be helpful to the analyst to make out the firm’s financial position and performance. For a meaningful and realistic assessment of the position and performance of the firm the analysis (analyst) should try to establish and evaluate the relationship between different component items of the basic financial statements, i.e., Balance Sheet and Income Statement. Ratio analysis will be found useful in this regard. Ratio analysis has become the most widely used and powerful tool of financial analysis. The importance of ratio analysis is so much that sometimes ratio analysis is regarded as a synonym to the financial analysis.

**4.2 meaning of ratio and ratio analysis**

The term, ‘ratio’, refers to the numerical or quantitative relationship between items or variables. It shows an arithmetical relationship between two figures. It is also defined as “the indicated quotient of two mathematical expressions” and as “the relationship between two or more things”. The relationship between two accounting figures expressed mathematically is known as ‘financial ratio’ or ‘accounting ratio’ or simply as a ratio. These ratios are generally expressed in three ways. It may be a quotient obtained by dividing one value by another. For example, if the current assets of a business on a particular date are Birr 200, 000 and its current liabilities Birr 100, 000 the resulting ratio would be Birr 200, 000 divided by 100, 000 i.e., 2:1. The ratio can be expressed as a percentage as well. Taking the same particulars, it may be stated that the current assets are 200% of the current liabilities. Sometimes ratios are expressed as so many ‘times’ or ‘fraction’: for example, the current assets may be stated as being double the current liabilities or current liabilities was half of current assets.

Ratio analysis is the process of computing, determining and interpreting the relationship between the component items of financial statements.

**4.3 Importance of ratio analysis**

Ratio analysis is an extremely useful and the most widely used tool of financial analysis. It makes for easy understanding of financial statements. It facilitates intra-and inter-firm comparison. Ratios act as an index of the efficiency of the enterprise. A study of the trend of strategic ratios helps the management in planning and forecasting. Ratios help the management in carrying out its functions of coordination, control and communication. The analysis of ratios may reveal maladjustments in planning, organizing, coordinating and monitoring different activities of an organization. It will help to identify the specific weak areas, causes thereof and type of remedial actions called for. A purposeful ratio analysis helps in identifying problems such as the following and in finding out suitable course of action.

1. Whether the financial condition of the firm is basically sound,
2. Whether the capital structure of the firm is appropriate,
3. Whether the profitability of the enterprise is satisfactory,
4. Whether the credit policy of the firm is sound, and
5. Whether the firm is credit worthy.

In short, through the technique of ratio analysis the firm’s solvency both long and short term efficiency and profitability can be assessed.

**4.4 Limitations of ratio analysis**

At the outset it should be noted that ratio analysis is not an end in itself but a means to the answering of specific questions which the users of the financial statements have in relation to the financial condition and results of operations of the firm.

Ratios are derived from financial statements. The financial statements suffer from a number of limitations and ratios which are derived form these statements are also subject to these limitations.

Ratios are meaningless, if detached form their source.

Ratios, as they are, are not of much significance. They become useful only when they are compared with some standards.

Ratio analysis should be made with caution in the case of inter-firm comparison. Unless the firms in question follow identical accounting methods for items like depreciation, stock valuation, deferred revenue expenditure, the writing off of capital items, etc., ratios will not reflect the figures which are truly comparable.

No ratio may be regarded as good or bad as such. It may be an indication the firm is weak or strong, not a conclusive proof there of.

Ratio analysis may give misleading results if the effect of changes in price level is not taken into account.

No ratio analysis can be meaningful unless the questions sought to be answered are clearly formulated.

The nature of the business (whether trading or manufacturing) and the industry’s characteristics which affect the figures in the financial statements and their inter-relationships should be clearly understood and born in mind in order to made meaningful ratio analysis.

The social, economic and political conditions which form the background for the firm’s operations should be understood so as to make ratio analysis meaningful.

These limitations, to a considerable extent, can be eliminated or corrected:

1. if the analysis is related to one firm over a period of time;
2. if the analysis is limited to a few well chosen ratios which can answer specific questions;
3. if the results of the firm are compared with suitable norms or standards;
4. if the ratios are used primarily for the identification of areas for further managerial analysis and formulation of alternatives available to the management in solving such problems;
5. if the ratios are interpreted in the light of social, political, economic, technological and business conditions under which the firm operates.

If ratio analysis is done mechanically it will be not only misleading but also positively dangerous. If it is used with a measure of caution, reason, and logic it can be a powerful management tool not so much for providing answers but for highlighting management issues and for identifying possible alternatives.

**4.5 Classification of ratios**

Some writers have contended that there are as many as 429 business ratios. But all these ratios need not be calculated for a particular study. On the basis of the nature of the business concern, the circumstances in which it is operating, and the particular questions to be answered from the ratio analysis, certain ratios should only be selected. Every attempt should be made to keep the number of ratios as far as possible to the minimum. This avoids possible confusion in the interpretation of ratios.

Financial ratios may be classified in various ways.

1. On the basis of their importance the ratios may be classified as (1) Primary ratios and (2) Secondary ratios. Operating Profit (before interest and taxes) to operating capital employed is usually described as the primary ratio. Under this category the various related ratios are those of operating profit to value of production, cost of production to value of production, net sales to capital employed etc.

The following ratios are usually included in the secondary ratios category:

The ratios of Direct Materials cost to value of production. Direct Material per factory employee, out put or work per factory employee, goods for sale per factory employees, etc.

1. On the basis of the source (i.e., the financial statement(s) from which items are taken to calculate ratios) ratios may be classified into the following categories:

Balance Sheet ratios, or Income Statement ratios and combined ratios.

Balance Sheet ratios are the ratios which express the relationship between items which are both taken from the Balance Sheet. The current assets to current liabilities (called ‘current ratio’). Quick assets to current liabilities (called ‘Quick ratio’), Debt-Equity ratio etc. may be cited as examples.

Income statement ratios are the ratios which deal with the relationship between items of the Profit and Loss Account. Examples of this ratio are Gross Profit to sales, Net Profit to Sales, Operating ratio, etc,.

Combined ratios are the ratios which express the relationship between two figures one of which is drawn from the Balance Sheet and the other from Income Statement.

Its examples are Activity ratios or Turnover ratios, Return on Capital employed, Return on Shareholders Equity, etc.

1. On the basis of the nature of items the relationships of which are explained by ratios, the ratios may also be classified as Financial Ratios and Operating Ratios. Financial ratios deal with non-operational items which are financial in character. Its examples are current ratio, quick ratio, debt equity ratio, etc.

The operating ratios explain the relationship between items of operations of the firm. Its examples are turnover or activity ratios, earning ratios, expense ratios, etc.

1. The most important and commonly adopted classification of ratios is on the basis of the purpose or function which the ratios are expected to perform. Such ratios are also called ‘functional ratios’. They include solvency ratios, liquidity ratios, activity ratios and profitability ratios. In fact, the entire ratio analysis can be discussed in relation to the orientation of the functional basis of ratio classification.

Solvency ratios reveal the long-term solvency of the firm. They show the relative interest of the owners and creditors in the enterprise.

Liquidity ratios bring out the ability of the firm to honor its financial obligations as and when they mature.

Activity ratios measure the efficiency with which funds have been employed in the business operations.

Profitability ratios measure the profit earnings capacity of the enterprise. The profitability of the firm can be viewed from the point of view of management, owners and creditors.

As mentioned earlier several ratios can be calculated from the data contained in the financial statements. All these ratios can be grouped into various classes according to the function to be evaluated. Different persons, as has been pointed out undertake financial statements analysis for different purposes. For instance, short-term creditors take interest mainly in the short-term solvency or liquidity position of the firm. Long term creditors are more interested in the long-term solvency and profitability of the firm and owners interest lies in the profitability analysis and financial condition of the firm. The management of the firm is interested in evaluating every activity of the firm. In view of the requirements of the various users of financial analysis the functional classification of ratios becomes important, some important functional ratios are explained here under:

#### Check Your Progress –1

1. How can you classify the Ratio?

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ii) Give two examples of Balance Sheet ratios.

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**4.6 Leverage ratios or capital structure ratios**

These ratios are also known as ‘long term solvency ratios’ or ‘capital gearing ratios.’ As stated earlier, the long-term creditors (debenture holders, financial institutions, etc) are more concerned with the firm’s long-term financial position than with others. They judge the financial soundness of the firm in terms of its ability to pay interest regularly as well as make repayment of the principal either in one lump sum or in installments. The long-term solvency of the firm can be examined with the help of the leverage or capital structure ratios. These ratios indicate the funds provided by owners and creditors. Generally, there should be an appropriate mix of debt and owners’ equity in financing the firm’s assets. Each of the two sources of funds, viz., creditors and owners depending on which of them has been used to finance a firm’s assets, has a number of implications. Between debt and equity (owners’ funds) debt is more risky from the firm’s view point. Irrespective of the profits made or losses incurred, the firm has a legal obligation to pay interest on debt. If the firm fails to pay to debt holders in time, they can take legal action against the firm to get payment and even can force the firm into liquidation. But at the same time the use of debt is advantageous to the owners of the firm. They can retain the control of the firm without dilution and their earnings will be enlarged when the firm earns at a rate higher than the interest rate on the debt. The owners equity is created as the margin of safety by the creditors. In view of the above stated facts, it is relevant to assess the long-term solvency of the firm in terms of the owner’s and creditors contribution to the firm’s total capitalization.

Leverage ratios can be calculated from the Balance Sheet items to determine the proportion of debt in the total capital of the firm. Though there are many variations of these ratios all of them indicate the extent to which the firm has used debt in financing its assets.

Leverage ratios are also calculated from the income statements items to determine the extent to which operating profits are sufficient to cover the fixed charges. This type of leverage ratios are popularly known as ‘coverage ratios’

The most commonly calculated leverage ratios include: (1) debt equity ratio. (2) debt to total capital ratio, and (3) gross fixed assets to shareholders funds.

**1. Debt-Equity Ratio**

This is one of the measures of the long-term solvency of a firm. This reveals the relationship between borrowed funds and the owners’ capital of a firm. In other words, it measures the relative claims of creditors and owners against the assets of the firm. This ratio is calculated in different ways. One way is to calculate the debt equity ratio in terms of the relative proportions of long-term debt (non-current liabilities) and shareholders’ equity (i.e., common shareholders equity and preference shareholders equity).

Debt-Equity ratio = 

Past accumulated losses and deferred expenditure should be excluded from the shareholders equity. The shareholders equity is also known as the networth Accordingly, this ratio is also called debt to net worth ratio.’

Another approach to the calculation of the debt-equity ratio is to divide the total debt (i.e., long term liabilities plus current liabilities) by the shareholders’ equity.

Debt-equity ratio = 

There is no unanimity of opinion regarding the inclusion of current liabilities in debt for the purpose of calculating the debt-equity ratio. One opinion is to exclude current liabilities because of the following aspects:

1. Current liabilities are of short-term nature and the liquidity ratios explain the firm’s ability to meet these liabilities;
2. The amount of current liabilities widely fluctuates during a year and the interest amount does not bear any relationship to the book value of current liabilities shown in the Balance Sheet.

The inclusion of current liabilities in the debt is favoured on the following grounds:

* 1. Whether long term or short term, liabilities represent the firm’s obligations and so should be considered in knowing the risk concerning the firm.
	2. Like long-term loans short-term loans too have a cost.
	3. The pressure from short-term liabilities, in fact, is more on the firm than that of the long-tem debt.

**Interpretation of Debt-Equity ratio**

For the analysis of capital structure of a firm debt-equity ratio is important. It shows the extent to which debt financing has been used in the business. It also shows the relative contributions of the creditors and the owners of the business to it. A high debt-equity ratio indicates a large share of financing by the creditors in relation to the owners or a larger claim of the creditors than those of owners. The D-E ratio indicates the margin of safety to the creditors. A very high D-E ratio is unfavorable to the firm and introduces an element of inflexibility in the firm’s operations. During periods of low profits a highly debt financed company will be under great pressure; it cannot earn enough profits even to pay the interest charges.

A low debt-equity ratio implies a smaller claim of the creditors or a greater claim of the owners.

An ideal D-E ratio is 1:1. However, much will depend on the nature of the enterprise and the economic conditions in which it is operating. In periods of prosperity and high economic activity, a large proportion of the debt may be used while the reverse should be done during periods of adversity.

**2. Debt to Total Capital Ratio**

This is a variation on the D-E ratio described above. This ratio reveals the relationship between the outside liabilities and the total capitalization of the firm and not merely the shareholders’ equity. Like the debt-equity ratio, the debt to total capital (or capitalization) ratio takes two forms:

1. Debt to Total Capital Ratio = 

Permanent capital = Common Shareholders equity + Preference capital + Long term debt

1. Total Debt to Total Capital Ratio = 

**Interpretation of Debt to Total Capital Ratio**

This ratio gives results similar to those of the D-E ratio in respect of the capital structure of a firm. It indicates the proportion of the outsiders’ funds in the total capitalization of the firm. A low ratio represents security to creditors while a high ratio represents a risk to creditors. Though there is no norm prescribed for this ratio, conventionally a ratio of 1:2 is considered to be satisfactory.

**Gross Fixed Assets to Shareholders’ Funds**

This ratio indicates the extent to which the shareholders’ funds have been used to finance the fixed assets. Generally, the owners’ the owners’ capital should be enough to finance the entire fixed assets and also a part of working capital. The latest thinking or view in this area is that owners’ capital plus long-term loans should finance the whole of the fixed assets and the core part of (or fixed) working capital. According to the conservatives, this ratio should generally be less than one. According to the latest view, the ratio will be more than one. There is not distinct formula for this purpose. The decision will depend upon the type of business, nature of products and market acceptability the cost structure, capacity to generate adequate surplus, etc.

(Gross) Fixed Assets to shareholders funds (or Net Worth) ratio = 

**Illustration –1**

From the following balance sheet calculate the leverage ratios:

**Balance Sheet as on 31-12-2000**

|  |  |  |  |
| --- | --- | --- | --- |
| Share capital Equity share capital (70, 000 shares)8% Preference share capitalReserves & SurplusLong term loan (7%)8% debenturesCreditorsBills PayableAccrued Expenses | Birr700, 000400, 000400, 000200, 000500, 000120, 00040, 000170, 0002,530, 000 | Plant and Machinery(-) Accumulated depn.GoodwillInventoryReceivables Prepaid ExpensesMarketable SecuritiesCash | Birr200, 000500, 0001,500, 000280, 000300, 000200, 00050, 000150, 00050, 0002530, 000 |

**Solution**

**Debt-equity ratio:** This ratio can be calculated by taking long-term debt or total debt into account. If the long-term debt alone is considered:

DE Ratio = 

 = 0.467: or 46.7%

This indicates a low debt-equity ratio. It suggests that for every one rupee of the owners’ funds the firm has raised Birr 0.467 of long term debt.

If the total debt is considered: the D-E Ratio = 

= =0.687:1 or 68.7%

**Debt to Total Capital Ratio**

This ratio can be calculated by taking only the long-term debt or total debt and dividing it by permanent capital (plus current liabilities).

1. Debt to Total Capital Ratio = 

Permanent capital = Equity capital + Preference capital + Reserves and surplus + Long Term Debt

Debt to Total Capital Ratio = 

 = = 0.318:1 or 31.8%

1. Total Debt to Total Capital Ratio = 

Total debt = Permanent Capital + Current Liabilities

 200,000 = 2,200,000 + 330,000

 500,000 = 2,530, 000

 120,000

 40,000

 170,000

 1,030,000

 == 0.407:1 or 40.7%

Fixed Assets to Net worth Ratio = 

 = = 1.33:1

In some cases the fixed assets are compared to the total long-term funds, i.e., Net Worth plus long-term debt in which case the ratio would be

= 1:1

**Illustration –2**

Given below is the Balance Sheet of a firm as on March 31, 2000

|  |  |  |  |
| --- | --- | --- | --- |
| Capital and LiabilitiesEquity share capital10% preference share capitalRetained earningsLong term debtSundry creditorsOther current liabilities | Birr200,00080,00054,80068,00063,00054,400520,200 | AssetsPlant & machineryInventoryReceivablesCash | Birr302,000121,60072,00024,600520,200 |

Calculate the net worth, total debt, total capitalization and permanent capital. Also calculate the long-term solvency ratios of the firm.

**Solution**

 Net worth = Equity Capital + Preference Capital + Retained Earnings

 = 200, 000 + 80, 000 + 54,800 = Birr 334, 800

 Total Debt = long term debt + current liabilities

 = 68, 000 + 63, 000 + 54, 400 = Birr 185, 400

 Total capitalization = Net worth + Total Debt

 = Birr 334, 800 + Birr 185, 400

 = Birr 520, 200

 Permanent capital = Net worth + Long Term Debt

 = Birr 334, 800 + Birr 402, 800

**Leverage Ratios**

1. D.E Ratio = 

 = = 0.203:1 or 20.3%

1. D.E Ratio = 

= = 0.554:1 or 55.4%

1. Long Term Debt to Permanent Capital = = 0.169:1 or 16.9%
2. Total Debt to Total Capital Ratio = = 0.356:1 or 35.6%
3. Fixed Assets to Net worth Ratio = 

= = 0.902:1 or 90.2%

1. Fixed Assets to Long Term Funds Ratio = 

= 0.75:1 or 75%

**Check Your Progress –2**

1. What does Debt-equity ratio reveal?

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1. Give the formula for calculating Debt to total capital ratio.

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**4.7 coverage ratios**

As stated earlier, there are two categories of leverage ratios, viz., Debt-equity ratios and Coverage ratios. The debt-equity ratios have been explained in the preceding paragraphs. The second category, i.e., coverage ratios will be explained now.

The debt-equity and debt to total capital ratios indicate whether there is sufficient safety margin available to the creditors. But normally the assets of the firm will not be sold to satisfy the claims of the creditors. The claims are usually met out of the regular earnings or operating profits of the firm. These claims include interest of loans, Preference dividend, repayment of the loan (either in a lump sum or in installments) and redemption of Preference shares. From the viewpoint of long term creditors, the financial soundness of the firm lies in its ability to service their claims. This ability is revealed by the coverage ratios. Thus coverage ratios may be defined as the ratios which measure the ability of the firm to service fixed interest loans and other Preference securities.

While D-E ratios are calculated from the Balance Sheet data, the coverage ratios are computed from items of the Income Statements.

**1. Interest Coverage Ratio**

This ratio is also known as “times-interest-earned ratio”. This is one of the most conventional coverage ratios used for knowing the firm’s debt servicing capacity. This ratio is obtained by dividing earnings (or Net Profit) before interest and taxes (EBIT) by the fixed interest charges on loans.

Interest Coverage = 

This ratio shows how many times the interest charges are covered by the EBIT which are ordinarily available for paying the interest charges. This ratio indicates the extent to which the earnings of the firm may fall without adversely affecting its debt servicing capacity. A higher coverage ratio is desirable form the point of view of creditors. But too high a ratio indicates that the firm is very conservative in using debt. On the other hand, a low coverage ratio indicates excessive use of debt or inefficient operations.

**2. Dividend Coverage Ratio**

This ratio measures the ability of a firm to pay dividend on the Preference shares which is usually a limited percentage. This ratio is expressed in terms of ‘times’, i.e., the profit after tax is X times the preference dividend.

 Dividend Coverage = 

This ratio indicates the safety margin available to the Preference shareholders.

**3. Total Coverage Ratio or Fixed Charges Coverage**

This ratio has a wider coverage than the earlier two ratios. It takes into account all the fixed obligations of the firm, viz., interest on loans, preference dividend and repayment of the principal. This ratio is calculated by dividing the Earnings Before Interest and Taxes (EBIT) by the total fixed charges.

 Total Coverage = 

The higher the coverage, the better is the ability of the firm to service debt.

It is difficult to establish a norm for the coverage of fixed charges. Much depends upon the trade custom and the nature of the business. However, a ratio of 6 to 7% of net profit before tax or 3% of net profit after tax is taken standard for industrial firms. For utility undertakings the ideal ratio is 4% of the net profits before tax and 2% of the net profits after tax.

A dividend coverage ratio of at least 2 is expected to act as the standard for reference level.

**Illustration –3**

From the following particulars calculate the coverage ratios:

Net Profit Birr 300, 000

Income tax Birr 252, 000

Interest Birr 46, 000

Preference dividend Birr 32, 000

**Solution**

Interest Coverage Ratio = 

 = = 13 times

Dividend Coverage = 

 = = 9.37 times

Fixed Coverage = 

 = = 7.67 times

**Check Your Progress –3**

1. What for interest coverage ratio useful?

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1. What does dividend coverage ratio measure?

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**4.8 liquidity ratios**

Liquidity is the ability of a firm to meet its current or short-term obligations when they become due. Every firm should maintain adequate liquidity. Liquidity is also known as short-term solvency of the firm. The short-term creditors of the firm are interested in the short-term solvency or liquidity of the firm. The liquidity position is better known with the help of cash budgets and cash flow statements. But liquidity ratios also provide a quick measure of the liquidity of the firm. The liquidity ratios or short-term solvency ratios establish a relationship between cash and current assets to current liabilities. A firm’s liquidity should neither be too low nor too high but should be adequate. Low liquidity implies the firm’s inability to meet its obligations. This will result in bad credit rating, loss of the creditors’ confidence or even technical insolvency ultimately resulting in the closure of the firm. A very high liquidity position is also bad, it means the firm’s current assets are too large in proportion to maturity obligations. It is obvious that idle assets earn nothing to the firm; and in situations of high liquidity, the firm’s funds will be unnecessarily tied up in current assets, which, if released, can be used to generate profits to the firm. Therefore, every firm should strike a balance between liquidity and lack of liquidity.

The ratios which measure and indicate the extent of liquidity of a firm and known as liquidity ratios or short-term solvency ratios. They include current ratio, quick ratio or acid test ratio, and cash position ratio. There is also another measure which is frequently employed to know the liquidity position of a firm. The measure is the net working capital which represents excess current assets over current liabilities. The net working capital, strictly, speaking, is not a ratio. Hence it is not discussed here.

In all the ratios of liquidity, it is the current assets and the current liabilities and the relationship between them that are analyzed. So it is better to know what the current assets and current liabilities are and then proceed to study the different liquidity ratios.

Current assets include cash and those assets, which in the normal course of business get converted into cash within a year or the accounting periods: e.g., cash, marketable-securities, debtors, stock, etc. Prepaid expenses should also be included in the current assets because they represent the payments which have been made by the firm for the near future.

Current liabilities are those liabilities or obligations which are to be paid within a year. They include creditors, bills payable, accrued expenses, bank overdraft, income tax liability and long term debt maturing in the current year.

**1. Current Ratio**

Current ratio is the ratio of total current assets to total current liabilities. It is calculated by dividing current assets by current liabilities.

 Current ratio = 

This ratio is also called ‘working capital ratio’ because it is related to the working capital of the firm. The current ratio is an important and most commonly used ratio to measure the short-term financial strength or solvency of the firm. It indicates how many rupees of current assets are available for one rupee of current liability. The higher the current ratio, the more is the firm’s ability to meet its current obligations and the greater the safety of the funds of the short-term creditors. Thus the current ratio, in a way, provides a margin of safety to the (short-term) creditors.

To the question, “What should be the current ratio of a firm?” there is no clear-cut answer, nor is there any hard and fast rule for deciding it. Conventionally (The rule of thumb), a current ratio of 2:1 is considered satisfactory. This rule is based on the logic that even in the worst situation where the value of current assets is reduced by fifty percent, the firm will be able to meet its current obligations. The standard norm for the current ratio (i.e. 2:1) may vary from firm to firm, industry to industry or for a firm from time to time. As such, this norm of 2:1 should not be blindly followed. Also, it should be remembered that this current ratio is a crude measure of liquidity. It is a quantitative rather than a qualitative index of liquidity. It takes into account the total value of current assets without making any distinction between the various types of current assets like receivables, stocks and so on. It does not measure the quality of these assets. If the firm’s current assets include doubtful and slow paying receivables or slow moving and non-moving (non-saleable) stock of goods, then the firm’s ability to meet obligations would be reduced. This aspect is ignored by the current ratio. That is why too much reliance should not be placed on the current ratio. The ability of the assets also should be ascertained.

**Illustration –4**

The assets and liabilities of a firm as on the 31st of Dec., 2000 were as under. Calculate the current ratio and its net working capital.

**Assets** **Birr** **Liabilities & Capital** **Birr**

Plant 4, 000, 000 Share Capital 3, 000, 000

Buildings 2, 000, 000 Reserves & Surplus 800, 000

Stock 1, 500, 000 Debentures 3, 000, 000

Receivables 1, 000, 000 Creditors 600, 000

Prepaid Expenses 250, 000 Bills Payable 200, 000

Marketable Securities 750, 000 Accrued Expenses 200, 000

Cash 2, 500 Provision for Taxation 650, 000

 Long Term Loan 1, 300, 000

**Solution**

For calculating the current ratio we need to know the current assets and current liabilities

 **Current Assets** **Birr** **Current Liabilities** **Birr**

Cash 250, 000 Creditors 600, 000

Mkt. Securities 750, 000 Bills Payable 200, 000

Debtors 1, 000, 000 Accrued Expenses 200, 000

Stock 1, 500, 000 Provision for Taxation 650, 000

Prepaid Expenses 250, 000 \_\_\_\_\_\_\_\_\_

 3, 750, 000 1, 650, 000

Current Ratio = = 2.75:1

Net working capital = Current Assets – Current Liabilities

 = Birr 3, 750, 000 – Birr 1, 650, 000 = Birr 2, 100, 000

**2. Quick Ratio or Acid Test Ratio**

This ratio measures the relationship between Quick assets (or liquid assets) and current liabilities. An asset is considered liquid if it can be converted into cash without loss of time or value. Cash is the most liquid asset. Other assets which are considered to be relatively liquid and include in the quick assets are accounts receivable (i.e. debtors and bills receivable) and short term investments in securities. Stock or inventory is excluded because it is not easily and readily convertible into cash. Similarly, prepaid expenses, which cannot be converted into cash and be available to pay off current liabilities, should also be excluded form liquid assets.

The quick ratio is calculated by dividing quick assets by current liabilities:

 Quick Ratio = 

Quick ratio is a more refined and vigorous measure of the firm’s liquidity. It is widely accepted as the best test for the liquidity of a firm.

Generally, a quick ratio of 1:1 is considered to be satisfactory. But this ratio also should be used cautiously. It should also be subjected to qualitative tests, i.e., quality of the assets included should be assessed.

**Illustration –5**

Taking the same particulars of assets and liabilities given in illustration –4 of the unit, calculate the quick ratio.

**Solution**

 **Quick Assets** **Birr** **Current Liabilities**  **Birr**

Cash 250, 000 Current Liabilities 1, 650, 000

Securities 750, 000

Debtors 1, 000, 000

 2, 000, 000

 Quick Ratio = = 1.21:1

**3. Cash Position Ratio**

This is also known as ‘super quick ratio’ or ‘super acid test ratio’. It is a still more rigorous test of liquidity. For calculating this ratio, from the total quick assets the accounts recoverable (debtors and bills receivable) will also be excluded.

 Cash Position Ratio = 

The standard norm for this ratio, too, is 1:1.

This ratio is a conservative test of liquidity and is not widely used in practice.

By taking the particulars of assets and liabilities given in Illustration –1, the cash position ratio of the firm can be calculated thus:

 Cash Position Ratio = 

 = = 0.61: 1

**Check Your Progress –4**

1. Give two examples of liquidity ratios.

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1. Name three current assets.

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1. List out three current liabilities.

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1. How is current ratio calculated?

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1. What does quick ratio measure?

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**4.9 Activity ratios**

The finances obtained by a firm from its owners and creditors will be invested in assets. These assets are used by the firm to generate sales and profits. The amount of sales generated and the obtaining of the profits depend on the efficient management of these assets by the firm. Activity ratios indicate the efficiency with which the firm manages and used its assets. That is why these activity ratios are also known as ‘efficiency ratios’. They are also called ‘turnover ratios’ because they indicate the speed with which assets are being converted or turned over into sales. Thus the activity or turnover ratio measures the relationship between sales on one side and various assets on the other. The underlying assumption here is that there exists an appropriate balance between sales and different assets. A proper balance between sales and different assets generally indicates the efficient management and use of the assets. Many activity ratios can be calculated to know the efficiency of asset utilization. The following are some of the important activity ratios or turnover ratios:

**1. Total Assets Turnover Ratio**

This ratio measures the overall performance and efficiency of the business enterprise. It points out the extent of efficiency in the use of assets by the firm. This ratio is calculated by dividing the annual sales value by the value of total assets. Normally, the value of sales should be considered to be twice that of the assets. A lower ratio than this indicates that the assets are lying idle while a higher ratio may mean that there is overtrading. Sometimes, intangible assets (goodwill, patents, etc) are excluded from the total assets and the total tangible assets-turnover ratio is calculated. For calculating this ratio fictitious assets (P & L A/c debit balance, deferred expenditure, etc) should be ignored.

**2. Capital Employed Turnover**

This is also known as ‘Sales-Net worth Ratio’. The capital employed is equal to the non-current liabilities plus the owners’ equity. This represents the permanent capital or long term funds entrusted to the firm for use by the owners and creditors. The capital employed can be treated as equivalent to the net working capital plus the non-current assets. This ratio examines the effectiveness in utilizing the capital employed. It is calculated by dividing the sales value by the capital employed.

Thus the ratio indicates the firm’s ability to generate sales per rupee of the capital employed (long term funds). The higher the ratio, the more efficient the utilization of the owners’ and the long term creditors’ funds. This ratio of a firm should be compared with the industry average or similar ones.

If the Sales-Net worth ratio of a firm is found to be excessively large in comparison to that of similar firms or the industry average, it is said to be a case of overtrading, i.e., the handling of a larger turnover than is warranted by its net worth.

The efficiency of the operations of a firm need not be ascertained solely on the basis of this ratio. Other ratios which are related to it also should be considered.

**3. Fixed Assets – Turnover Ratio**

This ratio measures the firm’s efficiency in utilizing its fixed assets. Firms which have large investments in fixed assets usually consider this ratio important. It indicates the extent of capacity utilization in the firm. The ratio is calculated by dividing the total value of sales by the amount of fixed assets invested. A high ratio is an indicator of overtrading while a low ratio suggests idle capacity or excessive investment in fixed assets. Normally, a ratio of five times is taken as a standard.

Some analysts suggest the exclusion on intangible assets like goodwill, patents, etc., for calculating this ratio. For calculating this ratio, the gross fixed assets figure is preferred to the net value figure.

**4. Current Assets Turnover**

This ratio is calculated by dividing the net sales value by that of the current assets. It indicates the contribution of current assets to the sales.

**5. Working Capital Turnover**

This ratio indicates the efficiency of the employment of working capital. If supplemented with the net worth turnover ratio, it indicates the under capitalization of the overtrading of the concern. A firm is said to be undercapitalized if its return on capital is unusually high when compared to similarly situated firms. This ratio is calculated by dividing the net sales value by the net working capita. There is no standard norm for this ratio. It can only be stated that the firm should have adequate and appropriate working capital to justify the sales generated.

**6. Stock Turnover or Inventory Turnover**

This ratio indicates the efficiency of the firm’s inventory management. It is calculated by dividing the cost of goods sold by the average inventory.

 Stock Turnover = 

 Cost of goods sold = Sales – Gross Profit or

 Opening Stock + Purchases + Mfg. Costs – Closing Stock.

 Average Stock = (Opening Stock + Closing Stock)  2.

If the particulars of cost of goods sold and average stock are not available in the published financial statements the stock turnover can be calculated by dividing sales by the stock at the end, i.e.,

 Inventory Turnover = 

Between the two formulae given above for calculating the stock turnover the former is more logical and more appropriate than the latter.

This ratio indicates the rapidity with which the stock is turning into receivables through sales. Generally, a high inventory turnover is an index of good inventory management and a low inventory turnover indicates an inefficient inventory management. Low stock turnover implies the maintenance of excessive stocks which are not warranted by production and sales activities. It also may be taken as an indication of slow moving or non-moving and obsolete inventory. A too high inventory turnover also is not good. It may be the result of a very low level of stocks which may result in frequent stock-outs. The stock turnover should be neither too high nor too low.

**Illustration –6**

The sales of a firm amounted to Birr 600, 000 in a particular period on which it had a gross margin of 20%. The stock at the beginning of the period was worth Birr 70, 000 and at the end of the period of Birr 90, 000. Calculate the inventory turnover ratio.

**Solution**

 Inventory turnover = 

 = 

**7. Debtors Turnover**

Credit sales are not an uncommon feature. When the firm sells goods on credit, book debts (receivables) are created. Debtors are expected to be converted into cash over a short period and hence are included in current assets. To a great extent the quality of debtors determines the liquidity position of the firm. The quality of debtors can be judged on the basis of debtors turnover and average collection period.

Receivable turnover is calculated by dividing credit sales by average receivables

Receivables turnover = 

This ratio indicates the number of times on an average the debtors or receivables turnover each ear are created. The higher the value of debtors turnover, the more efficient is the management of assets.

If the information about credit sales opening and closing balances of receivables is not available in the financial statements, the receivables turnover can be calculated by taking the total sales and closing balance of receivables

 Debtors turnover = 

**Illustration –7**

The total sales of a firm amounted to Birr 600, 000 during a year out of which the cash sales amounted to Birr 200, 000. The outstanding amounts of debt at the beginning and at the end of the year were Birr 30, 000 and Birr 40, 000 respectively. Calculate the receivables turnover ratio.

**Solution**

 Receivables Turnover = 

 = = 11.4 times

**8. Average Collection Period**

As stated earlier the average collection period ratio is another device for indicating the quality of receivables. This ratio shows the nature of the firm’s credit policy also. The average collection period is calculated by dividing days (or months) in a year by the receivables’ turnover.

 Average Collection Period = 

The average collection period and the receivables’ turnover are interrelated. The receivables turnover can be calculated by dividing days in the yare by the average collection period.

The average collection period indicates the rigidity or slowness of their collectibility. The shorter the period, the better the quality of debtors, since the shorter collection period implies prompt payment by debtors. The firm’s average collection period should be compared with the firm’s credit terms and policy to judge its credit and collection policy. An excessively long collection period implies a too liberal and inefficient credit and collection performance while a too low period indicates a very restrictive or strict credit and collection policy. The firm’s average collection period should be reasonable and not totally different from that of the industry’s average.

Taking the particulars of Illustration –7, the average collection periods may be calculated thus:

Average Collection Period = = 32 days.

**Check Your Progress –5**

1. What is Total Assets Turnover Ratio?

**………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………**

**4.10 Profitability ratios**

Every firm should earn adequate profits in order to survive in the immediate present and grow over a long period of time. In fact, the profit is what makes the business firm run. It is described as the magic eye that mirrors all aspects of the business operations of the firm. Profit is also stated as the primary and final objective of a business enterprise. It is also an indicator of the firm’s efficiency of operations. There are different persons interested in knowing the profits of the firm. The management of the firm regards profits as an indication of efficiency and as a measure of control. Owners take it as a measure of the worth of their investment in the business. To the creditors profits are a measure of the margin of safety. Employees look at profits as a source of fringe benefits. To the government they act as a measure of the firm’s tax paying ability and a basis for legislative action. To the customers they are a hint for demanding price cuts. To the firm they constitute a less cumbersome and low cost source of finance for existence and growth. Finally, to the country profits are an index of the economic progress, the national income generated and the rise in the standard of living of the people. Therefore, every firm should earn sufficient profits in order to discharge its obligations to the various persons concerned.

Profitability means the ability to make profits. Profitability ratios are calculated to measure the profitability of the firm and its operating efficiency. They relate profits earned by a firm to different parameters like sales, capital employed, and net worth. But while making financial ratio analysis relating to profits, it should be noted that there are different concepts of profits such as contribution (sales revenue minus variable costs), gross profit, profit before tax, profit after tax, profit before interest and taxes, operating profit, profit has to be used for making the profitability analysis suitable for analyzing specific problems. Profitability ratios can be calculated with reference to the different concepts of profit mentioned earlier.

Profitability of the firm can be measured by calculating several interrelated ratios demanded by the aims of the analyst. The profitability of a firm can be measured and analyzed from the point of view of management, owners (i.e., shareholders in the case of companies) and creditors.

From the management point of view, profitability ratios are calculated for measuring the efficiency of operations. There are two types of profitability ratios calculated for this purpose. They are:

1. Profitability in relation to sales, and
2. Profitability in relation to investment.

Every firm should generate sufficient profit on each Birr of sales otherwise it would be very difficult for the firm to recover operating expenses and non-operating expenses like interest charges. Similarly, if the firm’s earnings are not adequate in term’s of its investment in assets and in terms of capital employed (contributions by owners and creditors) its very survival will be at stake.

**I. Profitability in relation to sales**

Under this category many profitability ratios are calculated relating different concepts of profit to the sales value. Some such ratios are:

**1. Gross Profit margin or Gross Profit to Sales**

This ratio is calculated by dividing gross profit by sales value.

Gross profit margin = 

This ratio is usually expressed as a percentage. It indicates the efficiency with which management produces each unit of product or service. It reveals the spread (difference) between sales value and cost of goods sold. A high gross profit margin (compared to the industry average) indicates relating lower cost of production of the firm concerned. It is an index of good management. A lower gross margin indicates higher cost of goods sold (which might be due to purchase of an unfavorable items inefficient utilization of plant and machinery or over-investment in plant, machinery and equipment), or lower sales values (which could be due to fall in prices in the market, reduction in selling price, less volume of sales, etc.)

**2. Gross Operating Margin**

This ratio is calculated by dividing gross operating margin by sales.

Gross operating margin = Gross profit minus operating expenses except depreciation.

This ratio indicates the extent to which the selling price per unit may decline without incurring any loss in the business operations. It is rather difficult to evolve a standard norm for this ratio. But it should not be lower than that of similar concerns.

*Example:* Sales: Birr 1, 000, 000; Gross profit: Birr 500, 000; Operating expenses excluding depreciation: Birr 100, 000; Depreciation: Birr 10, 000.

Gross operating margin = = 40%

**3. Net Operating Margin**

This ratio is calculated by dividing the net operating profit by (net) sales. The net operating profit is obtained by deducting depreciation form the gross operating profit. Taking the particulars of the example given above, the net operating margin may be calculated as follows:

Net Operating Margin = 

= = 39%

For this ratio no standard norm is evolved. The ratio of a firm may be compared with that of sister concerns to measure the relative position.

**4. Net Profit Margins or Net Profit to Sales**

This is one of the very important ratios and measures the profitableness of sales. It is calculated by dividing the net profit by sales. The Net profit is obtained by subtracting operating expenses and income tax from the gross profit. Generally, non-operating incomes and expenses are excluded for calculating this ratio. This ratio measures the ability of the firm to turn each Birr of sales into net profit. It also indicates the firm’s capacity to withstand adverse economic conditions. A high net profit margin is a welcome feature to a firm and it enables the firm to accelerate its profit at a faster rate than a firm with a low net profit margin.

In order to have a more meaningful interpretation of the profitability of a firm, both gross margin and net margin should jointly be evaluated. If the gross margin has been on the increase without a corresponding increase in net margin, it indicates that the operating expenses relating to sales have been increasing. The analyst should further analyze in order to find out the expenses which are increasing. The net profit margin can remain constant or increase with a fall in gross margin only if the operating expenses decrease sufficiently.

**5. Operating Ratio**

The ratio is an index of the operating efficiency of the firm. It explains the changes in the net profit margin. This ratio is calculated by dividing all operating expenses (i.e., cost of goods sold plus administration and selling expenses) by sales.

 Operating ratio = 

This ratio is also expressed as a percentage.

A higher operating ratio is always unfavorable because it would leave only a small amount of operating income for meeting non-operating expenses (like interest) dividends, etc. In other to get an idea about the operating efficiency of the firm, this ratio over a number of years should be studied. Variations on the operating ratio occur because of many factors such as changes in operating expenses and cost of goods sold, changes in sale price or demand for the product and volume of sales. Thus there are both internal and external (and uncontrollable) factors which influence the operating ratio of a firm. As such, this ratio should be used cautiously. This ratio again cannot be of much use to firms where the non-operating incomes and expenses constitute a significant part of the total income.

**Example**

Sales: Birr 2, 000, 000; Opening Stock: Birr 200, 000; Manufacturing cost: Birr 1, 000, 000; Closing Stock: Birr 150, 000; Administrative Expenses: Birr 50, 000; Selling Expenses: Birr 40,000; Depreciation: Birr 40, 000. Calculate the operating ratio.

**Solution**

 Operating Ratio = 

 

**Expense Ratios**

The operating ratio gives an aggregate picture of the operating efficiency of the firm. To know how individual expense items behave, the ratio of each individual operating expense to sales should be calculated. These ratios, when studied over a period of years, help in knowing the managerial efficiency in the fields of operations concerned. Taking the particulars of the example given for operating ratio, calculation of different ratios can be as follows:

 Cost of goods sold to Sales = = 52.5%

 Administrative expenses to Sales = = 2.5%

 Selling Expenses to Sales = = 2.00%

 Depreciation to Sales = 2.00%

**Illustration –8**

Calculate the profitability ratios relating to sales from the following Income Statement of S.S.PLC.

 **Income Statement for the year ending on …**

 Sales 2, 000, 000

(-) Cost of Goods 1, 400, 000

 Gross Profit 600,000

(-) Operating Expenses:

 Office 50, 000

 Selling & Distribution 20, 000

 70, 000

 Gross Operating Margin 530, 000

(-) Depreciation 130, 000

 Net Operating Profit 400, 000

+ Non-operating income 10, 000

(-) Non-operating exp. Int. 20, 000

 10, 000

 Net Profit before tax 390, 000

(-) Income Tax (50%) 195,000

 Profit After Tax 195,000

**Solution**

 Gross Profit Margin = 

 Gross Operating Margin = 

 Net Operating Profit = 

 Net Profit Margin = 

 Operating Ratio = 

 

 Cost of goods sold to Sales = 

 Office Expenses to Sales = 

 Selling and distribution expenses to Sales = 

 Depreciation to Sales = 

Profitability of a firm in relation to sales can also be analyzed by calculating the activity of turnover ratios which have already been explained in the earlier unit.

**II. Profitability in Relation to Investment**

Profitability of a firm can also be measured in terms of the investment made. The term, ‘investment’, may refer to total assets, total operation assets, capital employed or the owners’ equity. Accordingly, many profitability ratios in relation to investment can be calculated. The important ratios in relation to investment can be calculated. The important ratios are discussed here under:

**1. Return on assets**

This ratio is calculated by dividing net profit after tax by total assets:

Return On Assets (ROA) = 

There are many variations on the return on assets ratio mix depending on the particular concept of net profit and assets used. The different concepts of net profit used include net profit after tax, net profit after tax plus interest (on loans), net operating profit, and net profit after taxes plus interests minus tax savings.

Similarly, the concept ‘assets’ may indicate total assets, fixed assets, tangible assets, operating assets, etc.

The different variants of the Return on Assets may be as under:

Return on Assets = 

 = 

 = 

 = 

 =

Operating assets are the assets which are used in the regular conduct of the business operations. They include mostly tangible fixed assets and current assets. Investments are generally excluded when calculating the operating assets.

This Return on Assets ratio measures the profitability of the total assets (or investment) of a firm. But this ratio does not throw any light on the profitability of the different sources of funds which have financed the total assets. This aspect of profitability is covered by Return on capital employed.

**2. Return on Capital Employed**

This is a similar to ROA except that in this ratio profits are related to the capital employed. The term, ‘capital’, employed refers to the long-term funds supplied by creditors and owners of the firm. This ratio indicates how efficiently the management of the firm has used the funds supplied by creditors and owners. The Capital employed can be ascertained in two ways by taking the non-current liabilities plus owners’ equity or by considering the net working capital plus net fixed assets. The higher the ratio ROCE, the more efficient has been the use of capital (long term funds) employed.

The Return on capital employed can be calculated by using different concepts of profit and capital employed.

 ROCE = 

 or

 = 

 = 

**Illustration –9**

From the following particulars calculate the profitability ratios in terms of investment:

Balance Sheet as on …

|  |  |  |  |
| --- | --- | --- | --- |
| Plant & MachineryGoodwillCurrent Assets | Birr1, 200, 000150, 000350, 0001,700, 000 | Equity Share Capital (50, 000 shares)8% Preference CapitalReserves & Surplus8% Long-term Loans8% DebenturesCurrent Liabilities | Birrs500, 000300, 000200, 000200, 000300, 000200, 0001, 700, 000 |

Net profit after tax: Birr 200, 000; interest: Birr 40, 000

**Solution**

Capital employed = Non-current Assets + Net Working Capital

 = 1, 350, 000 + (350, 000 – 200, 000) = Birr 1, 500, 000

 or

 Long Term Funds + Owners’ Equity

 = Birr 500, 000 + Birr 1, 000, 000 = Birr 1, 500, 000

ROCE = 13.35%

ROCE = 

 =  = 16%

ROCE= 

 = 

The Profitability of the firm can be judged from the owners’ point of view also. In the case of the company’s shareholders the ordinary or common shareholders specially represent ownership. While analysis the profitability, the shareholders are interested in the net profits accruing to them, the dividend policy of the firm, earnings per share, growth in the earnings, impact of earnings on the market price of shares, etc. They also conduct certain market tests of profitability. Some important ratios of profitability form the shareholders’ point of view are presented here.

**3. Return on Shareholders’ Equity**

The shareholders of a company may comprise equity shareholders and Preference shareholders. Preference shareholders are the shareholders who have a priority in receiving dividends (and in the return of capital at the time of winding up of the company). The rate of dividend on the preference shares is fixed. But the ordinary or common shareholders are the residual claimants of the profits and ultimate beneficiaries of the company. The rate of dividend on these shares is not fixed. When the company earns profits it may distribute all or a part of the profits as dividends to the equity shareholders or retain them in the business itself. But the profits after taxes and after Preference Shares dividend payment presents the return as equity of the shareholders.

A return on shareholders’ equity is calculated to assess the profitability of the owners’ investment. The shareholders’ equity is ascertained by adding up equity Share capital, Preference share capital, share premium, reserves and surplus. If any accumulated losses are there, they should be deducted from this amount. The shareholder’s equity is also called net worth.

Return on shareholders’ equity or return on net worth is calculated by dividing the net profit after tax by the total shareholders’ equity or net worth.

Return on shareholders’ equity = 

*Example:*

Taking the particulars given in Illustration 9, the shareholders’ equity and return on it are calculated here:

Shareholders’ equity = Equity share capital + Pref. Share Capital + Res. & Surplus

 = Br. 500, 000 + Br. 300, 000 + Br. 200, 000

 + Br. 1, 000, 000

Return on shareholders’ equity = 

This ratio reveals how profitability owners’ funds have been utilized by the firm. A comparison of this ratio with that of similar firms and with the industry average reveals the relative financial soundness and performance of the firm.

**4. Return on Equity Shareholders’ Funds**

The real shareholders of a company are its equity shareholders who are the ultimate owners. They are entitled to all the profits remaining after all outside claims are met and preference dividend paid. In view of this, the profitability of a firm should be assessed in terms of return to the equity shareholders. It is calculated by dividing profits after taxes and preference dividend by the equity.

Return on equity shareholders funds = 

Equity shareholders’ equity is total shareholders’ equity minus Preference shareholders’ equity. It can also be calculated as ordinary paid up share capital plus share premium plus reserves and surplus less accumulation losses.

*Example:* Taking the particulars of Illustration –9 equity shareholders’ funds will be as under:

Return on equity shareholders equity = 

 = 

**5. Earnings Per Share (EPS)**

EPS is another measure of profitability of a firm from the point of view of the ordinary shareholders. It reveals the profit available to each ordinary share. It is calculated by dividing the profit available to ordinary shareholders, (i.e., profit after tax minus Preference dividend) by the number of outstanding equity shares.

 EPS = 

The EPS of the firm the particulars of which are given in Illustration –9 is calculated as under:

 EPS = 

The EPS of a firm studied over years indicates whether or not the earnings per share basis has changed over the period. To assess the relative profitability of the firm its EPS should be compared with that of similar concerns and the industry average.

EPS is a widely used ratio, specially for analyzing the effect of a change in leverage on the net operating earnings to the equity shareholders. This analysis is of immense value in evolving an appropriate capital structure for a firm.

**6. Dividend Per Share (DPS)**

The net profits after taxes and Preference dividend belong to the equity shareholders and EPS reveals how much of it is it per share. But no company is under the obligation to distribute all the profits as dividends to the shareholders. In pursuance of the policy which the company has evolved it may retain all or some profits and distribute the balance as dividends. A large number of potential or prospective investors are interested in knowing the dividends which the company distributes per share. The Dividend Per Share (DPS) is calculated by dividing the profits distributed as dividend by the number of equity share outstanding.

 D.P.S. = 

*Example*: If the company (the particulars of which are given in Illustration –9) is assumed to have distributed Br. 150, 000 as dividends.

 DPS = 

**7. Dividend Payment Ratio**

This is calculated by dividing the DPS by the EPS or by dividing the total dividends paid by total earnings made.

 Dividend Payment Ratio = 

This shows the percentage of profit after taxes and Preference dividend distributed as dividends.

If the DPR ratio is subtracted from 100, it will give the retention ratio, i.e., percentage of profits retained in the business.

**8. Dividend Yield**

The dividend yield is the DPS divided by the market price per share. This indicates the shareholder’s return (dividend) in relation to the market value per share.

 Dividend yield = 

**9. Earnings yield**

The earnings yield is the EPS divided by the market price per share. It is also known as Earnings Price Ratio.

 Earnings yield = 

**10. Price Earnings ratio**

This is reciprocal of earnings yield. This ratio is widely used by security analysts to evaluate the firm’s performance and what is expected by the investors.

 PE Ratio = 

This indicates the investor’s expectations in respect of the firm’s performance.

The profitability of a firm can be assessed form the point of view of creditors also. The suppliers of funds, i.e., the creditors are interested in the profits as they constitute the sources from which regular payment of interest and repayment of loan (in a lump sum or in installments) will be made. They measure the profitability for the interest and fixed charges and also debt servicing.

**11. Earning Power**

This is an indicator of the overall profitability of the firm. In the earlier paragraphs the measures of (i) profitability from the point of view of owners and (ii) operating efficiency of the firm have been explained. Individually, these two types of ratios do not provide a complete picture of the effectiveness of the firm and its overall profitability. A high profit margin no doubt is an index of better operational performance but a low margin does not necessarily imply a low rate of return on investment if the firm has a higher investment turnover. Therefore, the overall profitability and operating efficiency of the firm can be assessed on the basis of a combination of the two ratios. The combined profitability measures which has a combination of net profit margin and the investment turnover is known as earning power or return on investment ratio (ROI). The earnings power of a firm may be defined as the overall profitability of the concern. This earning power has two elements, viz., net profit margin which is a measure of profitability on sales and investment turnover which reveals the profitability of investments. Thus the earning power of a firm is the product of net profit margin and the investment turnover. That is,

 Earning Power = Return on investment

 = 

 = 

**Du Point Chart**

As stated above, the earning power of a firm is represented by the return on capital employed. It shows the combined effect of the net profit margin and the investment turnover. A change in any of these ratios will affect the firm’s earning power. But these two ratios in turn are affected by many factors. Thus the factors affecting the earning power may be presented in the form of a chart. This chart is called ‘Du Chart’ because it was first used by the Du Point Company of the U.S.A.

Earning Power

Return on Investment

Multiplied by

 Profit Margin Investment Turnover

 Net Profit Divided by Sales Sales Divided by Investment

Sales minus Expenses Non-current Plus Working

 assets capital

 Cost of Goods Sold

 plus

 Operating Expenses

 plus

 Other Expenses

 minus

 Income Tax

 ***Du point chart***

**Check Your Progress –6**

1. How is Gross profit margin calculated?

**……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………..**

1. What is operating ratio?

**………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………**

1. What do you understand by Earnings Per Share (EPS)?

**………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………**

1. How is price earnings ratio calculated?

**………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………**

**4.11 Summing up**

Ratio analysis is the most useful and widely used tool of financial analysis. A purposeful ratio analysis helps in identifying problems such as whether the financial condition of the firm is sound; whether capital structure of the firm is appropriate; whether profitability of the enterprise satisfactory; whether the credit policy of the firm is sound etc.

However, ratio analysis suffers from certain limitations. Ratios themselves are not of much significance. They become useful only when they are compared with some standards. Ratio analysis is likely to give misleading result if the effect of changes in price level are not taken into account. Ratio analysis is not meaningful unless the questions sought to be answered are clearly formulated. The nature of the business characteristics which affect the figures in the financial statement and their inter-relationship should be clearly understood and born in mind in order to make a meaningful ratio analysis.

Ratios may be classified on the basis of their importance as primary ratios and secondary ratio; on the basis of sources as balance sheet ratios and income statement ratios; on the basis of nature of items as financial ratios and operating ratios and on the basis of the purpose as solvency ratios, liquidity ratios, activity ratios and profitability ratios.

Several ratios can be calculated from the data contained in the financial statements. Different persons undertake financial statement analysis for different purposes. For instance, short-term creditors show interest mainly in the short-term liquidity position of the firm. Owner’s interest lies in the profitability analysis and financial condition of the firm. The management of the firm is interested in evaluating every activity of the firm. Ratio analysis meets the requirements of all the above persons.

The leverage or capital structure ratios help to understand the long term solvency of the firm while liquidity ratios are useful to measure the short-term solvency of the firm. Activity ratios indicate the efficiency with which the firm manages and uses its assets. Hence they are also called as efficiency ratios. Profitability ratios, on the other hand, are useful to measure the profitability of the firm and its operating efficiency.

**4.12 Answers to check Your progress**

1. i) Ratios can be classified:

1. On the basis of importance

2. On the basis of source

3. on the basis of nature of items

4. On the basis of purpose or function

 ii) 1. Current ratio (current assets to current liabilities)

 2. Debt-equity ratio.

1. i) Debt-equity ratio reveals the relationship between borrowed funds and owners’ capital of a firm.

ii) Debt to total capital = 

1. i) It is useful for knowing the firm’s debt servicing capacity.

ii) Dividend coverage ratio measures the ability of a firm to pay dividend on preference shares.

1. i) a) Current ratio b) Quick ratio

ii) a) Cash b) Debtors c) Stock

iii) a) Creditors b) Bills payable c) Bank overdraft

iv) Current Ratio = 

1. Total assets turnover ratio is calculated by dividing the annual sales value by the value of total assets.
2. i) Gross profit margin = 

ii) Operating ratio explains the changes in net profit margin.

Operating Ratio = 

iii) Earnings per share reveals the profit available to each ordinary share.

 EPS = 

iv) P.E. Ratio = 

**4.13 Model examination questions**

A. Answer the following questions in about 15 lines.

1. What is a ratio?
2. Explain the meaning of ratio analysis.
3. How is ratio analysis useful?
4. State the important limitations of ratio analysis.
5. What are leverage ratios?
6. What is Acid-Test Ratio?
7. How is Return on investment calculated?
8. Explain the following:

a) Net worth b) Operating Ratio

c) E.P.S. d) Current ratio

1. What do you understand by debt-equity ratio?
2. How can you classify the ratios on the basis of purpose or function?