BLOCK V:
ACCOUNTING RATIOS & LIQUIDITY ANALYSIS

Unit 1 : Application of Accounting Ratios in Decision Making; Predictive Value of Accounting Ratios

Unit 2 : Ratio Analysis for Performance Evaluation (Activity and Profitability); Ratio Analysis for Financial Health (Solvency and Structural Analysis)

Unit 3 : Application of Accounting Ratios in the analysis of Working Capital

Unit 4 : Inter-Firm Comparison

Unit-1
Application of Accounting Ratios in Decision Making; Predictive Value of Accounting Ratios

Unit Structure:

1.1 Introduction:

Financial statements provide accounting information through the Statement of Profit and Loss and Balance Sheet. They provide accounting information expressed in monetary terms in respect of various elements, e.g., assets, liabilities, equities, expenses & losses and incomes & gains. These monetary values of these items are not adequate for business decision making. Because, financial statements by themselves, do not provide required information both for internal and external users. They give the results of the business in absolute figures, i.e., amount of profit or loss, assets, liabilities etc. From these figures it is not possible to find out any reasons for any good or bad performance of the business. What are the weak or strength points of the business cannot be worked out with the help of absolute figures. Therefore to get meaningful information from the financial statements to facilitate decision making by the user of these information, financial statements must be analysed and interpreted with useful tools. This unit will provide the learners with techniques of using the most important and widely used tool, i.e., ratio analysis for decision making.

1.2 Objectives

After going through this unit, you will be able to-

- Understand the meaning and definition of Ratio Analysis.
- Explain the advantages and disadvantages of Ratio Analysis
- Explain the application of Accounting Ratios in Decision Making
- Discuss the predictive value of Accounting Ratios.

1.3 Accounting Ratio: Meaning and Definition

According to J.Betty : 'the term accounting ratios is used to describe significant relationships which exist between figures shown in a Balance Sheet, in a profit and Loss Account, in a budgetary control system or in any other part of the accounting organization.' Accounting ratio is calculated by taking any two variables (items) either from the balance sheet or statement of profit and loss or from both. Accounting ratio is also known as financial ratio. In fact, an accounting ratio expresses a relationship that exists between the two items of financial statements. Thus an **accounting ratio** compares two aspects of a financial statement, such as the relationship (or **ratio**) of one item to another item. If we take Sales as an item and net profit as another item with their respective money values and calculate a ratio, it will express a relationship of these two items. Suppose Sales are Rs. 5,00,000 and net profit is Rs. 1,00,000, then it is said that net profit is 20% of sales . It is calculated as follows:

When Sales are Rs. 5,00,000, Net profit is Rs.1,00,000

When Sales are

Rs. 100, Net profit is Rs. (1,00,000 ÷ 5,00,000 × 100) = Rs. 20.

It is expressed as 20% or 0.2 times. This means that the company is earning 20% net profit on its sales. This ratio of 20% net profit on sales may be used to compare the earning capacity of other companies in the same line of business. A ratio is a statistical yardstick that provides a measure of the relationship between two variables or figures. Ratio is a fixed relationship of two related numbers. In financial analysis ratios are used to express the financial relationship or operating relationship between any two variables of revenue statement and balance sheet. From the analytical point of view, it shows a static relationship, at a given point of time. Generally, ratios are calculated to express trend relationship or structural or operating relationship.

Ratio analysis is the process of determining and interpreting numerical relationships based on financial statements. It is one of the techniques of financial statement analysis. It is the most widely used tool to interpret quantitative relationship between two variables of one number to another.

According to Myers, ratio analysis is a 'study of relationship among the various financial factors in a business." A ratio analysis is a quantitative analysis of information contained in a company's financial statements. It is a tool used by financial analysts to carry out an evaluative analysis of information in the financial statements of a company.

Thus it may be said that ratio analysis is an accounting tool to present accounting variables in simple, concise, intelligible and understandable form. **Ratios are not an end but are media to reach the end. These are used to make decisions by various user groups of financial statements for various purposes. Therefore, users of financial statements, keeping in view their own financial interest, interpret a single ratio differently. This is called interpretational flexibility of a ratio. Again, the interpretation may vary depending upon the time horizon, present condition in the industry and the economy etc.**

1.4 Objectives/advantages of Ratio Analysis

The following are the objectives of ratio analysis:

(i) **Test of operational efficiency:** Ratio analysis is applied to test Operational efficiency of the business. It is done by calculating operating / activity ratios.

(ii) **Measurement of the profitability:** The profit earning capacity of the business is known as Profitability. Profitability can be measured and analysed with the help of Gross Profit, Net Profit, Expenses and Other Ratios.

(iii) **Examining the financial liquidity of the firm: Ratios may be used to examine the short term financial position, I.e. liquidity of a firm by applying liquidity ratios.**

(iv) **Measuring long term financial position:** Long-term financial position of the business can be measured by calculating solvency ratios. In case of unhealthy long-term position, corrective measures can be taken.

(v) **Facilitating comparative analysis:** A comparative analysis may be carried out between present performance and past performance to discover the positive and negative points. Comparison with the performance of other competitive firms can also be made.

(vi) **Budgeting and forecasting:** Ratio analysis is of much help in financial forecasting and planning. Ratios calculated for a number of years work as a guide for the future. Meaningful conclusions can be drawn for future from these ratios.

1.5 Limitation of Accounting Ratios

The following are the Limitations of Ratio Analysis**:**

(i) Ratios are based on monetary values, i.e., these are quantitative. Hence, these are tools of quantitative analysis, which ignore qualitative points of view.

(ii) Ratios are based on historical data. Hence, all of the information used in ratio analysis is derived from actual historical results. This does not guarantee that the same results will carry forward into the future.

(iii) During inflationary situation, ratios may be of little help. Ratios are generally distorted by inflation.

(iv) Ratios may give false result, if they are calculated from incorrect accounting data.

(v) Two different firms may adopt different accounting policies regarding valuation of inventories, charging depreciation etc. If this is so, it makes the accounting data and accounting ratios of two firms non-comparable.

Check Your Progress

1. Explain the meaning of accounting ratio.
2. Accounting ratio is also known as .....(fill in the blank)
3. An accounting ratio expresses a relationship that exists between the two items of .....(fill in the blank)
4. Write five benefits of ratio analysis
5. Write five disadvantages of Ratio Analysis.

Stop to Consider

Imagine a company with 10% gross profit margin. A company may be thrilled with this financial ratio until it learns that every competitor is achieving a gross profit margin of 25%. Ratio analysis is incredibly useful for a company to better understand how its performance is as compared to similar other companies.

1.6 Application of Accounting Ratios in Decision Making

Ratio analysis is the analysis of the financial statement of an enterprise. Financial statements by themselves do not provide required information both for internal and external users. To get meaningful information from the financial statements to facilitate decision making by the user of these information, financial statements must be analysed and interpreted with useful tools. Ratio analysis enlightens about the liquidity, profitability, solvency and performance of the organisation to various stakeholders such as owners, customers, managers, suppliers, vendors, lenders, regulators and competitors. *The following mentioned ratios assist the management and the external users of the financial statement in various decision making purpose.*

(I) Activity ratios,
(II) Liquidity ratios or short term solvency ratios
(III) Solvency ratios
(IV) Profitability ratios

(I) Activity ratios:

Activity ratios are those ratios which assess how effectively a company is able to generate revenue in the form of cash and sales based on its asset, liability and capital share accounts. These are also called Efficiency ratios. Activity ratios measure how well companies utilize their assets to generate income. Efficiency ratios often look at the time it takes companies to collect cash from customer or the time it takes companies to convert inventory into cash—in other words, make sales. *These ratios are used by management to help improve the company as well as outside investors and creditors looking at the operations of profitability of the company.*

The important activity ratios are:

(i) Inventory Turnover Ratio,
(ii) Debtors Turnover Ratio,

(iii) Creditors Turnover Ratio,
(iv) Total Assets Turnover Ratio,
(v) Fixed Assets Turnover Ratio,
(vi) Expense Ratios

(II) Liquidity ratios:

In accounting, the term *liquidity* is *defined* as the ability of a company to meet its short term financial obligations as they come due. In other words liquidity represents one's ability to pay its current obligations or short-term debts within a period less than one year. Liquidity ratios, therefore, measures a company's liquidity position. *The ratios are important from the viewpoint of its creditors as well as management.*

The following are the important liquidity ratios:

(i) Current ratio
(ii) Liquid ratio or quick ratio
(iii) Absolute liquidity ratio.

Liquidity ratios provide a measure of degree to which current assets cover current liabilities. The excess of current assets over current liabilities provides a measure of safety margin available against uncertainty in realisation of current assets and flow of cash and to meet short term obligations. The margin should be reasonable. It should neither be very high or very low. A very high current ratio implies heavy investment in current assets against which the return is very low. Heavy investment in current assets reflects under utilisation or improper management of resources. A low ratio endangers the business and puts it at risk of facing a technical insolvency where it will not be able to pay its short-term liabilities on time. If this problem persists, it may affect firm's credit worthiness adversely. Normally, it is safe to have this ratio within the range of 2:1.

(III) Solvency ratios:

Solvency ratio is one of the various **ratios** used to measure the ability of a company to meet its long term debts. Solvency ratios are also called leverage ratios, measure a company's ability to sustain business operations indefinitely by comparing debt levels with equity, assets and debt-service capacity. In other words, solvency ratios identify going concern issues and a firm's ability to pay its long term debts.

The creditors who have advanced money to the business on long-term basis are interested in safety of their periodic payment of interest as well as

the repayment of principal amount at the end of the loan period. Therefore, solvency ratios are calculated to determine the ability of the firm to service its debt in the long run. The following ratios are normally computed for evaluating solvency of the business.

1. Debt-Equity Ratio;
2. Debt to Capital Employed Ratio;
3. Proprietary Ratio;
4. Total Assets to Debt Ratio;
5. Interest Coverage Ratio.

This ratio measures the degree of indebtedness of firm and gives an idea to the long-term creditors regarding extent of security of the debt. A low debt equity ratio reflects more security. A high ratio, on the other hand, is considered risky as it may put the firm into difficulty in meeting its obligations to long term financiers. But at the same time, from the view point of the owners, use of reasonable amount of debt may help in ensuring higher returns for them, provided the rate of earnings on capital employed is higher than the rate of interest payable.

(IV) Profitability ratios:

Profitability means the capacity to earn profit. A profitability ratio is a measure of profitability, which measures a company's performance in earning income. Profitability is simply the capacity to make a profit, and a profit is what is left over from income earned after deduction of all costs and expenses related to earning the income.

The profitability or financial performance is mainly summarised in the statement of profit and loss. Profitability ratios are calculated to analyse the earning capacity of the business. It is an important efficiency ratio. It reflects the utilisation of resources employed in the business. There is a close relationship between the profit and the efficiency with which the resources employed in the business are utilised. The various ratios which are commonly used to analyse the profitability of the business are:

(a) Return on investment (ROI)
(b) Return on Assets ratio
(c) Earnings Per Share (EPS)
(d) Dividend Per Share (DPS)
(e) Price Earnings Ratio
(f) Dividend Payout Ratio

1.7 Predictive value of Accounting Ratios

One of the important characteristics of accounting information is relevance. It refers to how relevant it is in decision making purpose. For accounting information to be relevant, it must possess: *confirmatory value* and *predictive value*. Confirmatory value is the ability to provide information about the past and predictive value is the ability to predict the possible future outcome or events.

Predictive value means that the information can be used to predict future outcomes. The financial information itself does not need to be a prediction or a forecast, but can be interpreted by users to allow them to make their own predictions. Predictive value refers to the fact that quality financial information can be used to base predictions, forecasts, and projections on. Financial analysts and investors can use past financial statements to chart performance trends and make predictions about future performance and profitability.

There are various ways that can be used to assess the financial health of an organization. Basically, they can be divided into financial and non-financial measures. Financial measures would involve the use of accounting and other numerical data such as ratios and trends to measure a company's growth, profitability, efficient use of its assets and its financial standing at different points in time. Ratio analysis involves comparing the inter-relationships between accounting figures in the financial statements in relative terms. Different user groups of financial reports will focus on different aspects of a company's performance depending on their relationship and involvement with the company. For example, a long term investor will be interested in returns and the level of risks of the company compared to other potential investments, while a trade creditor will be interested in whether goods supplied will be paid in the short term or within the credit period

1.8 Summing Up

- The term accounting ratios is defined by J. Betty as ' significant relationships which exist between figures shown in a Balance Sheet, in a profit and Loss Account, in a budgetary control system or in any other part of the accounting organization'
- An accounting ratio compares two aspects of a financial statement, such as the relationship (or ratio) of one item to another item. It is

the most widely used tool to interpret quantitative relationship between two variables of one number to another.

- Financial Ratios help in measuring operational efficiency, liquidity, profitability and solvency of a firm.
- Ratio analysis helps in comparative analysis between present performance and past performance to discover the positive and negative points. Comparison with the performance of other competitive firms can also be made. Ratio analysis is of much help in financial forecasting and planning.
- *Activity ratios* are those ratios which assess how effectively a company is able to generate revenue in the form of cash and sales based on its asset, liability and capital share accounts. They are also called Efficiency ratios. The important activity ratios are:

  a. Inventory Turnover Ratio,
  b. Debtors Turnover Ratio,
  c. Creditors Turnover Ratio,
  d. Total Assets Turnover Ratio,
  e. Fixed Assets Turnover Ratio,
  f. Expense Ratios

- Liquidity ratios provide a measure of degree to which current assets cover current liabilities. The excess of current assets over current liabilities provides a measure of safety margin available against uncertainty in realisation of current assets and flow of cash and to meet short term obligations. The following are the important liquidity ratios:

  a. Current ratio
  b. Liquid ratio or quick ratio
  c. Absolute liquidity ratio

- **Solvency ratio** is one of the various ratios used to measure the ability of a company to meet its long term debts. Solvency ratios are calculated to determine the ability of the firm to service its debt in the long run
- Profitability ratios are calculated to analyse the earning capacity of the business. It reflects the utilisation of resources employed in the business. There is a close relationship between the profit and the efficiency with which the resources employed in the business are utilised.

- For accounting information to be relevant, it must possess: *confirmatory value* and *predictive value*. Confirmatory value is the ability to provide information about the past and predictive value is the ability to predict the possible future outcome or events.

1.9 Model Question

1. Discuss the advantages and disadvantages of Accounting Ratios
2. Discuss the application of accounting ratio in decision making.
3. Discuss the predictive value of accounting ratio.

1.10 References and Suggested Readings

1. Sikider Sujit and Gautam H.C. "Financial Statement Analysis" Kolkata New Central Book Agency (P) Ltd., April 2002

2. https://www.researchgate.net/publication/286575407_The_predictive_abilities_of_financial_ratios_in_predicting_company_failure_in_Malaysia_using_a_classic_Univariate_approach

3. https://www.myaccountingcourse.com/accounting-principles/relevance

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Unit-2
Ratio Analysis for Performance Evaluation (Activity and Profitability); Ratio Analysis for Financial Health (Solvency and Structural Analysis)

Unit Structure:

2.1 Introduction

Ratio analysis is an accounting tool to present accounting variables in simple, concise, intelligible and understandable form. Ratios are not an end but are media to reach the end. These are used to make decisions by various user groups of financial statements for various purposes. Therefore, users of financial statements, keeping in view their own financial interest, interpret a single ratio differently. This is called interpretational flexibility of a ratio. Again, the interpretation may vary depending upon the time horizon, present condition in the industry and the economy etc. Financial statements provide accounting information through the Statement of Profit and Loss and Balance Sheet. Financial statements by themselves do not provide required information both for internal and external users. Therefore to get meaningful information from the financial statements to facilitate decision making by the user of these information, financial statements must be analysed and interpreted with useful tools. Activities ratios help evaluate a business's operating efficiency by analyzing fixed assets, inventories, and accounts receivables. It expresses a business's financial health and indicates the utilization of the balance sheet components. In general, profitability ratios measure the efficiency with which your company turns business activity into profits. Profit margins assess your ability to turn revenue into profits.

Return on assets measures your ability to use assets to produce net income. Return on equity compares your net income to shareholder equity.

2.2 Objectives

After going through this unit you will be able to

- Understand how to evaluate performance with the help of activity ratio
- Understand how to evaluate performance with the help of Profitability ratio
- Understand the importance of solvency ratio in measuring financial health.

2.3 Ratio analysis for Performance Evaluation

2.3.1 Performance evaluation with the help of Activity Ratios

Activity ratios are those, which are related to sales or main operation of the business and working capital. These ratios show the effectiveness of the firm in utilising its assets and working capital. These are, therefore, known as 'activity ratios'. **The following important activity ratios are generally computed to evaluate operational efficiency of a business firm**.

(i) Inventory Turnover Ratio,
(ii) Debtors Turnover Ratio,
(iii) Creditors Turnover Ratio,
(iv) Total Assets Turnover Ratio,
(v) Fixed Assets Turnover Ratio,
(vi) Expense Ratios

(i) Inventory Turnover Ratio: This ratio indicates the speed at which the inventory is tuned into sales. The inventory turnover ratio is calculated by dividing the cost of goods sold for a period by the average inventory for that period. Average inventory is used instead of ending inventory because many companies' merchandise fluctuates greatly throughout the year.

Inventory Turnover Ratio = Cost of Goods Sold ÷ Average Inventory

A higher ratio indicates operating efficiency of the firm.

Illustration:

From the following information, calculate inventory turnover ratio :

	Rs.
Inventory in the beginning:	20,000
Inventory at the end:	10,000
Net purchases:	90,000
Wages:	5,000
Revenue from operations:	2,00,000
Carriage inwards:	1,000

Inventory Turnover Ratio = Cost of Goods Sold ÷ Average Inventory
Cost of Goods Sold = 20,000 + 90,000 + 5,000 + 1,000 – 10,000 = 1,06,000
Average Inventory = (20,000 + 10,000) ÷ 2 = 15,000
Inventory Turnover Ratio = 1,06,000 ÷15,000 = 7.06

(ii) Debtors' Turnover: This ratio indicates the speed at which the debtors pay their dues to the firm. Turnover is generally expressed as number of times. Debtors' turnover is calculated as:

Debtors Turnover Ratio = Credit Sales ÷ Average Debtors

This ratio provides information on how many times per year do the debtors pay on average?

Suppose, Credit Sales Rs. 9,000 ÷ Average Debtors Rs. 2,000
Debtors Turnover Ratio = 4.5 times

The Debtors have turned over is four and half times in one year. In other words the debtors have paid you four and half times in the year. Four and half times in the year means 365 days ÷ 4.5 = 81 days. This means the debtors paid you in 81 days since you made a sale to them.

A lower ratio indicates the firm is efficient to collect cash at a shorter period. A higher ratio indicates that there is overdue from the debtors.

(iii) Creditors' Turnover: This ratio indicates the speed at which the creditors are paid. Turnover is generally expressed as number of times. Creditors' turnover is calculated as:

Creditors' Turnover = Credit Purchases ÷ Average Creditors

Another form of creditor's turnover ratio is average payment period which is calculated as under:

Average payment period = Days in a year / Creditors' Turnover

(i) Assets Turnover Ratio: The efficiency in utilising the firm's assets is reflected in assets turnover ratio. This ratio is an efficiency ratio. It measures a firm's ability to generate sales from its assets by comparing net sales with average or total assets. In other words, this ratio shows how efficiently a company can use its assets to generate sales.

Higher the asset turnover ratio, the more efficient is the management in utilising the assets. Since higher ratios imply that the company is generating more revenue per rupee of assets. There is no 'rule of thumb' or standard for Assets turnover ratio. A ratio higher than one is preferred. As a measure of efficiency, comparison of five to six years' ratio will serve the purpose in a better way.

(v) Fixed Assets Turnover Ratio: It is variant of Assets turnover ratio. The efficiency in utilising the firm's fixed assets is reflected in this ratio. This ratio is an efficiency ratio. It measures a firm's ability to generate sales from its fixed assets by comparing net sales with average or total fixed assets. In other words, this ratio shows how efficiently a company can use its fixed assets to generate sales. A higher the fixed asset turnover ratio signifies more efficiency in utilising the assets.

(ii) Expense Ratios: Expense ratios are calculated to express a particular expense as a percentage of sales. Sales are taken as base since all the business expenses are met from the revenue generated from sales. A higher expense ratio indicates that there is something wrong which needs a thorough examination.

The following are some important expense ratios.

(i) Cost of Goods Sold Ratio: Cost of Goods Sold/Net Sales

Salary to Sales Ratio: Salary to Sales Ratio = Salary/Net Sales

Selling and Distribution Expenses Ratio: Selling & Distribution Expenses /Net Sales

Office and Administrative Expenses Ratio = Office and Administrative Expenses /Net Sales

Operating Ratio = Operating Expenses /Net Sales

Non-operating Expenses Ratio = Non-operating Expenses /Net Sales

Interpretation of Operating and Expenses Ratios:

Operating ratio is an important tool of analysing operating leverage. It is a test of operational efficiency. A high operating and expenses ratios imply lower profit, and vice versa. Use of operating ratio along with expenses ratios is very much useful for detecting the weak and inefficient areas and for taking corrective actions. A systematic and minute study of each expense ratios enables the management to exercise effective control over cost.

Check Your Progress

1. What is Activity Ratio?
2. What are different types of Activity ratio?
3. How is Debtor Turnover Ratio calculated?
4. What is Expense Ratio ?
5. What does high operating ratio indicate ?

2.3.2 Performance evaluation with the help of profitability Ratios

Profitability ratios are another set of ratios which help to evaluate the performance of a firm from the view point of earnings. Profitability is the capacity to earn profit. Capacity to earn profit can be related with two variables - sales and investment. Relationship between profit and sales is shown by computing 'profit margin ratios', whereas relationship between profit and investment is shown through 'rate of return ratios'.

A. Important Profitability Ratios relating to Sales:

a) Gross Profit Ratio
b) Operating Profit Ratio
c) Net Profit Ratio
d) Cash Profit to Cash Sales Ratio

B. Important Profitability Ratios Relating to Investment:

a) Return on investment (ROI)
b) Return on Total Assets
c) Earning Per Share (EPS)
d) Dividend Per Share (DPS)
e) Price Earning Ratio
f) Dividend Pay out Ratio

A. Important Profitability Ratios relating to Sales are explained below:

a) Gross Profit Ratio: It is calculated as under.
Gross Profit Ratio= Gross Profit /Net Sales

If G/P ratio is 25 p.c. it means 75 p.c. is the cost of goods sold and remaining 25 p.c. is the margin towards administrative and selling expenses and profit. Generally a G/P ratio of 20 to 30 p.c. is desirable.

b) **Operating Profit Ratio:** It is a ratio between operating profit and net sales. It is worked out as under.

Operating Profit Ratio = Operating Profit /Net Sales

Operating profit is the profit from business operations (gross profit minus operating expenses) before deduction of interest and taxes. It is the profit earned from a firm's normal core business operations. This does not include any profit earned from the firm's outside investments, such as dividend from investment in other company's shares or any other income from external investments.

c) Net Profit Ratio:

This ratio is the percentage of sales value left after subtracting the cost of goods sold and all expenses, except income taxes. It provides a good opportunity to compare company's "return on sales" with the performance of other companies in the industry. It is calculated before income tax because tax rates and tax liabilities vary from company to company for a wide variety of reasons, making comparisons after taxes much more difficult. The Net Profit Margin Ratio is calculated as follows:

Net Profit Ratio = Net Profit before Tax / Net Sales

(d) Cash Profit to Cash Sales Ratio:

It is calculated to see the cash earnings of the company. It is calculated as below:

Cash Profit to Cash Sales Ratio = Cash Profit/ Net Sales

Normally, Cash profit = Net profit + Depreciation

B. Important Profitability Ratios Relating to Investment are discussed below:

(a) Return on investment (ROI)
(b) Return on Assets ratio
(c) Earnings Per Share (EPS)
(d) Dividend Per Share (DPS)

(e) Price Earnings Ratio
(f) Dividend Pay out Ratio

(a) Return on Investment Ratio (ROI)

The ROI is the most important ratio of all profitability ratios. It is the percentage of return on funds invested in the business by its owners. In short, this ratio tells the owner whether or not all the effort put into the business has been worthwhile. The ROI is calculated as follows:

Return on Investment = Net Profit before Tax ÷ Net Worth

It may be calculated as under also.

ROI = Net Profit ÷ Total Investment

ROI is performance measure used to evaluate the efficiency of investment. It compares gains from investment with investment costs. It is one of most commonly used approaches for evaluating the financial consequences of business investments, decisions, or actions. If an investment has a positive ROI and there are no other opportunities with a higher ROI, then the investment should be undertaken. A higher ROI means that investment gains compare favorably to investment costs.

ROI is an important tool for making the following decisions:

- asset purchase decisions
- approval and funding decisions for projects and programs of different types
- traditional investment decisions

(b) Return on Assets Ratio

This measures how efficiently profits are being generated from the assets employed in the business when compared with the ratios of firms in a similar business. A low ratio in comparison with industry averages indicates an inefficient use of business assets. The Return on Assets Ratio is calculated as follows: **Return on Assets = Net Profit Before Tax ÷Total Assets**

(c) Earning Per Share (EPS):

This is a measure of earnings to the Equity Shareholders. It is also called net income per equity share. It measures the amount of net income earned per share of equity stock outstanding. Earning per share is a profitability ration on shareholder basis. It is generally used by the management to decide the capital structure of a public limited company. Prospective shareholders may use to make an investment decision.

It is calculated as under:

EPS = Profit after preference Dividend ÷ No. of Equity Shares Outstanding

(d) Dividend Per Share (DPS):

This is a measure of dividend earnings to the equity shareholders on their investment. Prospective shareholders may use to make an investment decision. It is used by individuals who are evaluating various stocks to invest in equity shares and prefer companies who pay a higher dividend.

DPS = Amount of Equity Dividend ÷ No. of Outstanding Equity Shares

(e) Price Earnings Ratio (P/E ratio):

This ratio shows the relationship between the market price of equity share and the earnings to the Equity shareholders. It is generally expressed as P/E ratio. P/E ratio is a ratio between market price of a share and EPS. The price earnings ratio shows what the market is willing to pay for a stock based on its current earnings. Investors often use this ratio to evaluate what a share's fair market value should be by predicting future earnings per share. Companies with higher future earnings are usually expected to issue higher dividends or have appreciating stock in the future.

P/E ratio is calculated as under:

Price Earnings Ratio = Market price per equity share ÷ Earnings Per Share

(f) Dividend Pay Out Ratio:

This ratio shows the amount of dividend paid to the Equity shareholders out of the profit available to them. Those shareholders who prefers cash income generally examine this ratio of different companies before making investment. This ratio is calculated as below:

Dividend Pay Out Ratio = Total dividend paid to the Equity Shareholders ÷ Profit available to them.

2.4 Measuring Financial Health through Solvency Ratios and Structural Analysis

Financial health of the company is determined by various factors such as the ability to repay its debt, its profitability, liquidity and its operating efficiency.

A company's ability to meet its long term obligation is calculated by the solvency ratio. Solvency ratios are key ratios for determining company's capacity to service its long term debt and it provides insight into company's overall financial position. Solvency ratio is very useful to lenders and other external investors because it helps to analyse the financial health of the organization. The ratio usually compares the enterprise's profitability with its obligations to determine whether it is financially sound. A higher solvency ratio determines better financial health of the enterprise.

Solvency ratio is one of the various **ratios** used to measure the ability of a company to meet its long term debts. Solvency ratios are also called leverage ratios, measure a company's ability to sustain business operations indefinitely by comparing debt levels with equity, assets and debt-service capacity. In other words, solvency ratios identify going concern issues and a firm's ability to pay its long term debts.

The creditors who have advanced money to the business on long-term basis are interested in safety of their periodic payment of interest as well as the repayment of principal amount at the end of the loan period. Therefore, solvency ratios are calculated to determine the ability of the firm to service its debt in the long run. The following ratios are normally computed for evaluating solvency of the business.

1. Debt-Equity Ratio;
2. Debt to Capital Employed Ratio;
3. Proprietary Ratio;
4. Total Assets to Debt Ratio;
5. Interest Coverage Ratio.

This ratio measures the degree of indebtedness of firm and gives an idea to the long-term creditors regarding extent of security of the debt. A low debt equity ratio reflects more security. A high ratio, on the other hand, is considered risky as it may put the firm into difficulty in meeting its obligations to long term financiers. But at the same time, from the view point of the owners, use of reasonable amount of debt may help in ensuring higher returns for them, provided the rate of earnings on capital employed is higher than the rate of interest payable.

Check Your Progress

1. What is profitability ratio?
2. What are the important profitability ratio related to sales?
3. What is RIO?
4. What is EPS?
5. What is Dividend Payout Ratio?

2.5 Illustration

I. From the following information calculate (i) Gross profit Ratio, (ii) Return on Investment, (iii) Current Ratio, (iv) Stock Turnover, (v) Assets Turnover, (vi) EPS

Share Capital: 10,000 equity shares of Rs. 10 each

Sales:	Rs. 12,00,000
Inventory:	Rs. 50,000
Current Assets;	Rs. 1,50,000
Current Liabilities:	Rs. 90,000
Profit after Tax	Rs. 1,20,000
Cost of goods sold:	Rs. 7,00,000
Fixed Assets	Rs. 2,50,000
Tax	Rs. 80,000

(i) Gross Profit Ratio:

Gross Profit Ratio= Gross Profit ÷Net Sales

Gross Profit = Rs. 12,00,000 – Rs. 7,00,000 = Rs. 5,00,000

Gross Profit Ratio + (5,00,000 ÷ 12,00,000) x 100 = 41.67%

If G/P ratio is 41.67%it means 58.33% is the cost of goods sold and remaining 41.67%is the margin towards administrative and selling expenses and profit. **Generally a G/P ratio of 20 to 30 p.c. is desirable.**

(ii) Return on Investment Ratio (ROI)

Return on Investment = Net Profit before Tax ÷ Total Assets

[2,00,000 ÷ (1,50,000 + 2,50,000)] x 100 = 50.00

(iii) Current Ratio:

Current Ratio = Current Assets ÷ Current Liabilities

(1,50,000 ÷ 90,000) = 5:3

(iv) Inventory Turnover Ratio:

Inventory Turnover Ratio =

Cost of Goods Sold ÷ Average Inventory

(7,00,000 ÷ 50,000) = 14

(v) Assets Turnover Ratio:

Assets Turnover Ratio = Sales /Total Assets

(12,00,000 ÷ 4,00,000) = 3

(vi) Earning Per Share (EPS):

This is a measure of earnings to the Equity Shareholders.

EPS = Profit after preference Dividend /No. of Outstanding Equity Shares

(1,20,000 ÷ 10,000) = Rs. 4

II. From the following information extracted from the annual accounts of Assam Limited. You are required to calculate the following ratios:

(i) Gross profit percentage,
(ii) Net profit percentage,
(iii) Return on total assets,
(iv) Quick asset ratio,
(v) Debtors collection period,
(vi) Stock turnover,
(vii) Fixed assets turnover,
(viii) Return on shareholders' funds,
(ix) Current ratio, and

Stop to Consider

What qualifies to be a good ROI? ROI will depend on many factors such as the risk tolerance of the investors and the time required for the investment to generate a return. For eg. investors who are more risk-averse will accept lower ROIs and in exchange will take less risk.

Balance Sheet as at 31st December, 2007

	(Rs. 000)
Share Capital	450
Retained Profits	240
	690
12% Debentures	700
Trade creditors	620
Proposed dividend	45
	2,055
Fixed assets net of depreciation	875
Stocks	310
Debtors	770
Bank balance	100
	2,055

Extracts from Year's Profit and Loss Account

	(Rs.)
Sales for the year	31,00,000
Gross profit	17,25,000
Expenses	8,05,000
Depreciation	2,50,000

SOLUTION

(*i*) Gross profit percentage $= \frac{1725}{3100} \times 100\% = 55.6\%$

(*ii*) Net profit percentage $= \frac{670}{3100} \times 100\% = 21.6\%$

(*iii*) Return on total assets $= \frac{670}{2055} \times 100\% = 32.6\%$

(*iv*) Quick ratio $= \frac{870}{665} = 1.3 : 1$

(*v*) Debtors collection period $= \frac{770}{3100} \times 365 = 91$ days

(*vi*) Stock : turnover $= \frac{3100}{310} = 10$ times

(*vii*) Fixed assets : turnover $= \frac{3100}{875} = 3.5$ times

(*viii*) Return on shareholders' funds $= \frac{586}{690} \times 100\% = 84.9\%$

(*ix*) Current ratio $= \frac{1180}{665} \times 1.8 : 1$

(*x*) Debt ratio $= \frac{1365}{2055} \times 100\% = 66.4$

2.6 Summing Up

Activity ratios are those, which are related to sales or main operation of the business and working capital. These ratios show the effectiveness of the firm in utilising its assets and working capital.

Expense ratios are calculated to express a particular expense as a percentage of sales. Sales are taken as base since all the business expenses are met from the revenue generated from sales.

Operating ratio is an important tool of analysing operating leverage. It is a test of operational efficiency. A high operating and expenses ratios imply lower profit, and *vice versa*

The creditors who have advanced money to the business on long-term basis are interested in safety of their periodic payment of interest as well as the repayment of principal amount at the end of the loan period. Therefore, solvency ratios are calculated to determine the ability of the firm to service its debt in the long run.

ROI is performance measure used to evaluate the efficiency of investment. It compares gains from investment with investment costs. It is one of most commonly used approaches for evaluating the financial consequences of business investments, decisions, or action

Earning per share is a profitability ration on shareholder basis. It is generally used by the management to decide the capital structure of a public limited company. Prospective shareholders may use to make an investment decision.

2.7 Model Questions

1. Explain the advantages of Ratio Analysis.
2. Give an account of the various ratios used to measure the operating efficiency of a business firm?
3. Give an account of the various ratios used to measure the profitability of a business firm?

2.8 References and Suggested Readings

1. https://www.wallstreetmojo.com/activityratios/#:~:text=Activity%20ratios%20help%20evaluate%20a,of% 20the%20balance%20sheet%20components.
2. https://smallbusiness.chron.com/profitability-ratios-measure-evaluation-company 56023.html

3. Sikider Sujit and Gautam H.C. "Financial Statement Analysis" Kolkata New Central Book Agency (P) Ltd., April 2002

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Unit-3
Application of Accounting Ratios in the analysis of Working Capital

Unit Structure:

3.1 Introduction

It is well known to all that finance is the first requirement of business. Economic activity of any nature involves finance. Without finance one cannot think of starting business activities. However, finance may take the shape of cash or credit; it may be required for short term or long term or for both. Hence, working capital is called the life blood and nerve centre of business. Working capital is essential to maintain smooth running of a business. No business can run successfully without an adequate amount of working capital. Without adequate working capital it is impossible to operate the business smoothly. It facilitates to run the business without any financial problem for making the payment of short-term liabilities. Purchase of raw materials and payment of salary, wages and overhead can be made without any delay. Sufficient working capital enables a business concern to make prompt payments and thus it helps in creating and maintaining goodwill. Quick payment to the suppliers of raw materials ensures the regular supply of raw materials from suppliers. If suppliers are satisfied by the payment on time, the regular supply of raw materials and continuous production are ensured. This will ultimately help in the overall progress of the firm

3.2 Objectives

After going through this unit, you will be able to:

- know the meaning of working capital,
- know the importance of working capital,
- understand the different concepts of Working Capital,
- acquaint with the application of Ratio for analysing working capital.

3.3 Meaning of Working Capital

In the previous units, we have discussed the application of Accounting Ratios in decision making. In this unit we will put an effort to make you understand the intricacies of working capital analysis and the utility of inter firm comparison for decision making. Working capital analysis and inter firm comparison are generally done with the help of some relevant accounting ratios. Hence, we will use these ratios in this unit to analyse working capital and inter firm comparison.

Working Capital means the capital available for meeting the day-to-day expenses of a business firm. In the words of Shubin, "Working Capital is the amount of funds necessary to cover the cost of operating the enterprise". This capital is the amount used in the normal course of business and does not include the amount blocked in the assets of permanent nature. This fund required for current operation has been termed as 'short-term financing', 'short-term funds', 'revolving capital', 'circulating capital' or 'Working Capital' by different authors. Fixed capital portrays that part of business finance, which is invested in fixed assets. Working Capital, on the other hand indicates that part of business finance which helps in meeting working expenses and day-to-day operations. According to some authors, viz. Field, Baker Mead, Cohers and Robbins, Working Capital comprises of the total current assets; while to other authors, Guthmann and Dougall, Weston and Brigham and VL Gole, Working Capital represents the difference between the current assets and current liabilities. One significant implication of Working Capital is the amount of rupees worth of current assets including cash and earmarked or required for paying off current liabilities. According to Genestenberg "Circulating capital means current assets of a company that are changed in the ordinary course of business from one form to another. As for example, from cash to inventories, inventories to receivables, receivables into cash".

Working Capital in simple terms means Current Assets minus Current Liabilities (CA - CL). Working capital is also defined as Long Term Fund minus Long Term Assets (LTF -.LTA). The result of (CA – CL) or (LTF - LTA) is considered a prime measure of the short-term liquidity of a business firm. A strongly positive working capital balance indicates healthy short term financial position, while negative working capital is considered an indicator of impending technical bankruptcy. Sufficent working capital allows management to take advantage of unexpected opportunities, and to qualify for bank loans and favorable trade credit terms.

A 2:1 ratio of current assets to current liabilities is considered healthy from the liquidity point of view, though the ratio may vary from industry to industry. The ratio may also be reviewed on a trend line, with the intent of spotting any declines or sudden drops that could indicate liquidity problems.

Example: A business firm has Rs. 200,000 of accounts receivable, Rs. 80,000 of inventory, and Rs. 70,000 of accounts payable. Its working capital is:

Current Assets minus Current Liabilities.

= Rs.(2,80,000 Current assets - 70,000 Current liabilities) = Rs. 2,10,000

3.4 Different Concepts of Working Capital:

The popular term 'working Capital' may be conceptualised in various terms in financial management. These are listed below:

(i) Gross Working Capital,
(ii) Net Working Capital,
(iii) Negative working Capital,
(iv) Permanent Working Capital,
(v) Circulating or Variable Working Capital,
(vi) Cash working Capital, and
(vii) Balance Sheet Working Capital.

Gross Working Capital (GWC): The sum total of all components of Current Assets is called Gross Working Capital. Total of cash and bank, receivables, inventory and all other current assets is together called Gross Working Capital.

Gross Working Capital

=

Total of all Current Assets

Net Working Capital (NWC): When the amount of total current liabilities is deducted from Gross Working Capital it is termed as Net Working Capital. In other words, the difference between the Gross Working Capital (total current assets) and total current liabilities is called Net Working Capital.

Net Working Capital

=

Total Current Assets *minus* total Current Liabilities

In common parlance and in accounting and financial literature, the term 'Net Working Capital' is rarely used. Instead, to mean this, the simple and easily understandable term 'Working Capital' is used to mean Net Working Capital. ***While considering the total current assets for the calculation of Net working capital, the amount of pre-paid expenses like pre-paid insurance, are excluded.***

Negative working Capital: When the total amount of current assets of a firm is less than its current liabilities it is known as Negative Working Capital. Under such situation the balance of working capital shows a negative balance. In other words negative working capital is a situation when current liabilities are more than current assets.

Negative Working Capital is a situation when

Current Liabilities are *more than* Current Assets

OR

Negative Working Capital

=

Excess of Current Liabilities *over* Current Assets

Permanent Working Capital: If the Balance Sheets of a company for several years are examined we find that some amount of current assets and

current liabilities are always there all through these years. If we prepare a balance sheet at any point of time in a year, then also we get certain balance of current assets and current liabilities. This means that though there are changes in the amount i.e., money value, from time to time, there remains a balance of working capital (current assets minus current liabilities). The operating cycle may not require the full amount of working capital through out the year. Thus a certain amount of working capital remains unutilized all through the year. Again a firm is required to maintain a minimum balance of working capital, especially cash and inventory all the time with a view to run the firm smoothly. This part of working capital is termed as Permanent Working Capital.

Circulating or Variable working Capital: The variation in the amount of working capital is always there depending upon the factors in operating cycle. The amount of variation in working capital below or above the permanent working capital is termed as circulating or Variable Working Capital.

Permanent working capital does not imply that the amount is not fixed or static all the time or years. It simply implies that it is the minimum amount of working capital which is required at any point of time. This concept helps in planning and in the management of working capital more efficiently. The amount of permanent working capital may increase or decrease annually depending upon the growth or decline of business.

Circulating Working Capital

=

Net Working Capital *minus* Permanent Working Capital

Cash Working Capital: Cash working capital denotes the cash component of working capital. Cash includes cash at bank and in hand.

Balance Sheet Working Capital: B/S working capital is derived from the figures given in the Balance Sheet, i.e., current assets minus current liabilities. This concept is derived at the end of financial year after the preparation of Balance Sheet and is a historical concept.

3.5 Components of Working Capital

Working capital is influenced by the amount of current assets and current liabilities. Generally the current assets and current liabilities are composed of the following items:

A. Current Assets:
(i) Inventory of raw materials
(ii) Inventory of work-in-progress,
(iii) Inventory of finished goods,
(iv) Inventory of spare parts, loose tools, stationeries etc,
(v) Inventory of merchandise (in case of trading concerns),
(vi) Trade Debtors,
(vii) Bills Receivables,
(viii) Marketable securities
(ix) Cash at bank (in current account)
(x) Cash in hand, etc.

B. Current Liabilities:
(i) Trade creditors,
(ii) Bills payables,
(iii) Short term loans,
(iv) Bank overdraft,
(v) Bills for outstanding expenses,
(vi) Tax payable,
(vii) Dividends payable
(ix)Any other dues outstanding

For easy understanding explanations of some items are given below.

1. Cash and bank balances: This is the most liquid form of working capital and requires constant supervision. A good cash budgeting and forecasting system provides answers to key questions such as: Is the cash level adequate to meet current expenses as they come due? What is the timing relationship between cash inflow and outflow? When there will be maximum need of cash? When and how much bank borrowing will be needed to meet any cash shortfalls? When will repayment be expected and will the cash flow cover it?

2. Trade Debtors and Bills receivables: Trade Debtors and Bills receivables are commonly known as Accounts Receivables. Many business firms extend credit to their customers. If it is done, then it should be kept in mind that whether the amount of accounts receivable is reasonable in

comparison to sales? How rapidly are receivables being collected? Which customers are slow to pay and what should be done about them?

3. Inventory. Inventory is one of the most important components of working capital . In some cases it is often as much as 50 percent of firm's current assets, so naturally it requires continual scrutiny. Is the inventory level reasonable compared with sales and the nature of your business? What's the rate of inventory turnover compared with other companies in your type of business?

4. Trade creditors and Bills payable (Accounts Payables): Financing by suppliers is common in small business; it is one of the major sources of funds for entrepreneurs. Is the amount of money owed suppliers reasonable relative to what you purchase? What is your firm's payment policy doing to enhance or detract from your credit rating?

5. Accrued expenses and taxes payable. These are obligations of the business firm at any given point of time and represent a future outflow of cash.

3.6 Need for Working Capital

From the above discussion you have come to know different concepts of working capital and its forms. Now we shall discuss the various purpose of working capital for which it is utilised in a business firm.

The very purpose of working capital is to finance the deficit in the operating cycle. The Time Gap between (a) the purchase of raw materials (goods), processing and production on the one hand and (b) realization of cash from sales, debtors and receivables on the other, gives rise to the need for working capital. The expenditure required for (a) are met from revenue earned from (b) above. But the time scheduling for these two types of activities are such that there always remains a gap. Sales do not convert into cash instantly. There is invariably time-lag between sales of goods and the receipt of cash. In order to sustain sales activity therefore sufficient amount of working capital is required.

Various activities for which working capital is needed are:

1. Acquisition of raw-material;
2. Purchase of components and spare-parts;
3. Recurring expenses and overhead cost like office expenses, rent, fuel, power etc.;

4. Payment of wages and salaries;
5. Distribution and selling expenses, packaging, publicity after-sales service etc;
6. Warehousing expenses;
7. Collection charges from debtors, bank charges for realization of cheques;
8. Cash discount, bad debt etc;

Check Your Progress

1. Explain the term 'working capital'.
2. What are the different forms of 'working capital'?
3. What are the needs of working capital?
4. How is net working capital calculated?
5. What is negative working capital?

3.7 Working Capital Leverage

The amount of working capital provided by the current sources (current liabilities) is known as Working Capital Leverage**.** Most of this amount is contributed by the sundry creditors. If the whole of gross working capital is financed by the current liabilities, it leads to the situation of Current Assets = Current Liabilities and the ratio of CA to CL will be 1:1. This means that the entire amount of working capital is financed by cost-free funds. It raises the profitability of the firm. The more the rate of contribution of current liabilities to the working capital, the more will be the profitability. This is called working capital leverage. Such situation will raise the productivity of working capital. Working capital leverage is tool to measure the productivity of working capital.

3.8 Relevant accounting ratios for working capital analysis:

In section 6.4 above we have mentioned the various components of working capital. The relevant accounting ratios for working capital analysis are computed from these items of working capital. Generally the following accounting ratios are used to analyse working capital.

(a) Current Ratio or Working capital Ratio,
(b) Liquid Ratio,

(c) Absolute Liquid Ratio,
(d) Overdue Liability Ratio,
(e) Defensive Interval Ratio,
(f) Inventory Turnover Ratio.

Current Ratios:

The Working capital Ratio, popularly known as Current Ratio is one of the best-known ratio which measures the quantum of margin between current assets and current liabilities. It is the relative proportion of an entity's current assets to its current liabilities, and is intended to show the ability of a business to pay for its current liabilities with its current assets. Current assets are those assets which, in the ordinary course of business, can be converted into cash within a short period of time. This short period of time normally consists of twelve months. Currents assets normally include cash and bank balances, marketable securities, debtors, bills receivables, inventory, and accrued income. Current liabilities are obligations payable within a year. These are the liabilities which include trade creditors, bills payable, outstanding liabilities, advance income received, dividend payable contingent liabilities, and normally bank overdraft also. Moreover, provisions for taxation and other short-term provision for unseen liabilities are also classified as current liabilities.

. A working capital ratio of less than 1.0 is a strong indicator that there will be liquidity problems in the future, while a ratio in the vicinity of 2.0 is considered to represent good short-term liquidity.

Check Your Progress

1. The ratio of CA to CL is 1:1. What does it means ?
2. What is Current Ratio?
3. What is liquid ratio?

Example 1:

From the following information calculate the amount of working capital and working capital ratio.

Item	Rs.
Inventory	54,000
Trade Debtors	35,000

Bills receivables	10,000
Cash	5,000
Bank over draft	15,000
Trade Creditors	32,000
Outstanding bills	11,000
Bills Payables	15,000

:

Computation of Working Capital:

Current Assets = Inventory + Trade Debtors + Bills Receivables + Cash

= Rs. (54,000 +35,000 +10,000 + 5,000)= Rs.1,04,000

Current Liabilities = Bank overdraft +Trade creditors + Outstanding Bills + Bills payables

= Rs. (15,000+ 32,000+ 11,000 +15,000) = Rs. 73,000

Working Capital: R. 1,04,000 – Rs. 73,000 = Rs.33,000.

Working Capital Ratio: Current Assets ÷ Current Liabilities

= 1,04,000 ÷. 73,000 = 1.42 or 1.42 : 1

But so far as financial management is concerned, frequent rolling of current assets is better for a healthy financial position which will push up the profitability. Therefore, more amounts blocked in current assets results in loss in profits. On the one hand, low level of current assets will have a negative impact on the liquidity position. So, there is the need for striking balance between these two extremes- profitability and liquidity, while deciding upon an ideal current ratio.

When the firm's current ratio is too low, its short-term liquidity is at risk. This may be corrected by:

- Paying some debts
- Increasing current assets from loans or other borrowings with a maturity of more than one year
- Converting non-current assets into current assets
- Increasing current assets from new equity contributions
- Putting profits back into the business

Liquid Ratio or Quick Ratio:

The **Liquid Ratio or** Quick Ratio is sometimes called the "acid-test" ratio and is one of the best measures of very short-term liquidity.

Many of the limitations of current ratio may be corrected through the use of liquid ratio. As against the liberal test of liquidity by the current ratio, liquid ratio gives a stringent measure of liquidity. Because, comparatively less liquid assets are excluded in calculating this ratio. The slowest moving current asset is inventory hence this item is excluded from current assets to get liquid assets. Current liability is also adjusted sometimes.

The two components of ***liquid ratio (acid test ratio or quick ratio)*** are liquid assets and liquid liabilities. Liquid assets normally include cash, bank, sundry debtors, bills receivable and marketable securities or temporary investments. In other words they are current assets minus inventories. Inventories cannot be termed as liquid assets because it cannot be converted into cash immediately without a loss of value. Similarly, Liquid liabilities means current liabilities i.e., sundry creditors, bills payable, outstanding expenses, short term advances, income tax payable, dividends payable, and bank overdraft (only if payable on demand). Some time bank overdraft is not included in current liabilities for computing quick ratio, on the argument that bank overdraft is generally permanent way of financing and is not subject to be called on demand. In such cases overdraft will be excluded from current liabilities.

Liquid Ratio or Quick Ratio = Liquid Assets ÷ Current Liabilities

Example 1:

From the following information calculate Liquid ratio.

Item	Rs.
Inventory	54,000
Trade Debtors	35,000
Bills receivables	10,000
Cash	5,000
Bank over draft	15,000
Trade Creditors	30,000
Outstanding bills	5,000
Bills Payables	10,000

Liquid Assets = Trade Debtors + Bills Receivables + Cash

= Rs. (35,000 +10,000 + 5,000)= Rs.50,000

Current Liabilities = Trade creditors + Outstanding Bills + Bills payables

= Rs. (30,000+ 5,000 +10,000) = Rs. 45,000

(Note: Bank over draft is not considered assuming it is permanent feature)

Liquid ratio: Liquid Assets ÷ Current Liabilities

= 50,000 ÷. 45,000 = 1.11 or 1.11 : 1

Stop to Consider

A company has to keep optimum working capital because if the working capital is too low the company cannot cover its debts with its current working capital and the company will have difficulty in paying back to its creditors. If the working capital is too high it will indicate that the company is keeping excess cash and keeping it idle.

Exercise 3:

Comment on the working capital position of X Ltd from the following information.

Items	**Year 1**	**Year 2**	**Year 3**
Inventory	1,00,000	1,80,000	2,40,000
Accounts Receivables	2,00,000	2,50,000	3,00,000
Cash and Bank balances	50,000	50,000	1,00,000
Other Current assets	50,000	50,000	50,000
Accounts payables	1,50,000	2,50,000	3,50,000
Bank Overdraft	50,000	50,000	50,000
Other Current liabilities	40,000	40,000	40,000

Solution:

Items	Year 1	Year 2	Year 3
Inventory	1,00,000	1,80,000	3,40,000
Accounts Receivables	2,00,000	2,50,000	3,00,000
Cash and Bank balances	50,000	1,50,000	2,00,000
Other Current assets	50,000	50,000	50,000
Total Current Assets (I)	**4,00,000**	**6,30,000**	**8,90,000**
Accounts payables	1,50,000	3,50,000	5,50,000

Bank Overdraft	50,000	1,50,000	1,80,000
Other Current liabilities	40,000	40,000	40,000
Total Current Liabilities (II)	**2,40,000**	**5,40,000**	**7,70,000**
Working Capital (I) – (II)	**1,60,000**	**90,000**	**1,20,000**
Working Capital Ratio	**1.67**	**1.17**	**1.16**

The working capital ratio has decreased from 1.67 to 1.16. This trend is unfavourable for the smooth running of the company. The trend of Inventory position implies that the inventory turnover is deteriorating. There shall be rigorous effort to enhance sales of the company. Accounts receivables have also increased significantly. This is also not a comfortable trend. There is no scope to raise current assets. So, measures must be taken to liquidate the liabilities. Cash and bank balances may be used to to pay the bank overdraft. This will also reduce the burden of interest.

Exercise : 1

The following balances are extracted from the books of Rohan Limited as on 31/03/2016

Items		**Rs.**
Trade Creditors (Gross)	Rs.	44,000
Bills Payable	Rs.	14,000
Bank Overdraft	Rs.	12,000
Provision for Discount on Creditors	Rs.	1,000
Liabilities for expenses	Rs.	4,000
10% Bank Loan for 5 yrs.	Rs.	25,000
Municipality dues	Rs.	6,000
Inventory	Rs.	38,000
Trade Debtors (Gross)	Rs.	35,000
Provisions for doubtful debts	Rs.	2,000
Investment in 8% Debenture	Rs.	20,000
Prepaid Insurance	Rs.	3,000
Bills Receivable (Net)	Rs.	15,000
Bills receivable Discounted	Rs.	5,000
Office equipment	Rs.	55,000
Cash at Bank	Rs.	20,000

You are required to-

(i) Calculate Net Working Capital and Working Capital Ratio

Solution :

Computation of Net Working Capital

Currents Assets :		**Rs.**
Inventory		Rs. 38,000
Trade Debtors (Gross)	35,000	
	2,000	
Less, Provisions		Rs. 33,000
Bills Receivables		Rs. 15,000
Cash at Bank		Rs. 20,000
Total		Rs. 1,06,000

Current liabilities		**Rs.**
Trade Creditors (Gross)	44,000	
	1,000	
Less, provision		Rs. 43,000
Bills Payable		Rs. 14,000
Bank overdraft		Rs. 12,000
Liabilities for expenss		Rs. 4,000
Municipalities Dues		RS. 6,000
Total		**Rs. 79,000**

Working Capital

= Current Assets-Current liabilities

= Rs. 106,000- Rs. 79,000 = Rs. 27,000

Working Capital Ratio

$$\frac{\text{Current Assets}}{\text{Current liabilities}} = \frac{\text{Rs. 106,000}}{\text{Rs. 79,000}} = 1.38:1$$

Note : Prepaid Insurance is not considered as current asset for the purpose of computing working capital.

Exercise : 2

Considering the balances as given in exercise 1 compute liquid Ratio :

Solution :

Liquid Assets :	**Rs.**
Trade Debtors (Net)	Rs. 33,000
Bills Receivable (Net)	Rs. 15,000

Cash at Bank	Rs.	20,000	
Total	**Rs.**	**68,000**	
Current Liabilities :			**Rs.**
Trade Creditoes (Net)		Rs.	43,000
Bills payable		Rs.	14,000
Liabilities for expenss		Rs.	4,000
Municipality Dues		Rs.	6,000
Total		**Rs.**	**67,000**

Liquid Ratio

$$= \frac{\text{Liquid Assets}}{\text{Current liabilites}}$$

$$= \frac{\text{Rs. 68,000}}{\text{Rs. 67,00}}$$

= 1.01 or 1.01:1

Exercise:3

Current Assets : Rs. 10,00,000
Current Liabilities : Rs. 8,000,000

Working out the working capital ratio from the above inpermation and also state the impact of the following transations, individually, on the working capital ratio as calculated above.

Transactions :

i) Cash Sale : Rs. 1,00,000 at a profit of Rs. 25
ii) Payment to trade creditors : Rs. 2,00,000
iii) Credit purchase of goods : Rs. 1,50,000
iv) Sale of old Furniturs : Rs. 50,000
v) Issue of 8% Debentures : Rs. 2,00,000

Solution :

Present current Assets : Rs. 10,00,000
Present current liabilities Rs. 8,00,000
Present working capital Ratio 10:8 ro 1.25

Impact of each transaction on working capital ratio 1.25

Impact of each transaction on the present W.C. ratio :

i) Each sales Rs. 1,00,000

Profit Rs. 25,000

	C.A	CL
Present	10,00,000	8,00,000
(–) Sale of Stock	(–) 75,000	–
(+) Cash inflow	(+) 1,00,000	–
	10,25,000	8,00,000

W.C. Ratio 1025:800 or 1.28

Therefore, improve in W.C. Ratio from 1.25 to 1.28

(ii) Payment to trade creditors : Rs. 2,00,000

	C.A.	CL
Present	10,00,000	8,00,000
(–) Decreasein Trade Credibos	–	(–) 2,00,000
(–) Decreas in cash	(–) 2,00,000	–
	8,00,000	6,00,000

W.C. Ratio : 8:6 or = 1.33

Therefore, improve in W.C. ratio from 1.25 to 1.33

(iii) Credit purchose of goods : Rs. 1,50,000

	C.A	C.L.
Present	10,00,000	8,00,000
Increase in Stock	(+) 1,10,000	–
Increase liability	–	(+) 1,50,000
	11,50,000	9,50,000

W.C. Ratio = 1150 : 950 or 1.21

Therefore W.C. ration worsen from 1.25 to 1.21

(iv) Salep of old furniture Rs. 50,00

	C.A	C.L.
Present	10,00,000	8,00,000
Increase in cash	(+) 50,000	–

	10,50,000	8,00,000

W.C. Ratio in 1050:800 or 1.31

Therefore, W.C. ratio improved from 1.25 to 1.31

(v) Issue of 8% Debenture : 2,00,000

	C.A	C.L
Present	10,00,000	8,00,000
Increasim Bank balance	(+)2,00,000	–
	12,00,000	8,00,000

W.C Ratio 12:8 ro 1.5

Therefore W.C. ratio improved to 1.5 from 1.25

3.9 Summing Up

Working Capital means the capital available for meeting the day-to-day expenses of a business firm. This capital is the amount used in the normal course of business and does not include the amount blocked in the assets of permanent nature. This fund required for current operation has been termed as 'short-term financing', 'short-term funds', 'revolving capital', 'circulating capital' or 'Working Capital'

The sum total of all components of Current Assets is called Gross Working Capital. Total of cash and bank, receivables, inventory and all other current assets is together called Gross Working Capital.

Cash working capital denotes the cash component of working capital. Cash includes cash at bank and in hand.

The amount of working capital provided by the current sources (current liabilities) is known as Working Capital Leverage. Most of this amount is contributed by the sundry creditors. If the whole of gross working capital is financed by the current liabilities, it leads to the situation of Current Assets = Current Liabilities and the ratio of CA to CL will be 1:1.

If huge amount is blocked in current assets, it will result in loss in profits. On the one hand, low level of current assets will have a negative impact on the liquidity position. So, there is the need for striking balance between these two extremes- profitability and liquidity, while deciding upon an ideal current ratio.

A working capital ratio of less than 1.0 is a strong indicator that there will be liquidity problems in the future, while a ratio in the vicinity of 2.0 is considered to represent good short-term liquidity.

The **Liquid Ratio or** Quick Ratio is sometimes called the "acid-test" ratio and is one of the best measures of very short-term liquidity.

3.10 Model Questions

1. Explain the meaning and different concepts of working capital.
2. Highlight the needs of working capital.
3. Discuss the relevant accounting ratios for the working capital analysis.

3.11 References and Suggested Readings

Books:

- Gupta, S.K., & Sharma R.K. "*Management Accounting-Principles and Practice."* Kalyani Publisher-2013.
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Unit-4
Inter-Firm Comparison

Unit Structure:

4.1 Introduction

The process of modernization, liberalization and globalization has paved the way for more and more investment from the people inside and outside the country. Such investment is primarily decided on the basis of information and the possibility of comparison of firms. It is here lies the importance of Inter-firm comparison (IFC).

4.2 Objectives

After going through this unit you shall be able

- Know the meaning of inter firm comparison,
- Understand the objectives of inter firm comparison.
- Acquaint with the technique of inter firm comparison
- Discuss the advantages and limitations of inter firm comparison.

4.3 Meaning of Inter Firm Comparison

IFC is the technique by which the operating and financial results of one firm is compared with another firm in the same line of trade and industry. It is a technique by which the performance, costs, profits, efficiencies and productivity of firms in the same line of business in the same industry are

evaluated and compared. It is a study of similar firms on a voluntary basis by exchange of information with a view to assess strength, opportunities and weakness of each firm.

4.4 Origin of Inter-firm Comparison

The idea of Inter-firm comparison is not new. It was first felt in the USA when the National Association of Stove Manufacturer first introduced the scheme of Uniform Costing.

Inter-firm Comparison in an organised way was started in 1959 in England. The British Institute of Management in that year, in collaboration with the British Productity Council set up a body known as Inter-firm comparison. The objectives of this organisation was to assess the performances of similar firms. It is a non-profit motive organisation. Its field of activity is spread not only in England but it carries out its investigations in other countries of Europe and in the USA also.

Check your Progress

1. Note down the meaning of Inter firm Comparison.
2. Inter firm Comparison was started in in organised way in .....

4.5 Objectives of Inter-Firm comparison

The following are the objectives of IFC.

1. Inter-firm comparison is carried out to find out the weak points and strong points of a business firm in comparison to other firms and on this basis, to improve the efficiency in future.
2. Another objective is to locate or find out the cost centres which are uneconomic and to take effective action to make these centres productive.
3. To know whether the profits of the firm are adequate or not, is another objective of IFC. After knowing the state of current profitability, appropriate action may be taken.
4. Inter-firm Comparison is also undertaken by the prospective investors to choose the companies into which funds are to be invested.

5. It is also undertaken by the associations of an industry to award best-company prizes on product quality, energy conservation, least polluter etc.

4.6 Methodology or Approaches of IFC

Following are the important steps or requirements of an Inter-firm comparison scheme.

1. Data collection: All necessary information are collected from the participating firm. The nature and extent of such information depend on the needs and objective of management, comparability of information and the efficiency of the central organization responsible for data collection. There are varieties of data to be collected which may vary according to the objective of IFC. In general, information on the following lines are collected:

i) costs and cost structure.
ii) Labour efficiency and utilization
iii) Machine efficiency and utilization.
iv) Material utilization.
v) Inventory of Raw materials,
vi) Inventory of finished product.
vii) Wastage
viii) Profitability
ix) Liquidity and cash generation.
x) Credit policy, creditors and debtors,
xi) Dividend policy
xii) Production techniques
xiii) Distributi8on channel
xiv) Human Resource
xv) Assets and liabilities.
xvi) Capital structure

2. Application of Uniform definitions

Data Collected age processed on the basis of uniform definitions of terms, procedures, methods and accounting period. If uniformity is not brought in the processing of data, Comparison is not possible.

3. Tools generally applied in inter-firm comparison are comparative statements prepared with the help of accounting ratios. These ratios are

selected so to suit each individual firm on a group of firms for purposes of comparison.

4. After a preliminary comparison each firm is provided with question arises requiring confirmation and additional information.

5. After confirmation from individual firm is received and after incorporating any additional information, the final comparative statements are prepared.

6. Comparison of different firms on the basis of ratios reveals many short comings and also the clues for efficiencies and inefficiencies.

7. All such reports are confidential and are kept secretly, While making comparison names of firms are not disclosed, rather code Nos. are used for each firm.

Ratios for Comparison or Types of Comparison:

There are generally three types of Comparison.

a) Comparison of management ratios,
b) Comparison of Cost ratios, and
c) Comparison of technical data.

a) **Comparison of Management ratios**: These ratios are meant to provide management with a comparative picture of operating performance, financial performance, liquidity and growth as compared to other firms in the trade or industry. These ratios are basically related to earning capacity, assets turnover, liquidity and solvency. Details ratios are related with costs aspect.

b) **Comparison of Cost ratios:** These ratios are related with costs aspect of the firms. Cost efficiency and cost effectiveness of a firm may be compared with that of other firms. Costs ratios covered prime cost, factory overhead, office overhead and selling and distribution overhead. Cost reduction and cost control schemes may be adopted after comparing and studying cost ratios of own firm with those of other firms.

c) **Comparison of Technical Data:** In a highly competitive market and in the era of liberalization and globalization, comparison of technical data of various firms is of special interest for external investors and a necessity for management.

Management will certainly be happy if they can adopt better technology to reduce cost, improve quality and distribution. It is visualized that technical processing utilization and loss, machine utilization and other production techniques.

Below are given the ratios used in inter-firm comparison.

Cost Ratios

1. Operating Cost ratios or Operating Expenses Ratios
2. Financial Cost Ratios.

1. (a) Prime Cost + Sales,

(b) Works cost _ Sales,

(c) Cost of Production _ Sales,

(d) Selling cost + Sales,

(e) Cost of Sales + Sale,

(f) Administration Cost + Sales.

(g) material Cost + Prime cost/works cost.

(h) labour cost + prime cost/works cost

(i) Directo expenses + Prime cost/works cost.

2(a) Interest expenses + sales

(b) Interest expenses + profit

© Interest expenses + cash profit

(d) Cost of capital + Profit before interest.

Technical Ratios

a) Raw materials consumed + man/Machine Hours,
b) Value added + cost of Raw material
c) Value added _ Cost of production
d) Scrape (value) + Value of Raw material used,
e) Quantity Produced + Rated capacity
f) Quantity produced + Man/Machine Hours,
g) Loss on process + Cost of raw material
h) Idle time hours + total labour cost
i) Cost of overtime + total labour cost
j) Cost of idle time + total laobur cost
k) Power Units consumed +machine hours

l) Cost of production + main/machine hours,

m) Cost of Machine Maintenance + cost of production etc.

n) Equity valuation Ratios

1. Earnings per share = $\frac{\text{Profit after tax}}{\text{No . of outstanding equity shares.}}$

Requisites of Inter-Firm Comparison or Applicability of Inter-Firm Comparison:

Inter-firm comparison cannot be applied in all situations. It can be applied if the following conditions are fulfilled.

1. Firms are in the same industry and trade.
2. All firms participating in the IFC are operating under Uniform Costing.
3. Firms are more or less in the same age group and size.

Stop to Consider

Techniques used in Inter Firm Comparison	Issues involved in Inter-Firm Comparison
1. Financial Ratio Analysis	1. Accounting Practices
2. Bench Marketing	2. Business Models
3. Porter's Five Forces Model	3. Reporting Standards
4. SWOT Analysis	4. Economic Environments
5. Market Share Analysis	5. Regulatory Requirements
	6. Risk Profile
	7. Valuation Techniques

4.7 Advantages of Inter-Firm Comparison

The following are the main advantages derived from the IFC.

1. It encourages managerial efficiencies in the organization. It is done by sporting the inefficiencies and weaknesses of the management in operating and financial activities.
2. It brings stability and balance in cost structure and presentation of information.
3. Cost consciousness, cost efficiency and cost effectiveness can be created among the participating firms.

4. Cost reduction and cost control programmes can be launched after comparing the structure of other firms.
5. Productivity can be raised by eliminating unproductive expenses and by bringing economics in expenditure.
6. Information, statistics and ratios available from IFC can be used for various other purposes.
7. It enables the management to review the operations and policies on continuous basis.
8. IFC creates self criticism by comparing its data with other firms which help to rectify the errors already committed.
9. In IFC only significant variances are reported to the management. It helps the organization to operate on Management by Exception (MBE).
10. It helps the government, regulatory agencies and researchers in getting useful data and information to improve policies and to conduct in-depth studies and research work for suggesting further improvement.

In the words of Prof. Nigam, "It is not only useful for management, it also acts as a tool for decision making by bankers, shareholders, institutional investors, licensing authorities, price control organizations, creditors, consumers trade unions, organizations and other social and economic interests. It is also useful in evaluating business results and return on capital invested which in turn, helps in project appraisal and evaluation, conducting feasibility studies, capital budgeting, investment decisions etc." (Inter firm comparison-An aid to management decision making'; chartered Secretary, Dec, 1978; P.A. 265).

4.8 Limitations of Inter-Firm Comparison

The following are the main limitations of inter firm comparison:

1. Differences in individual units:

The main limitation of inter-firm comparison is differences in the nature of individual units. There are variance in the application of accounting principles, costing methods, in the size and age of each unit of firms. The condition and situation of plant, location, nature of labour force etc. differ from firm to firm. These make it difficult to practice inter-firm comparison.

2. Dissemination of supply of information by each individual firm is not above doubt. It is difficult to get all relevant data which are true and correct and transparent.

3. Basis of information may differ from firm to firm. The closing date of accounts of some firms may be 31st March and of some firms. It is 31st December. Again some may maintain accounts on cash basis, some may maintain on accrual basis while some may follow the mixture of the two. These make comparison a difficult task.

4. The basis for calculating ratios may vary from firm to firm.

5. Cost and time are other factors which may render problems. Cost of collection of data and their timeliness are important factors fro the usefulness of inter-firm comparison.

6. Uniform costing is a difficult practice for many firms due to the very nature of its business.

7. If the management is satisfied with the present level of performance, inter-firm comparison may not deliver benefits.

Check Your Progress

1. What are the objective of inter firm comparison.
2. Under what condition can inter firm comparison be done?

4.9 Summing Up

Inter Firm Comparison is the technique by which the operating and financial results of one firm is compared with another firm in the same line of trade and industry. It is a technique by which the performance, costs, profits, efficiencies and productivity of firms in the same line of business in the same industry are evaluated and compared.

Inter-firm Comparison in an organised way was started in 1959 in England. The British Institute of Management in that year, in collaboration with the British Productity Council set up a body known as Inter-firm comparison

Inter-firm comparison is carried out to find out the weak points and strong points of a business firm in comparison to other firms and on this basis, to improve the efficiency in future.

Inter firm comparison can be applied if the following conditions are fulfilled.

i) Firms are in the same industry and trade.
ii) All firms participating in the IFC are operating under Uniform Costing.
iii) Firms are more or less in the same age group and size.

4.10 Model Questions

1. What is inter firm comparison? Discuss the origin and objectives of inter firm comparison.
2. What are the advantages and disadvantages of Inter-firm Comparison?

4.11 Suggested Readings and References

Books:

- Gupta, S.K., & Sharma R.K. "*Management Accounting-Principles and Practice.*" Kalyani Publisher-2013.
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