A Study of Conceptual Framework of Liquidity and Profitability Ratio Analysis

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"Ratios simply means in arithmetical terms the relationship between figures drawn from financial statements". Pearson and Charles

"A ratio is simply one number expressed in terms of another. It is found by dividing one number, the base into the other." Robert N. Antony

Abstract:-

In modern times the "Ratio Analysis" is an essential and universal technique of analyzing financial statements. It is a very crucial technique to judge the actual status of the financial statements of the company. The financial analyst can analyze the growth, development and the present financial position of a firm or a company. Ratio analysis helps to present the information of the financial statements in simplified, systematized and summarized form. Ratios can be obtained from the reported financial statements and are not only used to compare efficiency among peers as well as performance within a company over time. This article is dedicated to examine the importance, objects and classifications of ratios.

Keywords: Benchmarking; Financial Statement Analysis; Liquidity; Leverage; Market Value; Profitability

Preamble:-

Ratio analysis is a complex tool for studying the capital structure of a business concern. It is the most accurate and crucial instrument for assessing and judging the effectiveness and efficiency of a business concern in the various areas of operations. It establishes quantitative relationship between the items or group of items of any financial statements.in 1919, Alexander Wall invented the analysis of financial statements with the help of ratios.

Introduction to Ratio Analysis

Ratios are Important because they are used in synopsize wide relationships and outcomes of a business concern's financial statements. It can be known as the performance and progress indicators of a business concern. Furthermore Ratios are actually crucial for the object of conferring performance from year to year, and the performance of different companies.

Ratio analysis is basically the process of ascertaining and exposing the relationship of items or group of items in the financial statements. The relationships are of two types-Associate relationships and Cause/Effect Relationships. When two variables are associated it is known as associate relationships e.g. Relationship between costs of goods sold and cost of raw material. In another case when there is change in one variable due to change in another variable it is known as cause or effect relationship e.g. Relation between sales and profit, but there is one thing in common that both the relationships are measured in terms of ratio. We can conclude that ratio analysis is not actually restricted to the calculation of ratios, however ratio analysis is the method of plotting and diagnosing numerical relationships based on financial statements. Ratio analysis is widely accepted for analyzing financial statements in the accounting

world.

Expressions of Ratios

Ratios actually can be understood in three forms-

- **Ratio as Turnover: -** when ratio is calculated between two numeric values and when one variable is divided by another variable it is called turnover and it is written in Times. e.g. sale is 20,000 and profit is 80000, we can conclude that profit is 4 times greater then sales.
- **Ratio as Proportion:-** In this form , the relationship between two figures is expressed in expressed in common denominator. Current assets are 20,000 and current liabilities are 10,000 then we conclude that the ratio between current assets and current liabilities will be 2:1.
- **Ratio as Percentage:-** In this form relationship between two variable is expressed in terms of percentage .e.g. sales are 80,000 and profit is 20,000 then percentage of gross profit ratio will be 25%.

Cautions taken by financial manager for using ratios

As we all know that ratio is a very important part of financial management, but it should be handled in a very alert manner. There are some issues on which financial manager should always be attentive before dealing with ratios-

- Financial manager should have aptitude to understand the nature of accounting data, which is used in developing financial statements, from which ratios are calculated.
- Financial manager should rapidly compile the ratios because maximum utility can be gained only if ratios are made available on time they are needed.
- Cost is associated with every concept of a business concern. Calculation of ratios is also a costly affair, so useless and undesired ratios should not be calculated.
- Ratios will always change with the changing situation of the business. So financial manager should always look after these changes.

Classification of Ratios

Financial ratios based on balance sheet and profit and loss account are classified on the following basis-

A. Structural Classification-Ratios are Classified on the basis of information given in financial statements-Balance Sheet Ratios:- The components are drawn from balance sheet that's why it is known as balance sheet ratios or Financial Ratios. E.g. current ratio, liquid ratio, debt equity ratio, proprietary ratio, capital gear ratio, fixed assets ratio, etc.

Profit and Loss Account Ratios:-The components are drawn from profit and loss account that's why it is known as profit or loss account ratios or income statement ratios or operating ratios. e.g. gross profit ratio, net profit ratio, operating ratio, expenses ratio, stock turnover ratio, etc.

Inter-Statement Ratios or Combined Ratios:- The components are drawn from both balance sheet and profit and loss account that's why it is known as combined ratios.eg. return on capital employed, return on owner's funds, debtor turnover ratio, return on total investment, debtors turnover ratio, creditors turnover ratio, fixed assets turnover ratio, working capital turnover ratio, etc.

B. Functional Classification:-

1. Liquidity Ratios: - Liquidity ratios are those ratios which are actually used to measure the capability of

the firm to meet its short term obligation from its short term resources. These ratios actually highlights the solvency condition and especially short term solvency condition. These ratios include-

- Current Ratio or Working Capital Ratio or 2:1 Ratio-
- Liquid Ratio or Quick Ratio or Acid Test Ratio-
- Absolute liquidity Ratios or Super Quick Ratio or Cash Position Ratio

Current Ratios or Working Capital Ratio: - The current ratio is a measure of short term solvency of a firm. This ratio defines the relationship between the current assets and current liabilities. This ratio shows the ability of the firm to meet its short term obligation or we can say that it shows the degree of liquidity. The formula used is-

Current Ratio=Current Assets/Current Liabilities

Interpretation and Significance:-

Ideal ratio is 2:1, the logic behind this is even when assets realized 50% of their book value and that would be adequate to pay off current liabilities.

Current assets should be double of current liabilities then only firm can run its business effectively and efficiently. Thus, the ratio reveals the ability of the firm to meet its current obligation and the margin of safety of funds to short term creditors. If the current ratio is higher it is good from the creditor's point of view but extremely high ratio is not good from the management's point of view because more of funds are being engaged in the unproductive uses e.g. inventory etc. which do not fetch any returns, it is the indicator of firm's poor investment and credit policy. Whereas declining and low ratio would indicate inadequate margin of safety for creditors, no cash to pay the creditors and less working capital etc. therefore this ratio should not be taken as a barometer of measuring real liquidity of a firm. It is a quantitative index rather then qualitative.

Liquid or Quick Ratio or Acid Test Ratio: -

It measures the instant liquidity available with the firm for paying the debts or in other words it measures the debt paying ability of the firm. This ratio establishes the relationship between liquid current assets and current liabilities. The formula used is-

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

Or

$$\text{Liquid or Quick Ratio} = \frac{\text{Current Assets} - (\text{Stock} + \text{Prepaid Expenses})}{\text{Current Liabilities}}$$

Liquid or quick assets refers to all the current assets except inventory and prepaid expenses, because inventory can't be easily converted into cash and prepaid expenses and prepaid expenses don't provide cash it actually reduces the cash. Current liabilities are same as current ratio.

Interpretation and Significance: Liquid ratio is considered to be superior as compared to current ratio when it comes to measure liquidity positions of the firm. We can say that liquid ratio is an indication of a firm's ability to meet unexpected demand for working capital. Ideal Ratio is 1:1.A high Liquidity Ratio

compared to current ratio may indicate under stocking while a low liquid ratio indicates over stocking. If the liquid ratio is more than ideal ratio 1:1 that means firm condition seems to be sound and good. If ratio is less than ideal ratio that means firm condition is unsound.

Absolute Liquid Ratio or Super Quick Ratio or Cash Position Ratio:-

It establishes the relationship between absolute liquid assets (cash in hand, marketable securities and bank balance) or super quick assets and liquid or quick liabilities (includes all current liabilities except bank overdrafts). Debtors and receivables are excluded from liquid assets. This ratio is not in much use. The formula used is-

$$\text{Absolute Liquid Ratio} = \frac{\text{Absolute Liquid Assets}}{\text{Quick/ Liquid Liabilities}}$$

Interpretation and Significance: Ideal Ratio is 0.5:1. It is assumed that fifty paisa worth of absolute liquid assets are considered sufficient for one rupee worth of current liabilities.

Liquidity ratios are measured in two dimensions, first one indicates the adequacy of current assets for meeting current liabilities e.g. current, liquidity and absolute liquidity ratios and the other dimension of liquidity is the determination of the rate at which various current assets are converted into the cash e.g. inventory turnover ratio, debtors turnover ratios.

Profitability

The principal motivating force behind conducting business is profit. The ability of the firm or company or a business concern is determined by the volume of the profit earned. There is a positive relation between the efficiency and the profit of the business concern, the larger the profits the more efficient and profitable the business becomes and the lower the profits the lesser efficient the business becomes.

Meaning and Definition of Profitability

The word “Profitability” is composed of two words 'profit' and 'ability'. The word 'profit' is defined in various ways. Profit is an absolute measure of earning capacity and profitability is the relative measure of the earning capacity. Profitability depends on many factors such as quantum of sales, cost of production and use of financial resources etc. profitability is always measured by its profitability ratios. *Ratios especially selected to measures the relative profit position of an enterprise are known as profitability ratios.*

These ratios indicate overall managerial efficiency. There are three types of profitability ratios first is based on sales, second is based on expenses and third is based on investments or assets.

- ***Profitability Based on Sales***
- Gross Profit Ratio or Gross Profit Margin Ratio
- Net Profit Ratio
- Operating Profit Ratio or Operating Profit Margin
- ***Profitability Based on Expenses***
- Operating Ratio
- Expenses Ratio
- ***Profitability Based on Investments or Assets***

- Return on Total Assets
- Return on Capital Employed or Return on Investment
- Return on Equity Shareholders fund or Return on Equity Capital
- Return on Net Worth or Shareholder's Funds or Shareholder's Investment or Proprietor's Funds

Profitability Based on Sales

Profit is a factor of sales and is earned indirectly as a part of sales revenue. A business concern only works to earn the profits. But how much profit should be earned to meet all the costs of the business. How much the share of profit is being used to, meet the cost of goods sold, Depreciation taxes etc. All this and other aspects can be analyzed with the help of profitability ratios. All these ratios are always expressed in percentage.

Gross Profit Ratio or Gross Profit Margin Ratio:- This ratio express the relationship between gross profit and sales or net sales, and expressed in terms of percentage. It can be calculated as under-

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

This ratio is calculated to find the profitability of the business or in simple words we can say that this ratio shows the profit earning potentiality of a firm. ***This ratio should always be higher***. A high Gross Profit Margin ratio is a sign of good management. The higher the ratio the greater will be the margin that's why it is also called margin ratio. Gross profit or gross margin ratio can increase due to any of the following factors:

- Increase in the sales of higher margin items.
- Decrease in the cost of goods sold
- Increase in sales price and the cost should remain the same.

If the gross profit ratio is lower than expectation then it proves that profit in business is not sufficient in comparison to sales. This situation is not healthy for the business. Hence it should be carefully investigated. Many factors are responsible for decrease in gross profits they are the following-

- Higher cost of goods sold
- Firm's inability to purchase raw materials at favorable terms
- Inefficient utilization of plant and machinery
- Over investment in plant and machinery
- Resulting into higher cost of production.

Net Profit Ratio: This ratio is the overall measure of the firm's ability to turn each rupee of sales into net profit. Net Profit ratio measures the relationship between net profit and sales of a firm.

$$\text{Net Profit Ratio} = \frac{\text{Net Profit after tax}}{\text{Net Sales}} \times 100$$

Or

$$\text{Net Profit Ratio} = \frac{\text{Net Profit before tax}}{\text{Net Sales}} \times 100$$

Net Profit ratio is calculated for measuring the managerial efficiency using “net profit before tax” and if calculated for owner's purpose or comparing two firms, “net profit after tax” is used.

Net profit is a good indicator of the efficiency of a business firm. ***This ratio should always be higher***. A higher ratio would only mean adequate returns to the owners and sound management whereas lower ratio shows inadequate returns to the owners, decline in profits and mismanagement.

Operating Profit Ratio or Operating Profit Margin Ratio:-This ratio establishes the relationship between operating profits and net sales. Operating profits means excess of gross profits over operating expenses and net sales means total sales less sales returns. This ratio determines the operational efficiency of the management and it shows average profit on per 100 rs. of sales and what part of sales remains available for non-operating expenses.

$$\text{Operating Profit Ratio} = \frac{\text{Operating Profit}}{\text{Net Sales}} \times 100$$

Or

$$\text{Operating Profit Ratio} = \frac{\text{Gross Profit} - \text{Operating Expenses}}{\text{Net Sales}} \times 100$$

In some firms, the profit from main business is very low, but profit from secondary branches e.g. Interest on bank deposits and dividends on bank share etc.is so much that the actual net profit of the firm at the end is enhanced. Higher the ratio, the better would be operational efficiency of the firm.

Profitability Based on Expenses

All these ratios are always expressed in percentage.

Operating Ratio: - This ratio measures the relationship between operating cost and net sales. The operating profit is a yardstick of operating efficiency (production, purchase and/or sale).

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

Or

$$\text{Operating Ratio} = \frac{\text{Operating Cost}}{\text{Net Sales}} \times 100$$

And

$$\text{Net Operating Ratio} = (100 - \text{Operating Ratio})$$

The operating cost refers to cost of goods sold plus operating expenses. Cost of goods sold is computed by adding purchases and direct expenses (relating to purchase and expenses) in opening stock and deducting the closing stock. The operating expenses include office and administrative expenses (salary, rent, depreciation, director's fees etc.). But abnormal expenses like preliminary expenses, donations, and share or debenture issue expenses are excluded from operating expenses.

The ratio indicates operational efficiency and profit earning capacity of the business.

A high ratio is unfavorable since it will leave a small amount of operating income to meet interest, dividends etc. Therefore, the lower the operating ratio, the higher the operating profit to recover non-operating expenses e.g. dividend, interest etc.

An operating ratio between 75% and 85% is generally considered as standard for manufacturing firms.

Expenses Ratios:- All these ratios are always expressed in percentage. These ratios measures the

relationship between different expenses to net sales. The expense ratio indicates the variations in expenses, where some of the expenses are in increasing trend while others may be in falling trend. That's why, to study the behavior of specific expense items, the ratio of expenses to sales is calculated. This ratio when compared from year to year for the firm will throw light on managerial policies and programme. For example, the increasing selling expenses, without sufficient increase in sales can imply uncontrolled sales promotional expenditure, inefficiency of the marketing department or general rise in selling expenses. Therefore this ratio is calculated to express the relationship of each item of cost of goods sold and operating expenses to net sales.

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

Or

$$\text{Material Consumed Ratio} = \frac{\text{Material Consumed (all the Expenses can be written)}}{\text{Net Sales}} \times 100$$

Profitability Based on Investments or Assets:-

The efficiency of the firm is judged by the profits, the firm has earned. The amount of profit sometimes greatly depends upon the volume of investments in assets. The profitability of a business concern can also be analysed with reference to the assets employed to earn a return. Generally, the more the assets employed, greater should be the profits and vice-a-versa. This generates the need for calculating ratios with reference to capital and assets to measure the real profitability.

Return on Total Assets:- This ratio measures the relationship between total funds invested i.e. total assets and net profit after tax but before interest. Total assets include all fixed assets, current assets and non-trading investments.

The return on total assets can be calculated as follows :

$$\text{Return on Total Assets} = \frac{\text{Net Profit After Tax Before Interest}}{\text{Total Assets}} \times 100$$

Or

$$\text{Return on Total Assets} = \frac{\text{Net Profit After Tax} + \text{Interest}}{\text{Total Assets}} \times 100$$

Interpretation and Significance: This ratio measures the profit- ability of investment which reflects managerial efficiency. **The higher the ratio,** the better is the profit earning capacity of the firm and vice-versa.

Technically, this ratio suffers from the drawback that the interest paid to the creditors is excluded from the net profit. Therefore, to consider real earnings, interest on long term loans should be added back to profit after tax.

Return on Capital Employed (ROCE) or Return on Investment (ROI):-The profitability of the business can be judged from the point of view of the total funds employed in the business. The vital object of making investments in any business is to gain maximum returns on capital employed. Therefore, to compare profits with capital employed return on capital employed ratio is calculated. This ratio measures the relationship between net profit before interest and tax and capital employed.

Ratio of return on capital employed has been calculated by using the following formula-

ROCE	=	Net Profit Before Interest and Tax (PBIT) / Capital Employed	x 100

Or

ROCE = Assets Turnover x Profit Margin

Or

ROCE =	Net Sales / Total Assets	x100

It should be remembered that profit after interest and tax PBIT is used for measuring managerial efficiency and profit after interest and tax PAIT is used for comparing two firms or computation of owner's purpose. Some experts apply "average capital employed" rather than capital employed.

Interpretation and Significance: **-** Profit plays the key role in business. The ratio is the barometer of overall performances of the enterprises. It measures how efficiently and effectively the capital employed in business is being used. In simple words it measures the earning power of the net assets of the business, furthermore, this ratio can also be used to judge the borrowing policies of the enterprises e.g. ratio on return on investment is 10% and firm borrows at 20% we can conclude that firm is in loss or firm's borrowing rate is lesser then the increasing rate. We can even compare the working of two similar as well as dissimilar firms with the help of this ratio. This ratio is important tool for making capital budgeting decisions.

Return on Equity Shareholder's fund or Return on Equity Capital: -Equity shareholders are the real owners of the company who bears all the risk, participate in management and are entitled to the profits. Return on equity shareholders fund establishes relationship between profit available for equity shareholders and equity shareholders fund. This ratio indicates as to how well the funds of the owners have been used by the firm.

Return on Equity Capital	=	Net Profit After Tax – Preference Dividend / Equity Shareholder's Fund	x100

Sometimes profit is expressed as a percentage paid up equity share capital to know the dividend paying capacity of the company. This is considered to be a better measure of profitability for inter-firm comparison. The formula for this will be as:

Return on Equity Capital	=	(Net Profit After Tax – Preference Dividend) / Paid Up Equity Share Capital	x100

Equity shareholder's funds refers to equity share capital, revenue and capital reserves and undistributed profits and surplus(after deducting all the fictitious assets and accumulated losses)

Interpretation and Significance: **-** this ratio is the best measure of a company's profit earning capacity. **The higher the ratio**, the better the performance. It is to be noted that due to issue of new shares or buy back of shares the equity or preference share capital keep on changing through the year, that's why average shareholder's fund is used to calculate return on net worth and return on equity shareholder's fund. In the absence of opening balance, closing balances are used.

Return on Net Worth or Shareholder's Funds or Shareholder's Investment or Proprietor's Funds: -

This ratio expresses the percentage relationship between net profit after interest and tax and net worth or shareholder's funds. It is used to ascertain the rate of return on resources provided by the shareholders or in other words this ratio is calculated to find out how efficiently the funds supplied by the shareholders have been used.

Return on Shareholder's Investment or funds	=	Net Profit After Interest and Tax / Shareholder's Investment or Shareholder's Funds or Net Worth	x100

Interpretation and Significance: - This ratio measures the amount of earnings for each rupee that the shareholders have invested in the company. Higher the ratio more efficient will be the management and utilization of shareholder's funds.

Conclusion-

This article has made a fair attempt to express the conceptual frame work of the liquidity and profitability ratios. Ratio analysis is a technical and quantitative analysis of a company's financial statements. It is a tool that's used for making comparisons across the companies within one industry or across the sector for the same company. These ratios are also used by financial institutions and suppliers for estimating the solvency of the business. These ratios help in determining the efficiency of business to use its resources in generating profit and increasing shareholder value. The financial decisions of the investor are highly affected by these ratios. So it is concluded that liquidity and profitability ratios present the actual picture of the business concern.

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