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Ratio analysis of Chhattisgarh State Power Distribution Company Ltd. (CSPDCL), Raipur (C.G.)

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Abstract: Electricity is a convenient and controllable form of energy used every day to power various appliances that provide light and warmth to man-made dwellings. Electricity is a secondary energy source, meaning it is generated from the conversion of primary sources of energy, such as fossil fuels (coal, natural gas and oil), nuclear power and renewable sources (wind, hydro, solar, geothermal). A ratio is a simple arithmetical expression of the relationship of one number to another. According to Accountants Handbook by Wixon Kell and Bedford, a ratio is an expression of the quantitative relationship between two numbers. This paper shows the ratio analysis of Chhattisgarh State Power DistributionCompany Ltd. (CSPDCL) a study report.

Keywords: Ratio Analysis, CSPDCL, Electricity, Renewable energy sources.

I. INTRODUCTION

Ratio analysis is a technique of analysis, comparison, and interpretation of financial statements. It is a process through which various ratios are calculated and on that basis conclusions are drawn which becomes the base of managerial decisions Ratio Analysis is a technique of analysis and interpretation of financial statements [1]. In short it can be defined as the indicated quotient of two mathematical expressions. The ratios can be expressed in:

1. Percentages
2. Fraction
3. Proportion of numbers.

a. Meaning of Ratio Analysis

It is defined as the systematic use of ratios to interpret the financial statements so that the strengths and weaknesses of a firm as well as its historical performances and current financial condition can be determined. There are a number of ratios which can be calculated from the information given in the financial statements, but the analysts has to select the appropriate date and calculate only a fewappropriate ratios from the same keeping in mind the objectives of analysis. It involves 4 steps:

b. Selection of relevant data:

First of all relevant data are selected from the financial statements depending on the objective of the analysis.

c. Calculation of the ratios:

On the basis of data selected appropriate ratios are calculated according tothe objective or need.

d. Comparison of ratios:

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The calculated ratios are compared with the ratios of the same firm in the past, or ratio of other firms or with the ideal standard of relevant ratios.

e. Interpretation of ratios:

In the end conclusions are drawn on the basis of study and comparison ofratios.

II. CLASSIFICATION OF RATIOS

The ratios may be classified under various ways, which may use various criterions to do the same. However for the convenience purpose, the ratios areclassified under following groups.

1. Liquidity Ratios
2. Turnover Ratios
3. Profitability Ratios
4. Solvency Ratios
5. Overall Profitability Ratios
6. Miscellaneous Ratios

a. LIQUIDITY RATIOS

The ratios computed under this group indicate the short-term position of the organization and also indicate the efficiency with which the working capital is being used. Commercial banks and short-term creditors may be basically interested in the ratios falling under this group. Two most important ratiosmay be calculated under this group [2].

i. Current Ratio:

It is calculate as,

$$\frac{Current\ Assets}{Current\ Liabilities}$$

Current ratio indicates the backing available to current liabilities in the form of current assets. In other words, higher current ratio indicates that there are sufficient assets available with the organization, which can be converted in the form of cash. A current ratio of 2:1 is supposed to be standard and ideal.

ii. Liquid Ratio or Acid Test Ratio:

It is calculated as,

$$\frac{Liquid\ Assets}{Current\ Liabilities}$$

Here liquid assets include all assets except inventory and prepaid expenses and liquid liabilities except overdraft or cash credit or outstanding expenses. Liquid ratio indicates the backing available to liquid liabilities in the form of liquid assets. The term liquidassets indicate the assets, which can be converted in the form of cash without any reduction in the value. Almost immediately whereas the term liquid liabilities which are required to be paid almost immediately. In other words, a higher liquid ratio indicates that there

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are sufficient assets available with the organization, which can be converted in the form of cash almost immediately to pay off those liabilities, which are to be paid off almost immediately. As such higher the liquid ratio better will be the situation. A liquid ratio of 1:1 issupposed to be standard and ideal [3][4].

iii. Absolute Liquid Ratio:

This ratio is also called Super Quick Ratio andestablishes relationship between absolute liquid assets and liquid liabilities.

It is calculated as,

$$\frac{Absolute\ Liquid\ Liabilities}{Current\ Liabilities}$$

b. ACTIVITY/TURNOVER RATIOS

Ratios computed under this group indicate the efficiency of the organization to use the various kinds of assets by converting them in the form of sales. Under this group the following classification of ratios are made.

i. Fixed Assets Turnover Ratio:

It is calculated as,

$$\frac{Net\ Sales}{Fixed\ Assets}$$

A high fixed assets turnover ratio indicates the capability of the organization to achieve maximum sales with the minimum investment in fixed assets. It indicates that the fixed assets are turned over in the form of sales more number of times.

ii. Current Assets Turnover Ratio:

It is calculated as,

$$\frac{Net\ Sales}{Current\ Assets}$$

A high current assets turnover ratio indicates the capability of the organization to achieve maximum sales with the maximum investment in current assets. It indicates that the current assets are turned over in the form of sales more number of times.

iii. Working Capital Turnover Ratio:

It is calculated as,

$$\frac{Net\ Sales}{Working\ Capital}$$

A high working capital turnover ratio indicates the capability of the organization to achieve maximum sales with the minimum investment in the working capital. It indicates that working capital is turned over in the form of sales more number of times.

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iv. Inventory or Stock Turnover Ratio:

It is calculated as,

$$\frac{Cost\ of\ Revenue\ from\ Operations\ (Cost\ of\ Goods\ Sold)}{Average\ Inventory}$$

A high inventory turnover ratio indicates that maximum sales turnover is achieved with the minimum investment in inventory. As such as a general rule, high inventory turnover ratio is desirable.

v. Debtors/Trade Receivables Turnover Ratio:

It is calculated as,

$$\frac{Net\ Credit\ Sales}{Average\ Trade\ Receivables}$$

This ratio indicates the speed at which the sundry debtors are converted in the form of cash. However the intention is not correctly achieved by making the calculation in this way. As such this ratio is normally supported by the calculation period, which is calculated as below.

vi. **Average collection Period:**

It is calculated as,

$$\frac{Average\ Trade\ Receivables}{Net\ Credit\ Sales} \times 365\ or\ 12$$

The average collection period as computed above should be compared with the normal credit period extended to the customers. If the average collection period is more than the normal credit period allowed to the customers, it may indicate over investment in debtors which may be the result of over extension of credit period, liberalization of credit term, ineffective collection procedure and so on.

vii. Creditors Turnover Ratio:

It is calculated as,

$$\frac{Net\ Credit\ Purchase}{Average\ Trade\ Payables}$$

A low turnover ratio from one period to another gives a sign that the company is taking longer to pay off its suppliers that than it was in previous time periods. The opposite is true when the turnover ratio is increasing, which means that the company is paying off its suppliers at a faster rate. The period can be calculated as,

viii. **Average Payment Period:**

It is calculated as,

$$A\frac{verage\ Trade\ Payables}{Net\ Credit\ Purchase} \times 365\ or\ 12$$

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ix. Capital Turnover Ratio:

It is calculated as,

$$\frac{Sales}{Capital\ Employed}$$

This ratio indicates the efficiency of the organization with which the capital employed is being utilized. A high capital turnover ratio indicates the capability of the organization to achieve maximum sales with minimum amount of capitalemployed. As such higher the capital turnover better will be the situation.

c. SOLVENCY RATIOS

Ratios computed under this group indicate the long-term financial prospects of the company. The shareholders debenture holders and other lenders of long- term finance/ term loan may be basically under this group. Following ratios may be computed under this group.

i. Debt-equity Ratio:

It is calculated as,

$$\frac{Debt/Long\ Term\ Debt}{Shareholders' Fund}$$

Debt-equity ratio indicates the state of shareholders or owners in the organization vis-à-vis that of the creditors. It indicates the cushion available to the creditors on liquidation of the organization. A high debt-equity ratio may indicate that financial status of the creditors is more than that of the owners. Avery high debt-equity ratio may make the proportion of investment in the organization a risky one. On the other hand a very low debt equity rate may mean that the borrowing capacity of the organization is being underutilized.

ii. Proprietary Ratio:

It is calculated as,

$$\frac{Shareholders' Funds}{Total\ Assets}$$

This ratio indicates the extent to which the owner s funds are sunk in different kinds of assets. If the owner s fund exceeds fixed assets, it indicates that a partowners fund invested in the current assets also and if owners fund are less than fixed assets it indicates that the creditors finance a part of fixed assetseither by long term or short term.

iii. Total Assets to Debt Ratio:

It is calculated as,

$$\frac{Total\ Assets}{Debt}$$

d. PROFITABILITY RATIOS

i. Gross Profit Ratio:

It is calculated as, -

$$Gross\ Profit$$

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

The gross profit ratio indicates the relation between production cost and sales and efficiency with which the goods are produced or purchased. A high gross profit ratio may indicate that the organization is able to produce or purchase ata relatively lower cost.

ii. Net Profit Ratio:

It is calculated as,

$$\frac{Net\ Profit\ after\ taxes}{Net\ Sales} \times 100$$

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The net profit ratio indicates that portion of sales available to the owners after the consideration of all types of expenses and costs either operating or non- operating or normal or abnormal. A high net profit ratio indicates higher profitability of the business.

iii. Operating Ratio:

It is calculated as,

$$\frac{Cost\ of\ Revenue\ from\ Operations\ (COGS) + Operating\ Expenses}{Revenue\ from\ Operations} \times 100$$

This ratio indicates the percentage of net sales, which is absorbed by theoperating cost. A high operating ratio indicates that only a small margin of sales is available to meet the expenses in the form of interest, dividend and operating expenses. As such low operating ratio will always be desirable.

e. OVERALL PROFITABILITY RATIOS

Return on Assets/Gross Capital Employed:

It is calculated as,

$$\frac{Net\ Profit}{Total\ Assets} \times 100$$

Return on assets measures the profitability of the investment in a firm. As suchhigher return on assets will always be preferred. However Return on assets does not indicate the profitability of various sources of funds, which finance total assets.

Return on Capital Employed:

It is calculated as,

$$\frac{Net\ Profit\ before\ Interest\ and\ Tax}{Capital\ employed} \times 100$$

Return on capital employed measure4s the profitability of the capital employed in the business. A high return on capital employed indicates a better and profitable use of long-term funds of owners and creditors. As such a high return on capital employed is preferred.

Return on Shareholders' Funds:

It is calculated as,

$$\frac{Net\ Profit\ after\ Interest\ and\ Tax}{Shareholders'\ Funds} \times 100$$

This ratio indicates the profitability of a firm in relation to the fund supplied by the shareholders

f. MISCELLANEOUS RATIOS

Capital Gearing Ratio:

It is calculated as,

$$\frac{Fixed\ income\ bearing\ securities}{}$$

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$$Equity\ Share\ Capital$$

A high capital-gearing ratio indicates that in the capital structure, fixed income bearing securities are more in comparison to the equity capital in that case the Company is said to be highly geared. On the other hand, if fixed income- bearing securities are less as compared to equity capital the company is said to be lowly geared.

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Earnings per Share:

It is calculated as,

$$\frac{Net\ Profit\ available\ for\ Equity\ Shareholders'}{No.\ of\ Equity\ shares}$$

It is widely used ratio to measure the profit available to the equity shareholders on a per share basis. As such increasing Earning Per Share may indicate the increasing trend of current profits per equity share.

III. ADVANTAGES OF RATIOS

Ratios simplify the comprehension of financial statements. They tell the whole story as a heap of financial data is condensed in them. They indicate the changes in the financial condition of the business.

They act as an index of the efficiency of enterprise. As such they serve as an instrument of management control. It is an instrument for diagnosis of the financial health of an enterprise. The efficiency of the various individual units similarly situated can be judged through inter-firm comparisons.

The ratio analysis can be if invaluable aid to management in the discharge of its basic functions of forecasting, planning, co-ordination, communication and control. A study of the trend of strategic ratio may help the management in this respect. Past ratios indicate trends in cost, sales, profit and other relevant facts.

The ratio analysis provides data for inter-firm comparison or intra-firm comparison. Comparison cannot be made with absolute figures. Net profit of one firm cannot be compared with the net profit of the other firm. But the percentages of net profits can be compared to evaluate the performance. Similarly performance and efficiency of different departments in the same firm can be compared with the help of ratios

Investment decisions can at times be based on the conditions revealed by certain ratios. They make it possible to estimate the other figure when one figure is known.

IV. RATIO ANALYSIS

PARTICULARS	YEAR		
	2013-14	2014-15	2015-16
LIQUIDITY RATIOS (Simple Ratio)			
1. Current Ratio	0.373	0.4	0.53
2. Liquid Ratio	0.35	0.38	0.51
3. Absolute Liquid Ratio	0.058	0.029	0.0694
TURNOVER RATIOS (Rate/ Time Ratio)	1.575		

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1. Fixed Assets Turnover Ratio	3.745	1.56	1.91
2. Current Assets Turnover Ratio	-2.227	3.589	2.85
3. Working Capital Turnover Ratio	57.64	-2.4	-3.169
4. Inventory Turnover Ratio	0.54	64.56	83
5. Debtor Turnover Ratio	67 days	5.477	4.935
5.a. Average Collection Period	3.468	67 days	74 days
6. Creditor Turnover Ratio	105	1.94	3
6.a. Average Payment Period	-0.46	116	122
7. Capital Turnover Ratio	-3.25	-0.799	-0.68
	-0.119		
SOLVENCY RATIOS (Simple Ratio)			
1. Debt-Equity Ratio		-2.33	-2.69
2. Proprietary Ratio		-0.23	-0.189
PROFITABILITY RATIOS (Percentage Ratio)			
1. Gross Profit Ratio	3.18	6.51	14.8
2. Net Loss Ratio	8.9	18.57	5.33
3. Operating Ratio	106	116.48	94.88
4. Net Operating Loss Ratio	6	16.7	5.118
OVERALL PROFITABILITY RATIOS (Percentage Ratios)			
1. Return on Total Assets	6.66	16.2	2.625
2. Return on Capital Employed	9.2	22.68	4.24
3. Return on Shareholders' Fund	77.39	82.67	30.5
4. Capital Employed Ratio	9.2	22.68	4.24
MISCELLANEOUS RATIOS			-0.68
1. Capital Gearing Ratio	-1.18	-0.885	-2.32
2. Earnings Per Share	-2.71	-6.68	

Table 1: Calculation of Various Ratios

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a. Data Interpretation

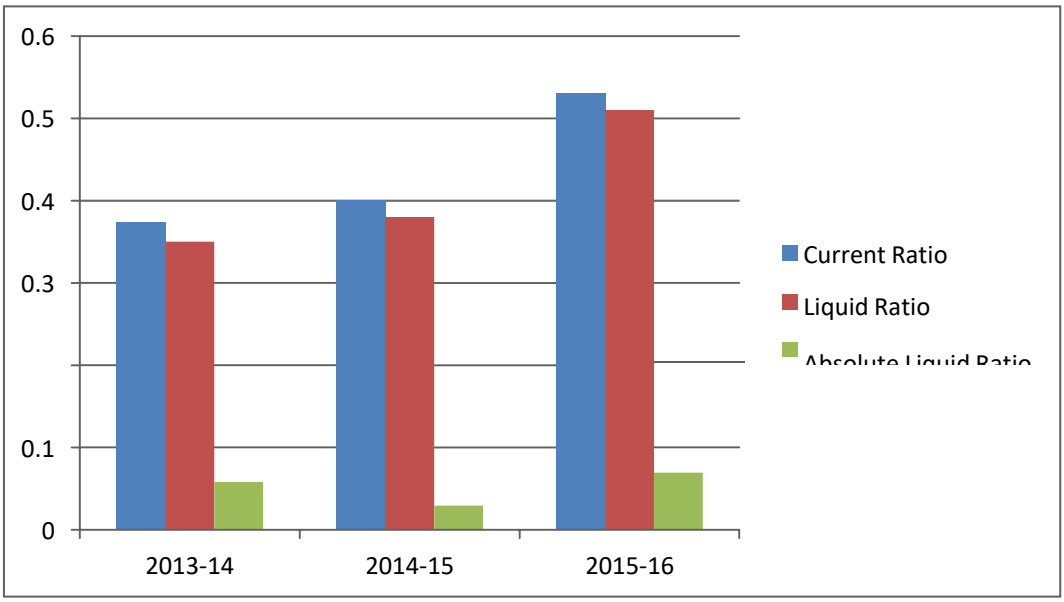

Fig 1 Graph showing Liquidity Ratios

V. CONCLUSION

After the study and analysis of financial statements of CSPDCL it can be said that there are huge inefficiencies in handling finance by the company whichhas led to the inclination of growth and productivity towards decline. Many of the ratios were found negative which represented the evidence of poor performance indicating that there is a high requirement of changes in policies and strategies of operations and finance department. Since the demand of the product/service is improbable to decline in current market scenario given the rationale of it being believed to be the utmost important requirement for individuals after the basic human needs (i.e. food, clothes, shelter and health facilities), and given consideration to industrial and agricultural implication of provision of the aforementioned basic requirements to individuals in the economy keeps the demand intact among all kinds of consumers. Such conditions have contributed to favourable inventory turnover ratio.

The company does not have a good short term liquidity position as both the liquidity ratios (current ratio and quick ratio) are not favorable and appreciable which concludes that company has got insufficient assets to pay off short term debts as and when they fall due.

Overall the company is not in a good position as it is incurring losses over subsequent years and the ratios like solvency ratio, overall profitability ratio, and some of the other ratios give a negative impactof the company. Because of continuous losses it is not able to maintain the standard ratios.

Therefore, the company is required to increase its profitability by making appropriate strategies about the improvement of proper allocation of assets and make a balance between assets and liabilities in order to avoid heavy losses. The external liabilities of the company must be paid before the due date to maintain the goodwill of the company.

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