Impact of Capital Structure on Profitability of the Maharatna Companies

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ABSTRACT

The relationship between capital structure and profitability of the any organization is an important subject of financial management for growth and continued existence of the company. In this paper we are trying to find out impact of capital structure on profitability of selected firm of oil and power industry of India. The financial performance represented by dependent variables Return on Equity (ROE), Return on Assets (ROA) and Return on Capital Employed (ROCE) is taken into consideration and the effect of independent variables Debt Equity ratio, Interest Coverage ratio. The data are collected of six companies for the time series of 5 year from 2017-20 to-2023-24 is used for this study and the analysis of data is done on the basis of Ratio Analysis and Correlation Matrix which provides a mixed result on relation between capital structure and profitability of the company.

Keywords: Debt Equity Ratio, Interest Coverage, ROA, ROCE, ROE.

INTRODUCTION

Success and survival of a firm depends on how financial functions are managed. Every effort should be made to make the financial function as effective as possible. Financial performance analysis consists of scientific evaluation of profitability and financial strength of any business. It is the systematic process of determining the results of an organization's policies and actions in financial terms. Ratio analysis is one of the prevalent and the most popular technique to measure the profitability of the company. Capital structure describes the sources of funds a company uses for acquiring it assets. It explains the fraction of total funding that comes from equities and only the long-term debt.

OBJECTIVES OF THE STUDY:

- To study the relationship between debt equity ratio and return on capital employed.
- To study the relationship between debt equity ratio and return on net worth.
- To study the relationship between debt equity ratio and return on assets.
- To study the relationship between debt equity ratio and interest coverage ratio.

HYPOTHESES: Based on above stated objectives, following hypotheses have been created:
$H_0$1: There is no significant difference in the relationship between debt equity ratio and return on capital employed.
$H_1$1: There is a significant difference in the relationship between debt equity ratio and return on capital employed.
$H_0$2: There is no significant difference in the relationship between debt equity ratio and return on net worth.
$H_1$2: There is a significant difference in the relationship between debt equity ratio and return on net worth.
$H_0$3: There is no significant difference in the relationship between debt equity ratio and return on assets.
$H_1$3: There is a significant difference in the relationship between debt equity ratio and return on assets.
$H_0$4: There is no significant difference in the relationship between debt equity ratio and interest coverage ratio.
$H_1$4: There is a significant difference in the relationship between debt equity ratio and interest coverage ratio.

DATA BASE AND METHODOLOGY:

The study is based on secondary data collected from the annual reports associated with schedules, annexure of selected companies, different websites such as Ministry of Corporate Affairs, Department of public enterprises, journals, books, and publication for the period of 5 years from 2017-20 to-2023-24. The criteria adopted for the selection of oil and power industry companies in the present study are following:

- Must have a Navratna status.
- Must bear global presence/ international operations.
- Listed on Indian stock exchange with minimum prescribed public shareholding under SEBI regulations.
- An average annual turnover of more than Rs. 25,000 crore, during the last 3 years.
- Average annual net worth of more than Rs. 15,000 crore, during the last 3 years.
- Average annual net profit after tax of more than Rs. 5,000 crore, during the last 3 years.

The Statistical Techniques used for analysis are Pearson's Coefficient of Correlation and descriptive statistics such as Mean, Range, Standard Deviation, etc. In this study, the interest coverage and debt to equity ratios are taken as independent variables and ROE, ROA, ROCE are Dependent variables which are shown below.

Variables	Ratio	Formula	Sign.
Independent	Debt Equity	T. Debt/ T. Equity	D.E
Independent	Interest Coverage	EBIT/Interest Expenses	I.C
Dependent	Return on Capital Employed	Net Income/ Capital Employed	ROCE
Dependent	Return on Assets	Net Income/ T. Assets	ROA
Dependent	Return on Equity	Net Income/ T. Equity	ROE

LIMITATIONS OF THE STUDY

In this study we selected only six company of oil and power industry and analysis is based on only five years of financial data collected from the secondary sources, the quality of the study depends upon the accuracy, reliability and quality of collected secondary data.

REVIEW OF LITERATURE

Deesomsak (2004) examined the effect of capital structure's effect on performance of the company, reported a negative relationship between capital structure and performance of the company measured by gross profit margin in the Malaysian company.

Nimalathasan & Brabete (2010) examined the relationship between capital structure and financial performance of company listed on Columbia Stock Exchange, Sri Lanka. It guides to formulate better policy decisions concerning the mix of debt and equity capital.

Chisti, Khursheed and Sangmi (2013) examined the Impact of capital structure on profitability of listed companies (Evidence from India), the results of the study was that capital structure do have statistically significant impact on the profitability of firms.

Nilesh P. Movalia (2015) examined in his research paper title "A Study on Capital Structure Analysis and Profitability of Indian Tyres Industry" result obtained that there is a significant relationship between capital structure and profitability of the company.

Bhushan & Mohinder Singh (2016) studied on listed Cement Companies in India for the period 2009 to 2014 with the help of correlation of coefficient and obtained result that there was a negative relationship between debt and profitability of the company i.e. companies with higher proportion of debt tend to have low profitability.

ANALYSIS AND FINDINGS OF THE STUDY:

Table No.1: Debt equity Ratio of Selected Companies

Year	NTPC	Power Grid	BPCL	HPCL	ONGC	IOCL
2019-20	1.41	2.15	1.15	1.33	0.07	1.20
2020-21	1.38	1.88	0.39	1.16	0.07	0.87

2021-22	1.33	1.77	0.49	1.12	0.03	0.84
2022-23	1.33	1.53	0.69	2.33	0.03	0.98
2023-24	1.24	1.42	0.25	1.47	0.02	0.71
Mean	1.34	1.75	0.59	1.48	0.04	0.92
S.D	0.06	0.26	0.31	0.44	0.02	0.16

Sources: Relevant annual report

The objective of calculating this ratio is to measure the relative proportion of debt and equity in financing the assets of a firm. This ratio is also known as financial leverage. Above table represented that among all the selected companies Power Grid and HPCL are highly leveraged companies having highest debt to equity ratio i.e. 1.75 and 1.48 respectively, on the other side ONGC, is low leveraged company with lowest debt to equity ratio 0.04. The standard deviation of the BPCL and HPCL companies is high, which indicates both companies have made number of changes in Capital structure during the study period. Whereas ONGC Company has lowest standard deviation shows that made very less changes.

Table No.2: Return on Capital Employed of Selected Companies

Year	NTPC	Power Grid	BPCL	HPCL	ONGC	IOCL
2019-20	7.86	10.42	8.79	6.41	10.96	8.59
2020-21	8.04	11.25	20.37	21.91	6.12	17.90
2021-22	9.15	12.02	17.53	11.55	14.43	17.65
2022-23	11.02	12.73	7.63	-12.07	19.12	7.59
2023-24	10.55	12.81	39.61	24.61	14.11	24.21
Mean	9.32	11.85	18.79	10.48	12.95	15.19
S.D	1.28	0.91	11.51	13.09	4.29	6.26

Sources: Relevant annual report

This table depicts that Return on Capital Employed ratio is maximum in case of BPCL and IOCL having the mean value of 18.79 and 15.19 percent respectively, which shows that both companies are using their funds effectively whereas NTPC and HPCL have lowest 9.32 and 10.48 percent respectively. HPCL has highest standard deviation (13.09) which shows inconsistency in their earnings at other hand lowest standard deviation was 0.91 of Power Grid Company.

Table No.3: Return on Equity of Selected Companies

Year	NTPC	Power Grid	BPCL	HPCL	ONGC	IOCL
2019-20	8.90	16.77	8.07	9.10	6.91	1.40
2020-21	11.57	17.15	34.91	29.46	5.49	19.76
2021-22	12.58	22.44	17.69	16.50	16.99	18.42

2022-23	12.38	18.51	3.59	-32.38	15.05	6.11
2023-24	12.06	17.81	35.71	35.81	13.24	22.41
Mean	11.50	18.54	19.99	11.70	11.54	13.62
S.D	1.34	2.04	13.31	23.96	4.54	8.29

Sources: Relevant annual report

From the table no. 3 we can say that return on equity is highest in case of BPCL and Power Grid with the mean score of 19.99 and 18.54 respectively which explain both companies are more profitable as compared to others. HPCL has highest standard deviation 9.98 which shows very high level of difference in their return.

Table No.4: Interest Coverage Ratio of Selected Companies

Year	NTPC	Power Grid	BPCL	HPCL	ONGC	IOCL
2019-20	2.97	2.58	2.35	3.49	4.61	1.42
2020-21	2.77	2.47	11.15	15.59	6.55	9.23
2021-22	4.57	2.49	8.22	12.72	15.47	9.37
2022-23	4.44	2.37	3.31	-2.64	11.07	4.63
2023-24	4.46	2.32	11.16	10.50	11.29	10.15
Mean	3.84	2.45	7.24	7.93	9.80	6.96
S.D	0.80	0.09	3.77	6.63	3.83	3.38

Sources: Relevant annual report

Higher interest coverage ratio indicates that the company can easily meet the interest expense pertaining to its debt obligation. In the Table no. 4 we presented I.C ratio of the selected company in which ONGC and HPCL have registered higher ratio whereas lowest ratio is 2.45 of Power Grid during the period of the study. Low interest coverage ratio raise doubts about the company's ability to meet the expenses on its borrowings.

Table No.5: Return on Assets of Selected Companies (%)

Year	NTPC	Power Grid	BPCL	HPCL	ONGC	IOCL
2019-20	3.08	4.23	2.12	2.31	4.53	0.42
2020-21	4.01	4.69	13.54	8.12	3.53	6.53
2021-22	4.54	6.89	5.83	4.25	11.95	6.22
2022-23	4.49	6.22	1.16	-5.80	10.57	1.96
2023-24	4.59	6.30	15.41	8.45	9.08	8.66
Mean	4.14	5.67	7.61	3.47	7.93	4.76

S.D	0.57	1.02	5.85	5.18	3.33	3.07

Sources: Relevant annual report

Return on Assets (ROA) is calculated as the ratio between Earnings before Interest and Taxes (EBIT) and Total Assets which present in table no. 5. In the above table ONGC and BPCL are using firm's assets efficiently and effectively to generate higher profit whereas HPCL has lowest 3.74. Stakeholders use ROA to analyses the profitability capacity of the company. Higher rate shows higher profitability capacity of the company. BPCL and HPCL have highest standard deviation 5.85 and 5.18 respectively whereas NTPC has lowest 0.57

Table No.6: Descriptive Study

Particulars	Range	Maximum	Minimum	Mean	S.D
Debt/ Equity	1.69	2.16	0.47	1.02	0.58
ROCE	11.81	19.41	7.6	13.10	3.15
ROE	12.32	22.31	9.99	14.48	3.48
ROA	3.20	6.94	3.74	5.60	1.68
I.C	10.02	12.49	2.47	6.37	2.49

In table no. 6 the descriptive statistics shows measure for the analysis of mean, range, maximum, minimum and standard deviation. We found that the mean of value of Debt Equity, ROCE, ROE, ROA and Interest Coverage of companies is 1.02, 13.10, 14.48, 5.60 and 2.49 respectively during the period of the study. The minimum and maximum levels of profitability variable i.e. ROE and ROCE describe that the returns of the companies are highly fluctuated. ROE has the highest value of standard deviation being 3.48 and the lowest value is 0.58 concerning to Debt/Equity.

Table No. 7: Correlation matrix

	DE	ROCE	ROE	ROA	ICR
DE	1				
ROCE	-0.53477	1			
ROE	0.11007	0.660405	1		
ROA	-0.76784	0.642632	0.44257	1	
ICR	-0.78327	0.341691	-0.35623	0.373794	1

Summary of Hypotheses result:

Null Hypothesis	**ROCE**	**RONW**	**ROA**	**ICR**
	$H_0$1	**$H_0$2**	**$H_0$3**	**$H_0$4**
There is no significant difference in the relationship between debt equity ratio and	Not Accepted	Not Accepted	Not Accepted	Not Accepted

The above table no.7 shows correlation matrix in which high positive and low positive correlation between various financial performance indicators. There is a high positive correlation between ROCE and ROE is 0.6604 and low positive correlation between DE and ICR is -0.7832. The highlighted green colored values are viewing a high positive correlation and red colored values viewing low positive correlation in the above table.

CONCLUSION:

The impact of capital structure on the profitability of the power and oil companies is analyzed is based on descriptive statistics, and correlation matrix for the last five years. This study presents that the firms under consideration have judicious debt-equity composition in their capital structure and should focus on improving their existing capital structure so that, the companies can enjoy the benefits of leverage.

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