

ANALYSIS OF CAPITAL STRUCTURE OF SELECTED POWER (GENERATION AND DISTRIBUTION) COMPANIES IN DEVELOPING INDIA – AN EMPIRICAL STUDY.

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ABSTRACT

Power - Generation and Distribution companies pulls the huge demand of its generation capacity along with technological enhancement in field of power and energy. Role of Energy and Power industry is very important and significant in India's GDP. They are one of the biggest players who contribute in treasuries at state and national level. Capital structure is the topic which is raised but no firm equation has been brought forward and this is the reason of carrying out this study. In this research study an attempt has been made to examine the capital structure of the selected Power – Generation and Distribution companies of India. For the research, 10 companies are selected with the study duration of 5 years. In findings and analysis it is found that selected companies of energy and power (Generation and Distribution) industry are running with low debt fund. Few companies largely utilizing shareholder's funds in their assets and few are with high degree of financial risk.

KEY WORDS: Capital Structure, Debt Funds, Equity Funds, Financial Leverage.

INTRODUCTION

Capital structure is the way by which the company finances its assets with the combination of debt, equity or hybrid securities. The optimum capital structure is very necessary for the company to maintain its growth and achieve the financial targets. Earnings of the promoters and owners largely depend on capital structure. There are many theories from past and still research are going on but all of them has one proven right thing and that is Ratios are the best tool to judge capital structure. Therefore, it is very imperative to have this study in the form of research paper on Capital Structure analysis in order to further strengthening of the companies.

The most fundamental matter in framing financial matters for every company is the choice of the capital structure. The structure itself states the future aspects and working of companies along with that shows the standard of their good governance. There is a significant difference between the industry and the individual companies within an industry in terms of capital structure. There are number of factors influencing the capital structure decision of the company, but the judgment of the person making the capital structure decision plays a crucial part as rightly quoted by Sudesh Kumar, Dr.Suman Nayyar (2012).

For the ideal optimum capital structure every companies has been trying to get the perfect set of equation of debt equity but taking its determinants like profitability liquidity into considerations they have not build the capital structure which can survive contractions. The responsibility goes to CFO of the company for right capital structure balance. Every time they faces the question that whether it is good to return the excess cash to shareholders or to further invest it and how to finance the new projects of the company, by raising capital by

equity or adding debt to the existing structure. It is the challenge to get ideal capital structure for financing of operations and companies investments. It is the most discussed and debated topic, some believe that capital structure affect increasingly both risk and value while for others have the opinion that it is not necessary for the valuation of the securities. In financial matters things and valuation keeps on changing so it is always advisable to have a watch at financials, the top level management has to be always keen about its company and management along with industry standards, capital market, government rules and regulation and economy. Market situations and investors behavior towards debt is taken into consideration for any change in leverage of the company whether increase or decrease.

Since year 2000 many public enterprise and even major companies have over leveraged financials. Many companies were observed which do not involve in buy back of stocks and resulted into small amount of debt, which gave them flexibility when there was phase of increased credit constraints.

Therefore, the topic or the question is unanswered about what are the determinants or the factors determining the financial decisions of the company. After the publication of research paper by Modigliani and Miller (1958, 1963), many researchers went in-depth research for the same topic but failed to gain the equation or special formation of capital structure.

The present paper deals with the capital structure analysis of the selected Energy and power companies in India. Power – Generation and Distribution industry has very high importance and plays very vital role in national economy. The Energy and power is the only sector which is influenced and upgrading very rapidly in concerned on technology and resources. Therefore, it is pertinent to make a study on financial performance of the power companies to understand their strength and weakness.

REVIEW OF LITERATURE

Kumar, Anjum, Nayyar (2012), concluded that debt equity mix forming capital structure changes its pattern depending upon the investment pattern over the time scale of given period. They were practising their research by utilising the data and found that how companies use to finance their investment and what are the sources for the same. They concluded with the research by method of trend analysis of shareholders fund, debt equity and their total investment of selected pharmaceutical companies of India.

Jain & Yadav (2003), made a research comparing the Indian companies and Thai companies for capital structure about debt utilisation by the companies and concluded that Indian companies uses larger amount of debt than the Thai and Singaporean companies.

Jawade (2014), investigated the influence of debt equity structure for the performance of Indian pharmaceutical companies amongst various market capitalizations. The impact on determinant profitability by capital structure (debt- equity mix) was also researched. Approach was made using different theory of pecking order and stated that companies didn't showed the positive escalation for the theory nor they choose the leverage option when it can easily be implemented. Further they concluded by stating that debt tax saving benefit and bankruptcy costs are the factor between which the firms have to trade off for balancing growth prospects, maintenance of solvency and give outrage optimum return to stakeholders without interference of management and its control.

Chandra Shekhar Mishra, (2011),concluded in his study on Determinants of Capital Structure – A Study of Manufacturing Sector PSUs in India that in confirmation with theory more specifically, pecking order hypothesis, the leverage is found to be negatively related to profitability, i.e. the PSUs use the internal accruals

first for the needs of expansion. The tangibility measured by the ratio of net fixed assets to total assets is found to be positively related to leverage. In contrast with theory, the tax rate is negatively related to the leverage.

Padmini & Reddy (2012), researched on the Indian pharmaceutical companies with the factor of financial leverage and shareholders earnings. Shareholders fund to capital employed ratio and financial leverage of the selected pharmaceutical companies of India was implemented to the study. It was mentioned about that there is no correlation between the degree of financial leverage and shareholders earnings, moreover there is no impact of financial leverage on the other factor.

Anandilal, Sojatia (2015), held the research in the segments of metal and pharmaceutical industry for capital structure, proportion of debt equity in selected data set. Ratio analysis and comparative analysis were carried out and concluded that debt and equity both were used for proper capital structure. The average of debt equity ratio in pharma industry was lower than the metal industry. It was suggested that pharma companies should focus towards debt financing to enhance and maximize the value of the share, which eventually boost the share price, further it was suggested that both the pharma and metal industry should use a trade-off theory between debt and equity which would help in achieving the target of optimum capital structure.

OBJECTIVE OF THE STUDY

- The primary purpose of the present study is to obtain a true insight into the capital structure of selected power – Generation and Distribution companies in developing India. For carrying out the study, the following specific objectives have been set.
- To make an in-depth study of the capital structure pattern in selected power – Generation and Distribution companies during the period of 2012-2013 to 2016-2017.
- To analyse the debt equity structure of various energy and power companies and tries to discover the industry benchmark
- To make suggestions for further improvements in the capital structure of the selected units.

HYPOTHESES

The present study based on the following hypotheses:

H1: Individual Company's capital structure ratio does not significantly vary from the average ratio of the industry.

H2: There is no significant difference of capital structure ratios among the sample companies of power and energy industry.

RESEARCH METHODOLOGY

This is purely an empirical study for a period of five years i.e.:2012-13 to 2016-2017. As the sample size there are top 10 sample companies selected on the basis of market capitalization. Capital structure have been analysed with the help of three selected ratios i.e. Debt Equity Ratio (DER), Shareholder's fund to Capital Employed Ratio (SFTCER) and Financial Leverage (FL). Moreover, for analyzing and presentation of the data, few statistical measures have been used. These are Rank, Mean, Range, Standard Deviation (SD), Coefficient of Variation (CV), Difference between Average Ratio of the Company and Average Ratio of the Industry i.e. average of averages and relevant statistical techniques & test i.e.ANOVA.

ANALYSIS AND DISCUSSION

Debt Equity Ratio (DER)

Debt equity ratio is the standard and the most effective ratio to acknowledge the equity debt balance and the real equation of capital structure.

Table – 1

Debt Equity Ratio of the selected companies of Indian power – Generation and Distribution industry.

Si. No	Name of the company	2016-2017	2015-2016	2014-2015	2013-2014	2012-2013	Mean	Range (Max)	S.D	Coefficient of Variation (CV) (%)	Variance
1	NTPC	1.04	0.97	0.96	0.73	0.66	0.872	1.04	0.148782	19.07603	0.02767
2	POWER GRID	2.26	2.39	2.37	2.31	2.48	2.362	2.48	0.074673	3.534569	0.00697
3	NHPC	0.65	0.64	0.64	0.71	0.63	0.654	0.71	0.028705	4.90728	0.00103
4	TATA POWER	0.85	0.76	0.77	0.78	0.91	0.814	0.91	0.05748	7.894972	0.00413
5	NLC INDIA	0.42	0.21	0.19	0.2	0.24	0.252	0.42	0.08565	38.00005	0.00917
6	SJVN	0.19	0.22	0.24	0.24	0.22	0.222	0.24	0.01833	9.231487	0.00042
7	JSW ENERGY	0.35	0.53	0.47	0.63	0.71	0.538	0.71	0.124964	25.96914	0.01952
8	CESC	0.39	0.56	0.6	0.56	0.57	0.536	0.6	0.074458	15.53109	0.00693
9	ADANI POWER	5.41	2.7	2.71	2.87	5.31	3.8	5.31	1.275555	37.52931	2.0338
10	TORRENT POWER	1.19	1.09	0.73	0.91	0.74	0.932	1.19	0.184217	22.09884	0.04242
	Average	1.275	1.007	0.968	0.994	1.247	1.0982				
	Variance	2.472139	0.740534	0.746929	0.774916	2.437734					

Analysis of Debt Equity Ratio (DER)

From table-1 it is clear that the average DER of the companies varies in-between 0.19 to 5.41. During the study period, average DER registered highest at 5.41 for Adani Power and lowest at 0.19 for SJVN. It has observed that over the years, DER of all the sample companies is changing. Moreover, sample companies have got different range of their DER. Among all, NTPC has shown high variation and NHPC has shown comparatively a low variation of their DER at a range of 0.66 and 1.04 respectively. DER found to be highly inconsistent in Powergrid in terms of SD and Adani power in terms of CV. On the contrary, DER found comparatively consistent in Tata power in terms of SD and Torrent power in terms of CV.

After testing the statistical hypothesis i.e. H1, it is confirmed that when compared with average of the Industry, the null hypothesis is accepted for SJVN, JSW Energy, CESC and NTPC, Torrent Power drawn the conclusion that companies DER does not significantly different from average DER of the Industry.

In testing H2 it is found that the critical value at 5% significant level is 2.15 which is less than F, calculated value i.e. 02.94. Therefore, the null hypothesis is rejected. Hence, it is concluded that the DER position of selected companies of Power and energy Industry in India differs significantly.

Shareholders' Fund to Capital Employed Ratio (SFCER)

It explains the relationship between the proprietors' fund and capital employed. Capital employed is the value of the assets that contribute to a company's ability to generate revenue.

Table – 2

Shareholders Fund to Capital Employed Ratio of the companies of Indian power – Generation and Distribution industry.

Si. No	Name of the company	2016-2017	2015-2016	2014-2015	2013-2014	2012-2013	Mean	Range (Max)	S.D	Coefficient of Variation (CV)(%)	Variance
1	NTPC	8.35	7.46	8.08	11.01	12.56	9.492	12.56	1.956726	23.04768	4.78597
2	POWER GRID	9.73	8.67	8.01	8.29	8.93	8.726	9.73	0.59254	7.592026	0.43888
3	NHPC	8.61	7.8	7.37	6.96	7.39	7.626	8.61	0.559164	8.197797	0.39083
4	TATA POWER	8.59	9.16	9.22	10.09	10.18	9.448	10.18	0.603172	7.137663	0.45477
5	NLC INDIA	19.43	11.49	12.6	14.61	13.15	14.256	19.43	2.775317	21.76556	9.62798
6	SJVN	14.22	13.2	17.73	12.13	12.04	13.864	17.73	2.090326	16.85701	5.46183
7	JSW ENERGY	7.68	16.2	17.69	15.93	17.1	14.92	17.69	3.674273	27.53326	16.87535
8	CESC	7.32	10.97	11.17	12.62	12.99	11.014	12.99	2.007771	20.38093	5.03893
9	ADANI POWER	2.91	8.85	6.95	8.95	0.66	5.664	8.95	3.323454	65.60265	13.80668
10	TORRENT POWER	10.81	14.67	15.41	7.84	9.74	11.694	15.41	2.902348	27.74862	10.52953
	Average	9.765	10.847	11.423	10.843	10.474	10.6704				
	Variance	19.59841	9.062712	17.83456	8.852646	19.22596					

Analysis of Shareholders' Fund to Capital Employed Ratio (SFCER)

Table-2 has shown the Shareholders Fund to Capital Employed Ratio (SFTCER). It is apparent from the table that the average SFCER of the companies varies in-between 0.66 to 19.43. On an average, this ratio found

highest at 19.43 for NLC India and lowest at 0.66 for Adani Power. It is observed that companies have different range of its SFCER. It indicates that spread of this ratio is different from company to company. Furthermore, as standard deviation reflects this ratio is found to be more inconsistent in JSW Energy while it is consistent in Power Grid, NHPC, Tata power. However, CV reveals that, SFCER is more inconsistent in JSW Energy and found consistent in Powergrid and NHPC.

When tested the hypothesis i.e. H1, it is confirmed that the null hypothesis is accepted for NTPC, NHPC, Powergrid and Adani power. Alternative hypothesis is accepted for rest of the sample companies. Therefore, there is significant difference between the SFCER of Tata Power, Torrent Power, JSW Energy and NLC India of Energy and power Industry.

After testing H2 it is found that the critical value at 5% significant level is 2.15 which is much lesser than F, calculated value i.e. 6.25 Therefore, the null hypothesis is rejected. Hence, it is concluded that the SFCER position of sample companies are significantly different.

Financial Leverage

The use of fixed charges capital like debt with equity capital in the capital structure is described as financial leverage or trading on equity.

Table – 3

Financial Leverage of the companies of Indian power – Generation and Distribution industry.

Si. No	Name of the company	2016 - 2017	2015 - 2016	2014 - 2015	2013 - 2014	2012 - 2013	Mean	Range (max)	S.D	Coefficient of Variation (CV) (%)	Variance
1	NTPC	1.13	1.13	1.07	1.05	1.05	1.086	1.13	0.036661	3.774199177	141.78422
2	POWER GRID	1.23	1.23	1.12	1.04	1.10	1.144	1.23	0.074993	7.329116719	19.25113
3	NHPC	1.56	1.34	1.09	1.05	1.09	1.226	1.56	0.196224	17.89441317	11.08622
4	TATA POWER	1.89	2.44	1.22	1.08	1.17	1.56	2.44	0.525623	37.67082503	1.5578
5	NLC INDIA	4.91	2.50	0.00	1.28	1.10	1.958	4.91	1.67557	95.67643527	27.0502
6	SJVN	1.00	1.00	1.03	1.11	1.09	1.046	1.11	0.045869	4.902822717	129.11323
7	JSW ENERGY	1.02	1.05	1.08	1.05	1.05	1.05	1.08	0.018974	2.020305089	108.8457
8	CESC	0.11	0.14	0.13	1.65	1.30	0.666	1.65	0.669824	112.4453212	52.29762
9	ADANI POWER	3.86	2.01	1.25	1.56	1.36	2.008	3.86	0.961778	53.55079473	2112.79708
10	TORRENT POWER	1.00	1.96	2.37	1.85	1.25	1.686	2.37	0.496089	32.89703618	98.48777
	Average	1.77	1.48	1.03	1.27	1.15	1.343				

		1		6	2	6				
Variance	1241									
	.946	285.	207.	134.	11.3					
	2	5271	7066	853	2002					

Analysis of Financial Leverage

From the above table it is clear that all the sample companies have leverage in their capital structure at different level. On an average DFL is greater than 1 in all the cases except CESC, this has proved the existence of leverage. CESC's average DFL is less than 1 because of its losses in first three years of the study period; otherwise it has got average DFL at 1.20 from 2012-13 to 2014-15, Therefore CESC is a levered firm. It is observed that the NLC India and Adani power are at high financial risk as both the company registered comparatively high average DFL at 4.91 and 3.86 respectively. However, there is variation in DFL at different level in all the sample companies. Furthermore, it is clear from the table that DFL of NLPC India is largely varying from its industry while DFL of NHPC was found closer.

After testing the statistical hypothesis i.e. H1, it is confirmed that when compared with industry average, the null hypothesis is rejected for CESC and concluded that there is significant difference between the DFL of CESC that of Industry. For rest of the sample companies, null hypothesis is accepted and confirmed that there is no significance difference between the DFL of individual company that of Industry.

In the case of H2, The calculated value i.e. 1.70 is less than of critical value i.e. 2.39 at 5% level of significance. Therefore, the null hypothesis is accepted and it has concluded that the DFL position of sample of selected energy and power - Generation and Distribution companies of India is not significantly different.

CONCLUSION

From the above discussion it can be concluded that all the selected power - (Generation and Distribution) companies of India are running with low debt fund especially in SJVN, Torrent Power and Adani Power. Therefore, they may increase it to get the benefits of low cost capital. It has found that NHPC is largely employing shareholders funds in their assets, it has shown great results in the first two years. Moreover Adani Power and NLC India are on high degree financial risk. Therefore, they may reduce the debt capital and employ more equity fund.

SUGGESTIONS

More research in-depth further is required for the determinants where check can be made using dependent variable and independent variable using some of the other statistical tools and also some of the theories can be implemented such as OLS model or fixed effect model by using Hausman test, Panel Least Squares method, Panel regression with period and panel with cross selection.

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