

CAPITAL STRUCTURE DECISIONS: A STUDY ON LEVERAGE AND PROFITABILITY OF INFRASTRUCTURE COMPANIES IN INDIA

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Abstract Capital structure decisions are vital for the financial soundness of the company. Inappropriate decisions about the capital structure may lead to financial distress and eventually to bankruptcy. The top level finance executive sets the capital structure of their companies keeping in mind the objective of wealth maximization. However, they do choose different financial leverage levels in their effort to attain an optimal capital structure. The key to sustaining India's growth rate lies in developing India's infrastructure which has shown a tremendous potential in the recent times. Observing the growing scenario, the infrastructure companies are aiming at their best performance at all level starting from acquiring capital for their long-term and short-term projects to market expansion so that they can take utmost advantage of the industry's peak time. This paper shed some light on the analysis of capital structure of Infrastructure companies. An attempt has been made to analyze the various ratios like Debt Ratio, Debt-Equity Ratio, and Interest Coverage Ratio of Infrastructure companies which are related to capital structure. The main sectors covered under the infrastructure are Power, Gas, Construction, Cement, and Telecommunications for the purpose of analysis. Each sector is analyzed with the help of last five years financial data for leading five companies representing each sector.

Key Words: Capital structure, Debt, Equity, Interest Type: Empirical

INTRODUCTION

There are two main theories of capital structure choice. The Trade-off Theory says that companies have optimal Debt-Equity Ratios, which they determine by trading off the benefits of debt against its costs. In the original form of the model, the chief benefit of debt is the tax advantage of interest deductibility.¹ More recent versions of the model² also attempt to incorporate Jensen's "free cash flow" argument, in which debt plays a potentially valuable role in mature companies by curbing a managerial tendency to overinvest. The primary costs of debt financing are those associated

with financial distress, particularly in the form of corporate underinvestment and defections by customers and suppliers. According to the Trade-off Theory (at least in this expanded form), large, mature companies with stable cash flows and limited opportunities for investment should have higher leverage ratios, both to take advantage of the tax deductibility of debt and because of their lower financial distress costs. At the other end of the spectrum, smaller companies with significant growth opportunities should make limited use of debt to preserve their continuing ability to undertake positive-NPV projects. Indeed, high-tech or start-up firms often have "negative leverage," or cash balances that exceed any debt outstanding. The main contender to the Trade-off Theory, which is known as the "pecking order" theory, suggests that actual corporate leverage ratios typically do not reflect capital structure targets, but rather the widely observed corporate practice of financing new investments with internal funds when possible and issuing debt rather than equity if external

1 F. Modigliani and M. Miller, "Corporate Income Taxes and the Cost of Capital: A Correction," *American Economic Review*, Vol. 53 (1963), pp. 433-443, and M. Miller, "Debt and Taxes," *Journal of Finance*, Vol. 32 (1977), pp. 261-275

2 M. Barclay and C. Smith, "Another Look at the Capital Structure Puzzle: Some New Evidence," *Journal of Applied Corporate Finance*, Vol. 13 No. 1 (Spring 2000).

funds are required.³ In the pecking order model, an equity offering is typically regarded as a very expensive last resort. The theory is based on the premise that managers avoid issuing securities, particularly equity, when the company is undervalued. And even if the company's stock is currently fairly valued, the market reaction to the announcement of a new equity offering is expected to cause the company's stock price to fall below fair value.

LITERATURE REVIEW ON CAPITAL STRUCTURE

Capital structure research has gone through three phases in the nearly half-century since Modigliani and Miller's (1958) pioneering work introducing arbitrage proofs into finance. Modigliani and Miller assume market efficiency and treat operating decisions as exogenous when analyzing corporate finance decisions. The first phase of research focused on relaxing assumptions regarding the "perfect market" assumptions about taxes, bankruptcy costs, and starting in the late 1970s, asymmetric information. The second phase of capital structure research began with the publication of Jensen and Meckling (1976) and Myers (1977). The takeover battles of the 1980s, and Jensen's (1986) free cash flow analysis suggest that financial policy's effect on managerial incentives was the primary motivation for leveraged buyouts and debt-financed takeovers. The third phase of capital structure research dropped the assumption of market efficiency. Many studies e.g., Ritter (1991) have found long-run abnormal returns following corporate events, unlike the zero average abnormal returns that should characterize an efficient capital market. Capital structure remains one of the most important focuses of corporate finance research.

Although some of the most exciting recent work on capital structure and securities issuance has dropped the assumption of market efficiency, traditional approaches remain relevant. While the traditional static model of capital structure that trades off the tax advantage of debt financing and the costs of financial distress has been with us for some time, most textbooks have little to say about the empirical estimates of these two factors. Recently, however, two important studies have attempted to remedy this deficiency. Modern capital structure theory began in 1958, when Professors Franco Modigliani and Merton Miller (MM) proved that due to tax advantage on interest on corporate loan funds, a firm's value rises continuously as more debt is employed in its capital structure. The bankruptcy costs are likely to burden the firm, if it employs high financial leverage. Ross, Westerfield and Jaffe (1999) describe these costs as financial distress costs.

³ S. Myers, "The Capital Structure Puzzle," *Journal of Finance*, Vol. 39 (1984), pp. 575-592, and S. Myers and N. Majluf, "Corporate Financing and Investment Decisions When Firms Have Information That Investors Do Not Have," *Journal of Financial Economics*, Vol. 13 (1984), pp. 187-224.

The legal and administration costs of firm liquidation and reorganization are the example of direct costs of financial distress. Robichek and Myers (1966) argue, costs of financial distress are incurred when the firm comes under the threat of bankruptcy, even if bankruptcy is ultimately avoided. Myers (1995) developed "modified pecking order" theory. He argues that firm avoids financing real investment opportunity either by issuing equity or by risky securities because of difficulty in pricing external equity correctly due to information asymmetry between the management and the shareholders; MM assumed that shareholders have the same information about the future prospects of the firm as its management. But the reality is that management has better information about the firm's prospects than the outside investors. The financial economists call it as information asymmetry. Although the empirical research in testing the "pecking order" can be considered as mixed, there are an increasing number of studies providing evidence in line with the theory. [See for example, For: Baskin (1989); Fan and So (2000); Against: Brennan and Kraus (1987); Noe (1988); Grundy (1989); and Helwege and Liang (1996)].

Pinegar and Wilbricht (1989) survey of Fortune 500 firms indicates that retained earnings is the first choice of the financial officers (85%) for financing long-term projects. 40% of the respondents indicate equity as a last choice of alternatives for raising capital. 60% of the firms indicate that they prefer to use debt and preferred stock to avoid dilution in control of common stockholders. 75% of the respondents agree that the firm value, stable cash flows and financial independence significantly influence the capital structure decision of the firm. Helwege and Liang (1996) test the pecking order model of capital structure by examining the financing of the firms that went public in 1983. These firms experienced exceptional growth after the IPO, but operating earnings were often weak during this period. Evidence on the decision to obtain external financing provides little support to pecking order theory. Furthermore, equity is not the least desirable source of financing, since it appears to dominate the bank loans. However, the firms with surplus funds avoid the capital markets. Large, profitable firms, consistent with the pecking order theory issue public bonds. Varma (1998) observes that at the beginning of the reform process, the Indian corporate sector was significantly over-levered because of availability of subsidized institutional finance and operating risk was lower due to protected economy. The average debt to equity ratio of corporate India has reduced from 1.72:1 in 1990-91 to 1.05:1 in 1996-97. Babu and Jain (1997 & 1998) find that nature of the industry influences the capital structure of a firm. The capital intensive and advanced technology-based firms have been found to employ more debt in their capital structure during the period 1980 to 1994. Hull (1999) investigates whether stock value is influenced by how a firm changes its leverage ratio in relationship to its industry leverage norm. Raghunathan and Dass (1999) in

their analysis of performance of Indian manufacturing sector for the period 1990 to 1999 find that the debt to equity ratio of Corporate India reached minimum of 1 in 1996 and then went up to 1.3 in 1999. It was as high as 1.7 in 1990, prior to liberalization of the Indian economy. Mohanty (2000) finds that leverage is negatively related with profitability and value of the firm both within an industry as well as within the Indian economy. Fan and So (2000) study finds that Hong Kong firms conformed more to the “pecking order” principle than a target long-term debt-equity mix in their financing decisions. Graham and Harvey (2001) survey finds that earnings volatility, tax advantage of interest on debt and credit rating are important determinants of debt policy for large firms and that are in Fortune 500. Heaton (2002) develops several predictions based on the simple, but plausible, assumption that managers are overoptimistic about their abilities and their firm’s prospects. He predicts that managers are reluctant to issue equity because they think that their firm is undervalued, and that they are inclined to acquire other firms because they think that their superior managerial abilities will create value. Baker and Wurgler (2002) demonstrate that a firm’s debt ratio today is heavily dependent on its market-to-book ratios in the distant past. They interpret this finding as consistent with firm’s successfully timing the market to take advantage of overvalued equity. Baker and Wurgler and Welch (2004) both argue that, as with the pecking order theory of capital structure, inertia is of first-order importance in explaining observed capital structures.

This paper has made an attempt to contribute towards the literature on capital structure by analyzing the various ratios like Debt Ratio, Debt-Equity Ratio, and Interest Coverage Ratio of Infrastructure companies which are related to capital structure. The main segments covered under the infrastructure are Power, Gas, Construction, Cement, and Telecommunications for the purpose of analysis. Each segment is analyzed with the help of last five years financial data for leading five companies representing each sector.

RESEARCH OBJECTIVE

To analyze and evaluate capital structure decisions of Infrastructure Companies in India with the help of leverage and profitability ratios.

RESEARCH METHODOLOGY

The study is mainly based on secondary data. Secondary data is taken from ACEEQUITY database and published annual reports of the various infrastructure companies under study. In addition to that, financial literature and published articles on the related aspects also considered. The secondary data is basically for financial analysis purpose.

Other information related to the industry are collected from the *Economic Times*, *Financial Express*, *Business Standard*, *RBI Bulletin*, other periodicals, journals and other various documents of the companies. The research approach is descriptive observational research. The observed secondary data is used for financial analysis purpose. Accounting ratio analysis, and trend analysis along with statistical techniques the arithmetical mean, standard deviation, coefficient of variation, maximum, minimum, simple and average growth rates, have been applied. The uses of all these techniques at different places have been made in the light of nature and suitability of data available and requirements of analysis. Sampling method was convenience and judgment sampling. The main segments covered under the infrastructure are Power, Gas, Construction, Cement, and Telecommunications for the purpose of analysis. Each segment is analyzed with the help of last five years financial data for leading five companies representing each sector as per table below. The followings companies are also having their presence in sectorial indices.

Cement	Oil and Gas	Power	Real Estate	Telecom
ACC	BPCL	Adani Power	DB Realty	Bharti Telecom Ltd
Ambuja Cement	GAIL India	JP Power Ven	DLF	Idea Cellular
Binani Cement	HPCL	NTPC	IBull Real	MTNL
Grasim Industries	ONGC	Rel.Power	Parsvnath Developers	Rel. Commn
Sanghi Industries	Rel. Inds	Tata Power	Sobha Developers	Tata Communications

DATA ANALYSIS AND INTERPRETATIONS

Annexure 1 and 2 summaries the important ratios like Debt to Assets ratio, Debt to Equity (D/E) ratio, Interest Coverage Ratio (ICR), of capital structure measurement and Return on Equity (ROE), and EBIT (Earnings before Interest and Tax) Margin for profitability of the 25 companies representing the different segments of infrastructure industry. To begin with cement segment, ACC has reduced its debt proportion from the capital structure which can be depicted by its declining D/E ratio over the last five years. At the end of financial year 2006, the D/E ratio of ACC was 0.4, which has reduced to 0.09 at the end of 2010. Its capital structure consists more of equity financing and its EBIT margin is stable around 26 to 27% during last five year, the ROE of ACC has reduced to 17.94% in 2010 from 46.74% in 2006. Ambuja Cement also become very thin lever leverage company as its D/E ratio has decreased from 0.35 to 0.01 during last five years. Its ROE has also deteriorated to 18.32% in 2010 from 53.62%

in 2006. ACC and Ambuja are operating at low level of financial leverage compared to Binani and Sanghi Industries. These two companies were having D/E ratio of more than 2 in the year 2006, which they have declined but still it is more than 1 for both the companies. Basically, both these companies are taking the benefits of “Trading on Equity” as their ROE is comparatively high and also showing the upward trend. Sanghi has shown declining trend in EBIT margin and that has its Interest Coverage Ratio (ICR) of only 1.22 times which is quite risky proposition. Grasim has moderate level of Debt with Good EBIT margin and that has shown good performance in terms of ROE and ICR. Overall Cement segment of infrastructure industry has mean D/E ratio of 0.87 with S.D. of 0.21. In the oil and gas segment, BPCL and HPCL are the most levered companies with the D/E ratio of more than one while GAIL and ONGC are having low level of debt in their capital structure with D/E ratio of less than 0.25 in all the years. Reliance Industries has moderate level of debt with 0.5 of D/E ratio. GAIL and ONGC are showing better EBIT level than those levered companies like HPCL and BPCL. This is resulted into the very poor ICR for both HPCL and BPCL. These companies’ ROE is also not very good that shows that the companies are not getting the positive benefits of Debt financing in their capital structure. Overall, Oil and Gas segment has mean D/E ratio of 0.68 with the 0.2 S.D. In power segment of infrastructure, all the companies except Reliance Power, have used high amount of Debt in its capital structure with the D/E ratio of more than 0.50. Adani and JP Power are having 1.68 and 1.44 of D/E ratio in the financial year 2010 while NTPC and Tata Power have 0.63 and 0.57 of D/E ratio. It has been noticed here that in spite of high level of EBIT margin of JP Power, its ICR is only 2 to 3 times compared to NTPC with 5 to 7 times of ICR. Reliance Power is debt free company as it has not issued debt since 2007. Overall, power segment has mean D/E ratio of 0.62 with 0.16 of S.D. In Real Estate segment, DLF was operating at very high level of Debt in the financial year 2006 and 2007 with the D/E ratio of 4.67 and 7.54 with very high levels of EBIT margins. This has resulted into very good returns on equity of 44.21% and 62.54% respectively. Parsvnath and Shobha are having 40 to 45% of Debt proportion in their capital structure which is supported by moderate levels of EBIT. Overall, the mean level of Debt proportion of Real Estate segment is 46.60% with the 15.38% of S.D. In Telecom sector, MTNL is not having any debt in its capital composition and other companies are mainly financing the project through the reserves. Reliance Communications has around 60% sourced their capital through reserve and around 30% from unsecured loans. The private sector firms like Reliance, Bharti and Idea have started their venture in the Telecom industry with high dependence on the Debt financing. Tata has started in the telecom industry with less leverage and currently reached at 26%. The firms in the telecom sector

have been able to reduce their dependence on debt financing in past years and thus reached their D/E ratio below 1 in the year 2010. Overall, the telecom segment has mean D/E ratio of 0.50 with 0.13 S.D.

Hypothesis Testing

1. Null Hypothesis: Debt Equity ratio does not differ significantly among the various segments of infrastructure industry over the years

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Segments	3.25335	4	0.81334	3.07823	0.03969	2.86608
Within Segments	5.28446	20	0.26422			

Above table states that the calculated value of F ratio (3.07) is higher than the table value of F (2.86) at 5% significance level; This lead to the rejection of null hypothesis at 5% significance level. P-value is also lower than 5% level of significance. It can be concluded that Debt Equity ratio differs significantly among the various segments of infrastructure industry over the years.

2. Null Hypothesis: Return on Equity does not differ significantly among the various segments of infrastructure industry over the years

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Segments	2036.24	4	509.059	3.69083	0.02084	2.86608
Within Segments	2758.51	20	137.926			

Above table state that the calculated value of F ratio (3.69) is higher than the table value of F (2.86) at 5% significance level; This lead to the rejection of null hypothesis at 5% significance level. P-value is also lower than 5% level of significance. It can be concluded that ROE differs significantly among the various segments of infrastructure industry over the years.

CONCLUSION

Infrastructure industry comprises different segments like cement, oil & gas, power, real estate, and telecom and each segment has very specific financial requirements. The sources of funds for these segments broadly comprise 30% to 40% of Debt and rest of equity shares. Except real estate, the all other segment has mean D/E ratio of less than 1. The Interest Coverage Ratio of infrastructure companies is fairly

well around 15 to 20 times for all the segments except oil and gas where the mean ICR is very high near to 57 times. The profitability in terms of ROE of power and telecom sector is very less around 7% to 9% compared to cement, oil and gas and real estate where ROE is more than 20%. After testing the hypotheses with ANOVA, it can be concluded that D/E ratio and ROE differs significantly among the various segments of infrastructure industry over the years.

LIMITATIONS

In a research design selected in this paper, there is a great chance of personal bias in the selection of sample companies. However, it is attempted to be as objective and impartial to obtain reliable and meaningful results from final analysis. This paper is based on secondary data taken from ACEEQUITY database of Accord Fintech Pvt. Ltd. as well published annual reports of the said companies and as such its finding depends entirely on the accuracy of such data. Moreover, the data were processed to 12 months on an average basis wherever required. The analysis is largely based on the financial tool of ratio analysis, which has its own limitations that also applies to this paper. Hence, the conclusions drawn in the present paper should be taken in the light of these deficiencies of data.

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Annexure-1: Ratios for all the companies under the study

Sr. No		Debt/ Equity Ratio					Debt to Assest Ratio					Interest Coverage Ratio				
		2010	2009	2008	2007	2006	2010	2009	2008	2007	2006	2010	2009	2008	2007	2006
1	ACC	7.49%	8.61%	8.91%	6.87%	22.57%	0.09	0.10	0.09	0.17	0.40	26.74	28.22	44.46	27.13	22.54
2	Ambuja Cement	0.88%	2.50%	4.84%	6.62%	19.86%	0.01	0.03	0.06	0.15	0.35	35.13	81.40	62.44	36.76	17.26
3	Binani Cement	59.98%	62.77%	65.48%	70.09%	68.33%	1.58	1.78	2.08	2.26	2.16	6.20	3.16	6.27	5.80	2.70
4	Grasim Industries	12.68%	26.37%	28.23%	32.15%	28.44%	0.27	0.37	0.43	0.44	0.43	24.56	17.09	29.13	20.91	12.67
5	Sanghi Industries	53.20%	57.05%	59.44%	62.84%	70.82%	1.14	1.34	1.59	2.04	2.39	1.22	1.81	2.35	3.15	3.31
Oil and Gas Segment																
1	BPCL	62.91%	63.58%	56.27%	51.32%	47.81%	1.72	1.52	1.18	0.99	0.79	3.34	1.46	4.86	6.20	2.65
2	GAIL India	8.10%	7.52%	8.87%	10.51%	16.12%	0.08	0.09	0.10	0.12	0.19	66.41	49.32	49.45	27.71	28.93
3	HPCL	64.83%	67.96%	61.38%	52.28%	43.27%	1.98	1.86	1.35	0.94	0.52	3.35	1.34	2.45	5.65	2.62
4	ONGC	15.82%	16.92%	15.02%	19.61%	19.08%	0.19	0.21	0.18	0.25	0.24	0.00	202.66	428.98	0.00	465.97
5	Rel. Inds	31.30%	36.90%	30.93%	30.31%	30.51%	0.56	0.57	0.46	0.45	0.48	11.29	11.56	22.36	13.21	13.20
Power Segment																
1	Adani Power	62.70%	68.53%	41.38%	16.83%	0.00%	1.68	1.64	0.72	0.22	0.00	6.40	0.00	0.00	0.00	0.00
2	JP Power Ven	62.41%	43.23%	42.97%	51.84%	59.63%	1.44	0.76	0.75	1.08	1.77	2.28	2.97	3.42	3.04	2.58
3	NTPC	38.73%	39.31%	35.38%	34.10%	31.46%	0.63	0.65	0.55	0.52	0.46	7.02	5.69	6.70	5.79	4.75
4	Rel.Power	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	171.59	146.20	18.73	1.66	0.00
5	Tata Power	35.60%	37.42%	27.27%	37.59%	33.15%	0.57	0.49	0.47	0.55	0.53	3.98	4.41	6.58	4.06	5.75
Real Estate Segment																
1	DB Realty	9.34%	46.05%	34.54%	71.48%		0.10	0.85	0.53	2.51		7.40	14.24	0.00	0.00	
2	DLF	49.62%	43.72%	42.67%	91.20%	82.37%	0.89	0.77	0.75	7.54	4.67	2.11	3.24	7.97	2.74	3.38
3	IBull Real	1.72%	25.85%	0.08%	0.11%		0.02	0.22	0.00	0.00	1.48		1.29	158.00	160.05	
4	Parsvnath Developers	41.67%	48.90%	48.51%	40.89%	53.97%	0.71	0.96	0.94	0.69	1.17	1.72	1.56	4.22	7.17	12.70
5	Sobha Developers	45.98%	63.70%	64.08%	41.71%	75.56%	1.20	1.77	1.30	1.06	3.09	3.39	2.38	5.41	4.62	5.86
Telecom Segment																
1	Bharti Telecom Ltd	32.12%	22.14%	32.11%	32.46%	32.43%	0.28	0.32	0.19	0.48	0.48	0.00	-600.00	-373.00	-150.50	-65.47
2	Idea Cellular	36.29%	40.16%	64.75%	66.11%	71.39%	0.62	0.67	1.84	2.14	2.53	3.07	2.26	3.38	2.50	1.50
3	MTNL	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00	446.33	228.05	395.17	28.47
4	Rel. Commn	32.65%	37.42%	44.95%	41.51%	0.00%	0.48	0.67	0.77	0.41	0.00	1.56	5.65	3.99	6.30	0.00
5	Tata Communications	26.60%	25.51%	10.62%	3.01%	1.60%	0.35	0.23	0.08	0.02	0.02	2.26	4.74	12.36	104.13	382.51

Sr. No.	Cement Segment	ROE (%)					EBIT Margin (%)				
		2010	2009	2008	2007	2006	2010	2009	2008	2007	2006
1	ACC	17.94	29.36	26.71	39.45	46.74	17.73	27.27	21.58	25.54	26.26
2	Ambuja Cement	18.32	20.08	27.17	43.48	53.20	20.64	23.52	28.24	43.59	27.86
3	Binani Cement	48.96	24.31	48.92	34.49	21.71	23.54	13.19	25.36	24.19	15.80
4	Grasim Industries	25.21	18.73	28.52	27.42	18.56	33.45	19.74	26.98	24.43	17.14
5	Sanghi Industries	12.88	8.49	19.77	35.28	33.51	14.34	16.09	22.24	27.25	21.86
	Oil and Gas Segment										
1	BPCL	12.20	6.18	14.40	18.66	3.77	2.57	2.18	2.69	3.07	0.77
2	GAIL India	19.89	20.19	21.33	22.34	24.84	18.32	17.58	21.18	17.93	22.82
3	HPCL	11.68	5.40	11.26	17.14	4.72	2.61	2.11	1.66	2.45	0.59
4	ONGC	20.38	21.79	25.43	27.20	28.89	41.52	37.68	42.06	41.63	45.36
5	Rel. Inds	13.37	15.83	27.77	22.45	21.90	11.25	13.79	17.30	13.27	12.99
	Power Segment										
1	Adani Power	4.23	-0.16	-0.13	0.00	0.00	55.46	0.00	0.00	0.00	0.00
2	JP Power Ven	11.30	13.13	20.81	24.25	23.92	78.15	81.95	112.99	101.78	96.12
3	NTPC	14.57	14.91	14.65	14.68	13.42	27.23	26.91	32.31	32.81	31.12
4	Rel.Power	1.96	1.82	1.38	0.16	0.00	0.00	0.00	0.00	60.60	0.00
5	Tata Power	9.72	11.03	12.37	12.05	11.46	23.69	19.96	19.34	16.49	19.96
	Real Estate Segment										
1	DB Realty	11.35	32.79	-3.91	0.00	116.36	94.92	0.00	0.00		
2	DLF	6.13	13.18	43.34	62.54	44.21	74.00	92.43	64.44	86.16	50.19
3	IBull Real	0.45	0.55	31.66	2.47	231.56	229.28	1270.87	140.81		
4	Parsvnath Developers	6.47	6.07	25.00	32.67	70.02	52.09	52.77	44.51	32.71	24.58
5	Sobha Developers	9.77	10.56	25.31	34.23	95.71	20.35	25.48	23.03	19.94	21.57
	Telecom Segment										
1	Bharti Telecom Ltd	14.73	-0.01	-0.01	-0.13	-0.44	0.00	0.00	0.00	0.00	0.00
2	Idea Cellular	9.29	13.51	36.51	35.05	20.11	14.62	19.75	23.60	19.44	19.31
3	MTNL	-24.39	1.78	3.51	4.14	5.26	-94.44	11.55	13.43	16.19	12.51
4	Rel. Commn	0.94	12.55	11.40	13.64	0.04	12.78	38.78	23.49	22.56	0.00
5	Tata Communications	6.86	7.73	4.72	7.54	8.14	17.26	24.11	14.91	19.21	18.21

Annexure-2: Avg. Ratios for Different Segments of Infrastructure with MEAN & SD

Sr. No.	Average Infra Segment	Debt to Assest Ratio					Mean	S.D.
		2010	2009	2008	2007	2006		
1	Cement Segment	26.85%	31.46%	33.38%	35.71%	42.00%	33.88%	5.59%
2	Oil and Gas Segment	36.59%	38.57%	34.49%	32.81%	31.36%	34.76%	2.89%
3	Power Segment	39.89%	37.70%	29.40%	28.07%	24.85%	31.98%	6.48%
4	Real Estate Segment	29.67%	45.64%	37.98%	49.08%	70.64%	46.60%	15.38%
5	Telecom Segment	25.53%	25.04%	30.49%	28.62%	21.08%	26.15%	3.61%

Sr. No.	Average Infra Segment	Debt/ Equity Ratio					Mean	S.D.
		2010	2009	2008	2007	2006		
1	Cement Segment	0.62	0.72	0.85	1.01	1.15	0.87	0.21
2	Oil and Gas Segment	0.91	0.85	0.65	0.55	0.44	0.68	0.20
3	Power Segment	0.86	0.71	0.50	0.47	0.55	0.62	0.16
4	Real Estate Segment	0.58	0.91	0.70	2.36	2.98	1.51	1.09
5	Telecom Segment	0.35	0.38	0.58	0.61	0.61	0.50	0.13

	Average	Interest Coverage Ratio						
Sr. No.	Infra Segment	2010	2009	2008	2007	2006	Mean	S.D.
1	Cement Segment	18.77	26.34	28.93	18.75	11.70	20.90	6.85
2	Oil and Gas Segment	16.88	53.27	101.62	10.55	102.67	57.00	44.32
3	Power Segment	38.25	31.85	7.09	2.91	2.62	16.54	17.14
4	Real Estate Segment	3.22	4.54	35.12	34.92	7.31	17.02	16.49
5	Telecom Segment	1.38	-28.20	-25.04	71.52	69.40	17.81	49.42

	Average	ROE (%)						
Sr. No.	Infra Segment	2010	2009	2008	2007	2006	Mean	S.D.
1	Cement Segment	24.66	20.19	30.22	36.02	34.74	29.17	6.71
2	Oil and Gas Segment	15.50	13.88	20.04	21.56	16.82	17.56	3.18
3	Power Segment	8.36	8.15	9.82	10.23	9.76	9.26	0.94
4	Real Estate Segment	6.83	12.63	24.28	26.38	69.98	28.02	24.81
5	Telecom Segment	1.49	7.11	11.23	12.05	6.62	7.70	4.23

	Average	EBIT Margin (%)						
Sr. No.	Infra Segment	2010	2009	2008	2007	2006	Mean	S.D.
1	Cement Segment	21.94	19.96	24.88	29.00	21.78	23.51	3.54
2	Oil and Gas Segment	15.25	14.67	16.98	15.67	16.51	15.82	0.93
3	Power Segment	36.91	25.76	32.93	42.34	29.44	33.47	6.45
4	Real Estate Segment	98.87	98.98	280.57	55.92	32.11	113.29	97.82
5	Telecom Segment	-9.96	18.84	15.09	15.48	10.01	9.89	11.53