

A STUDY ON THE IMPACT OF CAPITAL STRUCTURE ON PROFITABILITY OF SELECTED INFRASTRUCTURE COMPANIES IN INDIA

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ABSTRACT: *Infrastructure industry acts as an important role in strengthen the economic performance and they are the key driver for the Indian economy. This sector provides critical backward and forward linkages to support the development of other economic sector. This sector is highly responsible for boosting India's overall development and enjoys deep focus from Government for introducing policies which could ensure time-bound creation of world class infrastructure in the country. The main objective of the study is to analyze the impact of capital structure on profitability of selected infrastructure companies. The researcher has selected fourteen infrastructure companies which are listed both in NSE and BSE for the period of ten years. The study is based on secondary data. Capital structure and profitability ratios are used to obtain the results. Through ANOVA, differences in the mean values of selected companies are measured and by using multiple regression model impact of capital structure on profitability are measured.*

Key Words: *Infrastructure companies, capital structure, profitability, multiple regression.*

INTRODUCTION

Infrastructure industry acts as an important role in strengthen the economic performance and they are the key driver for the Indian economy. This sector provides critical backward and forward linkages to support the development of other economic sector. This sector is highly responsible for boosting India's overall development and enjoys deep focus from Government for introducing policies which could ensure time-bound creation of world class infrastructure in the country. Therefore, Indian government's first priority is rising to the challenge of maintaining and managing high growth through investment in infrastructure sector. Infrastructure sector includes power, bridges, dams, roads and urban infrastructure development. The provision of quality and efficient infrastructure services is essential to realize the full potential of the growth impulses surging through the economy. India, while stepping up public investment in infrastructure, has been actively engaged in involving private sector to meet the growing demand. The demand for infrastructure investment during Indian infrastructure sector is going through a significant transformation. Investment in infrastructure is envisaged to be doubled to US\$1 trillion during the Twelfth Five Year Plan and about half of this is targeted to be achieved through private sector investment. The share of infrastructure investment in GDP is planned to be increased to more than 10% by the end of the Twelfth Plan. Foreign Direct Investment (FDI) received in Construction Development sector (townships, housing, built up infrastructure and construction development projects) from April 2000 to March 2017 stood at US\$ 24.3 billion, according to the Department of Industrial Policy and Promotion (DIPP). The Government of India is expected to invest highly in the infrastructure sector, mainly highways, renewable energy and urban transport, prior to the general elections in 2019. Initiative of 100% FDI in most infrastructure sectors with no restriction on repatriation of profit was made. Moreover, the Government of India has launched a Viability Gap Funding Scheme to enhance the financial viability of competitively bid infrastructure projects.

REVIEW OF LITERATURE

Marandu & Sibind (2016) investigated the relationship between capital structure and profitability within the context of an emerging market of South Africa. They conducted multiple linear regressions on time series data of big South African banks for the period 2002 to 2013 and established a strong relationship between the ROA (profitability measure) and the bank specific determinants of capital structure, namely capital adequacy, size, deposits and credit risk. **Gharaibeh (2015)** studied to examine the determinants of capital structure of a firm. They used panel data which was obtained from financial statements and annual reports of the study sample comprised of 49 industrial and service firms out of the 215 companies listed in the Kuwait stock exchange for the period from 2009 to 2013. Multiple regressions represented by ordinary least squares (OLS) were used to examine the factors determining the capital structure. The results of the cross-sectional OLS regression showed that growth opportunity, firms' age, liquidity, profitability, size, tangibility, and industry type have statistically significant relationship with firm's leverage. Accordingly, the findings of the study revealed that firm's age, growth opportunities, liquidity, profitability, firm's size, tangibility, and type of industry are determinants of capital structure of firms listed in Kuwaiti stock exchange (KSE). Dividends policy and ownership structure, however, are revealed to be non-determinants of capital structure. **S.Saravanan & V.Devakinandini (2015)** discussed the hypothetical relationship between capital structure and its impact on profitability of the 12 paper industries in India specifically selected for the 10 years period from 2003-04 to 2012-13. The result indicates that the total short term debt, long term debt, Debt to Equity and Assets has significant impact on profitability of the firms based on the financial measures of return on equity, while there is significant impact of short term debt on profitability based on the return on the Return on Assets. **Handoo & Sharma (2014)** identified the most important determinants of capital

structure of 870 listed Indian firms comprising both private sector companies and government companies for the period 2001 to 2010. Ten independent variables and three dependent variables were tested using regression analysis and concluded that factors such as profitability, growth, asset tangibility, size, cost of debt, tax rate, and debt serving capacity have significant impact on the leverage structure chosen by firms in the Indian context. **Baser, Brahmhatt, & Singh (2012)** discussed that Capital structure decisions that 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. They shed some light on the analysis of capital structure of Infrastructure companies through the attempt to analyze the various ratios like Debt Ratio, Debt-Equity Ratio, and Interest Coverage Ratio of Infrastructure companies which are related to capital structure and concluded that D/E ratio and ROE differs significantly among the various segments of infrastructure industry over the years by using ANOVA.

OBJECTIVES OF THE STUDY

The main objective of the study is to analyze the impact of capital structure on profitability of selected infrastructure companies.

RESEARCH METHODOLOGY

Sample Design

The infrastructure companies are selected for this study as they are the key driver for the Indian economy. Owing to several constraints such as non-availability of financial statements or non-working of company in a particular year etc., the researcher has selected only fourteen infrastructure companies which are listed both in NSE and BSE. The selected companies include in the present study are: Larsen & Toubro Ltd, Jaiprakash Associates Ltd, Adani Ports and Special Economic Zone Ltd, Hindustan Construction Company Ltd, NCC Ltd, Punj Lloyd Ltd, IlandFS Transportation Networks Ltd, Sadbhav Engineering Ltd, IVRCL Ltd, GMR Infrastructure Ltd, Simplex Infrastructures Ltd, Ashoka Buildcon Ltd, IRB Infrastructure Developers Ltd and Patel Engineering Company Ltd.

Period of study

The present study covers a period of 10 years from 2007-08 to 2016-17.

Source of data

The study is mainly based on secondary data. The data's for the study are collected from PROWESS and CAPITALINE databases which are the most reliable on the empowered corporate database. In additions the annual reports of companies, magazines, journals and various websites have been comprehensively searched.

Data analysis and interpretation

Collected data is analyzed and interpreted with the help of accounting and statistical tools and techniques which are as follows:

Accounting techniques: Ratio analysis is used as an accounting technique in which capital structure and profitability ratios are used for analysis and interpretation such as Short term debt ratio(STDR), Long term debt ratio(LTDR), Total debt ratio(TDR), Debt equity ratio(DER), Interest coverage ratio(ICR) and Operating profit margin(OPM).

Statistical techniques: Statistical tools such as mean, standard deviation and coefficient of variations are used to ascertain the average position of capital structure and profitability ratios. The technique of ANOVA is used to test if there is any difference in the capital structure and profitability position of different companies of the same industry during the study period and regression analysis is used to identify the impact of capital structure ratios on profitability of the selected companies.

ANALYSIS AND INTERPRETATION

SHORT TERM DEBT RATIO

Table (1): Short Term Debt Ratio of Selected Infrastructure Companies

COMPANY NAME	MIN	MAX	MEAN	SD	CV
Larsen & Toubro Ltd	0.47	0.54	0.50	0.03	0.05
Jaiprakash Associates Ltd	0.22	0.47	0.28	0.07	0.26
Adani Ports and Special Economic Zone Ltd	0.09	0.34	0.20	0.07	0.35
Hindustan Construction Company Ltd	0.40	0.68	0.51	0.08	0.17
NCC Ltd	0.53	0.71	0.61	0.05	0.09
Punj Lloyd Ltd	0.27	0.90	0.58	0.18	0.31
IlandFS Transportation Networks Ltd	0.07	0.57	0.36	0.14	0.37
Sadbhav Engineering Ltd	0.44	0.59	0.51	0.04	0.09
IVRCL Ltd	0.53	0.84	0.68	0.10	0.15

GMR Infrastructure Ltd	0.02	0.16	0.10	0.05	0.53
Simplex Infrastructures Ltd	0.54	0.76	0.69	0.08	0.12
Ashoka Buildcon Ltd	0.13	0.44	0.33	0.09	0.27
IRB Infrastructure Developers Ltd	0.02	0.51	0.35	0.18	0.51
Patel Engineering Company Ltd	0.45	0.53	0.48	0.03	0.06

source: computed data

The above table refers to the point that the means of short term debt ratio ranges from 0.10 to 0.69 during the study period among the selected infrastructure companies. The Simplex Infrastructures Ltd had higher mean of short term debt ratio and GMR Infrastructure Ltd had least mean of short term debt ratio during the period of the study. The Larsen & Toubro Ltd showed least coefficient of variation indicating the consistent performance in the short term debt ratio and the GMR Infrastructure Ltd showed highest coefficient of variation indicating the inconsistent performance in short term debt ratio.

Table (1.1): ANOVA Results Short Term Debt Ratio

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	4.08	13	0.31	32.724	0.000	1.799
Within Groups	1.21	126	0.01			
Total	5.28527	139				

H_0 : There is no significant difference between Short term debt ratio of the selected infrastructure companies.

Since the calculated P Value is less than 0.05, the null hypothesis is rejected @5% level of significance. Hence it concludes that there is a significant difference between the mean difference between Short term debt ratio of the selected infrastructure companies.

LONG TERM DEBT RATIO

Table (2): Long Term Debt Ratio of Selected Infrastructure Companies

COMPANY NAME	MIN	MAX	MEAN	SD	CV
Larsen & Toubro Ltd	0.08	0.16	0.11	0.03	0.24
Jaiprakash Associates Ltd	0.36	0.53	0.45	0.05	0.12
Adani Ports and Special Economic Zone Ltd	0.22	0.47	0.36	0.09	0.24
Hindustan Construction Company Ltd	0.18	0.40	0.31	0.07	0.23
NCC Ltd	0.01	0.09	0.04	0.03	0.58
Punj Lloyd Ltd	0.05	0.27	0.14	0.07	0.47
ILandFS Transportation Networks Ltd	0.05	0.46	0.27	0.13	0.49
Sadbhav Engineering Ltd	0.08	0.17	0.13	0.03	0.24
IVRCL Ltd	0.01	0.23	0.08	0.07	0.91
GMR Infrastructure Ltd	0.06	0.39	0.22	0.11	0.50
Simplex Infrastructures Ltd	0.04	0.21	0.11	0.06	0.55
Ashoka Buildcon Ltd	0.08	0.45	0.24	0.11	0.47
IRB Infrastructure Developers Ltd	0.00	0.36	0.18	0.12	0.66
Patel Engineering Company Ltd	0.14	0.31	0.24	0.06	0.24

source: computed data

The above table refers to the point that the means of Long term debt ratio ranges from 0.08 to 0.45 during the study period among the selected infrastructure companies. The Jaiprakash Associates Ltd had higher mean of Long term debt ratio and IVRCL Ltd had least mean of Long term debt ratio during the period of the study. The Jaiprakash Associates Ltd showed least coefficient of variation indicating the consistent performance in the Long term debt ratio and the IVRCL Ltd showed highest coefficient of variation indicating the inconsistent performance in Long term debt ratio.

Table (2.1): ANOVA Results Long Term Debt Ratio

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	4.078	13	0.314	32.724	0.000	1.799
Within Groups	1.208	126	0.010			

Total	5.28527	139				
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H_0 : There is no significant difference between Long term debt ratio of the selected infrastructure companies.

Since the calculated P Value is less than 0.05, the null hypothesis is rejected @5% level of significance. Hence it concludes that there is a significant difference between the mean difference between Long term debt ratio of the selected infrastructure companies.

TOTAL DEBT RATIO

Table (3): Total Debt Ratio of Selected Infrastructure Companies

COMPANY NAME	MIN	MAX	MEAN	SD	CV
Larsen & Toubro Ltd	0.55	0.67	0.60	0.04	0.06
Jaiprakash Associates Ltd	0.68	0.84	0.73	0.04	0.06
Adani Ports and Special Economic Zone Ltd	0.50	0.63	0.56	0.04	0.06
Hindustan Construction Company Ltd	0.75	0.86	0.81	0.04	0.05
NCC Ltd	0.60	0.72	0.66	0.04	0.06
Punj Lloyd Ltd	0.54	0.98	0.72	0.13	0.18
ILandFS Transportation Networks Ltd	0.38	0.73	0.63	0.12	0.19
Sadbhav Engineering Ltd	0.59	0.71	0.64	0.05	0.07
IVRCL Ltd	0.55	0.96	0.76	0.13	0.18
GMR Infrastructure Ltd	0.07	0.52	0.31	0.14	0.45
Simplex Infrastructures Ltd	0.73	0.82	0.79	0.03	0.04
Ashoka Buildcon Ltd	0.45	0.65	0.57	0.07	0.12
IRB Infrastructure Developers Ltd	0.02	0.72	0.53	0.26	0.49
Patel Engineering Company Ltd	0.61	0.79	0.72	0.06	0.08

source: computed data

The above table refers to the point that the means of Total debt ratio ranges from 0.31 to 0.81 during the study period among the selected infrastructure companies. The Hindustan Construction Company Ltd had higher mean of Total debt ratio and GMR Infrastructure Ltd had least mean of Total debt ratio during the period of the study. The Simplex Infrastructures Ltd showed least coefficient of variation indicating the consistent performance in the Total debt ratio and the IRB Infrastructure Developers Ltd showed highest coefficient of variation indicating the inconsistent performance in Total debt ratio.

Table (3.1): ANOVA Results Total Debt Ratio

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	2.208	13	0.170	15.368	0.000	1.799
Within Groups	1.393	126	0.011			
Total	3.600525	139				

H_0 : There is no significant difference between Total debt ratio of the selected infrastructure companies.

Since the calculated P Value is less than 0.05, the null hypothesis is rejected @5% level of significance. Hence it concludes that there is a significant difference between the mean difference between Total debt ratio of the selected infrastructure companies.

DEBT TO EQUITY RATIO

Table (4): Debt to Equity Ratio of Selected Infrastructure Companies

COMPANY NAME	MIN	MAX	MEAN	SD	CV
Larsen & Toubro Ltd	0.21	0.53	0.33	0.09	0.26
Jaiprakash Associates Ltd	1.33	2.42	1.84	0.38	0.21
Adani Ports and Special Economic Zone Ltd	0.37	1.16	0.88	0.22	0.25
Hindustan Construction Company Ltd	1.48	3.93	2.54	0.83	0.33
NCC Ltd	0.45	1.00	0.72	0.18	0.25
Punj Lloyd Ltd	0.57	25.73	3.76	7.76	2.07
ILandFS Transportation Networks Ltd	0.53	3.20	1.45	0.82	0.56

Sadbhav Engineering Ltd	0.53	1.08	0.74	0.19	0.25
IVRCL Ltd	0.67	9.25	2.96	3.29	1.11
GMR Infrastructure Ltd	0.07	0.80	0.42	0.22	0.53
Simplex Infrastructures Ltd	1.02	2.22	1.76	0.42	0.24
Ashoka Buildcon Ltd	0.09	1.13	0.50	0.37	0.75
IRB Infrastructure Developers Ltd	0.01	1.23	0.77	0.44	0.57
Patel Engineering Company Ltd	0.78	2.44	1.59	0.53	0.33

source: computed data

The above table refers to the point that the means of Debt to Equity ratio ranges from 0.33 to 3.76 during the study period among the selected infrastructure companies. The Punj Lloyd Ltd had higher mean of Debt to Equity ratio and Larsen & Toubro Ltd had least mean of Debt to Equity ratio during the period of the study. The Jaiprakash Associates Ltd showed least coefficient of variation indicating the consistent performance in the Debt to Equity ratio and the Punj Lloyd Ltd showed highest coefficient of variation indicating the inconsistent performance in Debt to Equity ratio.

Table (4.1): ANOVA Results Debt To Equity Ratio

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	141.27	13	10.87	2.069	0.020	1.799
Within Groups	661.83	126	5.25			
Total	803.1019	139				

H₀: There is no significant difference between Debt to Equity ratio of the selected infrastructure companies.

Since the calculated P Value is less than 0.05, the null hypothesis is rejected @5% level of significance. Hence it concludes that there is a significant difference between the mean difference between Debt to Equity ratio of the selected infrastructure companies.

INTEREST COVERAGE RATIO

Table (5): Interest Coverage Ratio of Selected Infrastructure Companies

COMPANY NAME	MIN	MAX	MEAN	SD	CV
Larsen & Toubro Ltd	5.62	10.53	7.54	1.74	0.23
Jaiprakash Associates Ltd	-0.36	3.20	1.59	1.32	0.83
Adani Ports and Special Economic Zone Ltd	3.67	8.40	4.96	1.61	0.33
Hindustan Construction Company Ltd	0.41	1.92	1.22	0.45	0.37
NCC Ltd	1.01	2.50	1.67	0.51	0.30
Punj Lloyd Ltd	-0.80	4.01	1.11	1.28	1.15
ILandFS Transportation Networks Ltd	1.14	7.40	2.81	1.95	0.69
Sadbhav Engineering Ltd	1.69	4.99	3.15	1.20	0.38
IVRCL Ltd	-0.65	2.71	0.89	1.21	1.36
GMR Infrastructure Ltd	-3.95	5.37	1.04	2.59	2.49
Simplex Infrastructures Ltd	1.22	3.11	1.83	0.69	0.38
Ashoka Buildcon Ltd	1.95	5.92	4.17	1.30	0.31
IRB Infrastructure Developers Ltd	1.21	17.59	4.73	5.04	1.06
Patel Engineering Company Ltd	0.94	4.02	1.66	0.93	0.56

source: computed data

The above table refers to the point that the means of Interest coverage ratio ranges from 0.89 to 7.54 during the study period among the selected infrastructure companies. The Larsen & Toubro Ltd had higher mean of Interest coverage ratio and IVRCL Ltd had least mean of Interest coverage ratio during the period of the study. The Larsen & Toubro Ltd showed least coefficient of variation indicating the consistent performance in the Interest coverage ratio and the GMR Infrastructure Ltd showed highest coefficient of variation indicating the inconsistent performance in Interest coverage ratio.

Table (5.1): ANOVA Results Interest Coverage Ratio

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	499.50	13	38.42	10.497	0.000	1.799
Within Groups	461.20	126	3.66			
Total	960.7028	139				

H_0 : There is no significant difference between Interest Coverage ratio of the selected infrastructure companies.

Since the calculated P Value is less than 0.05, the null hypothesis is rejected @5% level of significance. Hence it concludes that there is a significant difference between the mean difference between Interest Coverage ratio of the selected infrastructure companies.

OPERATING PROFIT MARGIN

Table (6): Operating Profit Margin of Selected Infrastructure Companies

COMPANY NAME	MIN	MAX	MEAN	SD	CV
Larsen & Toubro Ltd	5.32	11.78	9.43	1.92	0.20
Jaiprakash Associates Ltd	-0.97	30.59	21.23	9.69	0.46
Adani Ports and Special Economic Zone Ltd	63.05	73.50	68.77	3.20	0.05
Hindustan Construction Company Ltd	9.50	19.68	14.49	3.43	0.24
NCC Ltd	6.62	12.73	9.38	2.11	0.22
Punj Lloyd Ltd	-19.09	18.37	4.70	11.12	2.36
ILandFS Transportation Networks Ltd	17.21	65.36	28.73	15.32	0.53
Sadbhav Engineering Ltd	8.60	11.76	10.61	0.87	0.08
IVRCL Ltd	-18.48	11.93	2.53	11.30	4.47
GMR Infrastructure Ltd	21.52	85.76	52.17	24.15	0.46
Simplex Infrastructures Ltd	7.78	12.28	9.84	1.45	0.15
Ashoka Buildcon Ltd	12.35	18.08	14.00	1.84	0.13
IRB Infrastructure Developers Ltd	-15140.00	16.16	-3327.85	5638.54	-1.69
Patel Engineering Company Ltd	13.44	21.49	16.37	2.61	0.16

source: computed data

The above table refers to the point that the means of Operating profit margin ranges from -3327.85 to 68.77 during the study period among the selected infrastructure companies. The Adani Ports and Special Economic Zone Ltd had higher mean of Operating profit margin and IRB Infrastructure Developers Ltd had least mean of Operating profit margin during the period of the study. The Sadbhav Engineering Ltd showed least SD indicating the consistent performance in the Interest coverage ratio and the IRB Infrastructure Developers Ltd showed highest SD the inconsistent performance in Interest coverage ratio.

Table (6.1): ANOVA Results Operating Profit Margin

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	104130959.04	13	8010073.77	3.527	0.000	1.799
Within Groups	286148923.14	126	2271023.20			
Total	390279882.2	139				

H_0 : There is no significant difference between Operating profit margin of the selected infrastructure companies.

Since the calculated P Value is less than 0.05, the null hypothesis is rejected @5% level of significance. Hence it concludes that there is a significant difference between the mean difference between Operating profit margin of the selected infrastructure companies.

MULTIPLE REGRESSION MODEL

Null Hypothesis(H_0): There is no significant impact of Capital Structure ratios on the profitability The financial profitability (OPM) depends upon Short Term Debt Ratio (STDR), Long Term Debt Ratio(LTDR), Total Debt Ratio(TDR), Debt to Equity Ratio(DER) and Interest Coverage Ratio(ICR). The regression model is used to find out the impact of capital structure ratios on the profitability of the selected infrastructure companies in India.

The regression equation is as follows

$$\text{Profitability} = \beta_0 + \beta_1 \text{STDR} + \beta_2 \text{LTDR} + \beta_3 \text{TDR} + \beta_4 \text{DER} + \beta_5 \text{ICR} + \epsilon$$

where: β_0 = Intercept

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ = coefficient of the explanatory variable

STDR = Short Term Debt Ratio

LTDR = Long Term Debt Ratio

TDR = Total Debt Ratio

DER = Debt to Equity Ratio

ICR = Interest coverage ratio

ε = Error term

Model

Operating Profit Margin (OPM) = $\beta_0 + \beta_1 \text{STDR} + \beta_2 \text{LTDR} + \beta_3 \text{TDR} + \beta_4 \text{DER} + \beta_5 \text{ICR} + \varepsilon$

1. Larsen & Toubro Ltd

OPM = $53.597 + 251.299(\text{STDR}) + 281.626(\text{LTDR}) - 344.374(\text{TDR}) + 7.854(\text{DER}) + .810(\text{ICR})$

2. Jaiprakash Associates Ltd

OPM = $24.356 + 448.241(\text{STDR}) + 474.333(\text{LTDR}) - 462.073(\text{TDR}) - 7.986(\text{DER}) + 6.103(\text{ICR})$

3. Adani Ports and Special Economic Zone Ltd

OPM = $54.532 + 338.030(\text{STDR}) + 318.297(\text{LTDR}) - 329.847(\text{TDR}) + 14.001(\text{DER}) + .937(\text{ICR})$

4. Hindustan Construction Company Ltd

OPM = $74.523 - 389.599(\text{STDR}) - 441.723(\text{LTDR}) + 311.904(\text{TDR}) + 5.788(\text{DER}) + 3.385(\text{ICR})$

5. NCC Ltd

OPM = $-7.095 + 50.246(\text{STDR}) + 82.703(\text{LTDR}) - 30.217(\text{TDR}) - 5.874(\text{DER}) + 3.685(\text{ICR})$

6. Punj Lloyd Ltd

OPM = $158.980 - 2008.485(\text{STDR}) - 2119.178(\text{LTDR}) + 1811.352(\text{TDR}) + 1.833(\text{DER}) - 1.894(\text{ICR})$

7. ILandFS Transportation Networks Ltd

OPM = $-11.555 - 2413.282(\text{STDR}) - 2473.824(\text{LTDR}) + 2434.212(\text{TDR}) + 9.722(\text{DER}) + 9.777(\text{ICR})$

8. Sadbhav Engineering Ltd

OPM = $9.634 - 56.443(\text{STDR}) - 64.335(\text{LTDR}) + 54.622(\text{TDR}) + 2.241(\text{DER}) + .507(\text{ICR})$

9. IVRCL Ltd

OPM = $1.327 + 175.042(\text{STDR}) + 172.060(\text{LTDR}) - 163.220(\text{TDR}) - 3.176(\text{DER}) + 2.247(\text{ICR})$

10. GMR Infrastructure Ltd

OPM = $96.436 + 537.310(\text{STDR}) + 887.898(\text{LTDR}) - 1180.195(\text{TDR}) + 195.710(\text{DER}) - .796(\text{ICR})$

11. Simplex Infrastructures Ltd

OPM = $52.813 + 159.504(\text{STDR}) + 167.884(\text{LTDR}) - 235.820(\text{TDR}) + 7.481(\text{DER}) + 1.783(\text{ICR})$

12. Ashoka Buildcon Ltd

OPM = $22.778 + 58.588(\text{STDR}) + 67.438(\text{LTDR}) - 73.352(\text{TDR}) + .883(\text{DER}) - .703(\text{ICR})$

13. IRB Infrastructure Developers Ltd

OPM = $-7537.574 + 10055.819(\text{STDR}) - 14291.393(\text{LTDR}) + 0(\text{TDR}) + 6705.440(\text{DER}) - 389.641(\text{ICR})$

14. Patel Engineering Company Ltd

$$\text{OPM}=12.742-89.071(\text{STDR})-123.294(\text{LTDR})+88.138(\text{TDR})+4.965(\text{DER})+2.749(\text{ICR})$$

Table (7): Showing Determinants of Profitability of Selected Infrastructure Companies

COMPANIES	Multiple R	R ²	Adjusted R ²	Durbin-watson	F-Value	Sig.F
1.Larsen & Toubro Ltd	0.963	0.927	0.835	2.851	10.124	0.022
2.Jaiprakash Associates Ltd	0.969	0.939	0.863	2.400	12.327	0.015
3.Adani Ports and Special Economic Zone Ltd	0.745	0.555	-0.001	2.883	0.998	0.515
4.Hindustan Construction Company Ltd	0.587	0.345	-0.474	0.749	0.421	0.816
5.NCC Ltd	0.964	0.929	0.840	2.032	10.473	0.020
6.Punj Lloyd Ltd	0.918	0.842	0.644	2.242	4.262	0.093
7.IlandFS Transportation Networks Ltd	0.768	0.590	0.079	1.789	1.153	0.458
8.Sadbhav Engineering Ltd	0.778	0.605	0.112	2.747	1.227	0.434
9.IVRCL Ltd	0.999	0.997	0.994	2.743	309.695	0.000
10.GMR Infrastructure Ltd	0.954	0.909	0.796	1.116	8.013	0.033
11.Simplex Infrastructures Ltd	0.783	0.613	0.129	1.302	1.267	0.421
12.Ashoka Buildcon Ltd	0.995	0.990	0.978	2.949	80.701	0.000
13.IRB Infrastructure Developers Ltd	0.874	0.765	0.576	2.215	4.058	0.078
14.Patel Engineering Company Ltd	0.861	0.742	0.420	2.806	2.301	0.220

source: computed data

From the above table,

The R² value of the Larsen & Toubro Ltd is 0.927. It means 92.7% of variance of OPM is accurate by the capital structure and the remaining 7.3% of variance is attributed to other factors. The R² value of the Jaiprakash Associates Ltd is 0.939. It means 93.9% of variance of OPM is accurate by the capital structure and the remaining 6.1% of variance is attributed to other factors. The R² value of the Adani Ports and Special Economic Zone Ltd is 0.555. It means 55.5% of variance of OPM is accurate by the capital structure and the remaining 44.5% of variance is attributed to other factors.

The R² value of the Hindustan Construction Company Ltd is 0.345. It means 34.5% of variance of OPM is accurate by the capital structure and the remaining 65.5% of variance is attributed to other factors.

The R² value of the NCC Ltd is 0.929. It means 92.9% of variance of OPM is accurate by the capital structure and the remaining 7.1% of variance is attributed to other factors.

The R² value of the Punj Lloyd Ltd is 0.842. It means 84.2 % of variance of OPM is accurate by the capital structure and the remaining 15.8% of variance is attributed to other factors.

The R² value of the IlandFS Transportation Networks Ltd is 0.590. It means 59.0 % of variance of OPM is accurate by the capital structure and the remaining 41% of variance is attributed to other factors.

The R² value of the Sadbhav Engineering Ltd is 0.605. It means 60.5 % of variance of OPM is accurate by the capital structure and the remaining 39.5% of variance is attributed to other factors.

The R² value of the IVRCL Ltd is 0.997. It means 99.7% of variance of OPM is accurate by the capital structure and the remaining 0.3% of variance is attributed to other factors.

The R² value of the GMR Infrastructure Ltd is 0.909. It means 90.9% of variance of OPM is accurate by the capital structure and the remaining 9.1% of variance is attributed to other factors.

The R² value of the Simplex Infrastructures Ltd is 0.613. It means 61.3 % of variance of OPM is accurate by the capital structure and the remaining 38.7% of variance is attributed to other factors.

The R² value of the Ashoka Buildcon Ltd is 0.990. It means 99% of variance of OPM is accurate by the capital structure and the remaining 1% of variance is attributed to other factors.

The R² value of the IRB Infrastructure Developers Ltd is 0.765. It means 76.5 % of variance of OPM is accurate by the capital structure and the remaining 23.5% of variance is attributed to other factors.

The R² value of the Patel Engineering Company Ltd is 0.724. It means 74.2 % of variance of OPM is accurate by the capital structure and the remaining 28.8% of variance is attributed to other factors.

CONCLUSION:

The Capital structure decisions is crucial for every business organization. Hence the present study showed the impact of capital structure on profitability of selected infrastructure companies in India and revealed how capital structure affects the financial performance of the sample companies using multiple regression model. The R square values of all the companies shows that minimum 34.5 percentages to maximum 99.7 percentages. This shows that all the dependent variables selected for the study having impact on the profitability(OPM). Hence the regression analysis revealed that the capital structure has an impact on profitability of the selected infrastructure companies in India.

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