

The Relationship between Capital Structure and Profitability: Evidence from Indian Steel Companies

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Abstract

Capital structure is one of the most significant area of financial decision making. The objective of this study is to examine the relationship between capital structure (measures as Debt Equity Ratio and Interest Coverage Ratio) and profitability (measured as Return on Capital Employed, Net Profit Ratio, Operating Profit Ratio and Return on equity) of selected steel companies in India. The study is based on secondary data. The study sampled top 5 steel companies listed in NSE over a five - period from 2015 to 2020 and extracted data from the annual reports of the companies and capitaline data base. The researcher has employed the analysis of various ratios for achieving the objectives of the study. Data was analyzed using descriptive statistics and correlation matrix. Findings of this study showed a negative relationship between debt to equity and profitability ratios which implied that firms with higher proportion of debt lean towards low profitability. There is a need to select the right composition of capital structure that would help in maximizing the profitability and wealth of the shareholders.

Keywords: Capital structure, Profitability, Correlation, Shareholders.

Introduction

Steel industry is one of leading industry of the world. It is considered as a foundation of human civilization as well as it has capacity to provide employment opportunities to large number of people. Due to rapid growth in production, India has not only become the largest producer of sponge iron but also has become the fourth largest producer of crude steel in the world. The level of per capita consumption of steel in any country is regarded as a severe factor for the progression of socio-economic and cost of living of the people. It plays a momentous role in customary sections i.e. constructions, shipping, automobile, manufacturing applications etc.

Survival of the fittest is the slogan of any organization in this present highly competitive environment. In such a situation, manager's decision is one of the difficult tasks as it decides the fortune of every business. Thus, managers have to take into consideration the cause effect relationship while making a specific decision. Since the profitability of an enterprise is directly affected by capital structure decision, thus an optimum capital structure plays an important role in the study of analyzing factor effecting profitability and development of any corporation. Henceforth, appropriate care and consideration need to be given while making the capital

structure decision. The present study will guide steel companies in outlining their optimal level of capital structure which would help in maximizing the wealth of the shareholders of the firm. In addition, it will also help as a reference for other scholars in the area of commercial finance.

Review of Literature

Sushil Kalyani and Neeti Mathurhas (2017) investigated a research on 35 Indian pharmaceutical companies listed on the Bombay Stock Exchange to exhibit the impact of capital structure on profitability. The regression analysis was applied to identify the effect of capital structure on profitability. The result of the study showed that there is a negative relationship between Long Term Debt to Total Assets and Returns on Equity. And there was a significant positive relationship between Total Debt to Total Assets and Return on Equity pointing to the fact that Profitable organizations use more Debt in their Capital Structure as Debt is the cheaper source of finance.

Chiang Yat Hung, Chan Ping Chuen Albert & Hui Chi Man Eddie (2002) conducted a study on the inter-relationship between cost of capital, profitability and capital structure among building real estate developers and contractors in Hong Kong. Secondary data was collected from an electronic financial database i.e. Data stream. The analysis confirmed that gearing is generally higher among contractors than real estate developers and capital gearing is negatively related with profit margins whereas it has a positive relationship with asset.

Salim and Yadav (2012) examined the relationship between capital structure and organizational performance. Secondary data was collected from 237 Malaysian listed companies on the Bursa Malaysia Stock exchange between 1995 and 2011. The researcher identified return on asset, return on equity, Tobin's Q and E.P.S. as dependent variables for assessing the performance whereas short-term debt, long-term debt, total debt, ratios and growth were identified as independent variables for evaluating the capital structure. Consistent with former theories, it found a significantly positive relationship between firm's capital structure and its performance.

Objectives of the Study

- To ascertain the profitability of selected steel companies over the period of study.
- To find out the association between the factors of capital structure and profitability of selected steel companies in India.
- To recommend the firms in the context of improving the profitability through adopting a better strategic framework of capital structure.

Hypotheses

The following hypotheses were formulated for the study.

H1- There is no significant association between Debt to equity and Operating profit

H2- There is no significant association between Debt to equity and Net profit.

H3- There is no significant association between Debt to equity and Return on Capital Employed.

H4- There is no significant association between Debt to equity and Return on Equity.

H5- There is no significant association between Interest Coverage Ratio and Operating Profit.

H6- There is no significant association between Interest Coverage Ratio and Net profit.

H7- There is no significant association between Interest Coverage Ratio and Return on Capital Employed.

H8- There is no significant association between Interest Coverage Ratio and Return on Equity.

Research Methodology

Sample Selection

Steel is considered as a crucial commodity as it is the pillar of the manufacturing industry. Steel now contributes about 2% to India's GDP and employs near about 6 lakh people directly and 20 lakh people indirectly. Moreover, India's strategic location marked by an extended coastline to endow exports and imports makes it a substantial competitor in the worldwide steel market. Consequently, being an emerging sector in the Indian economy, steel sector has been considered for the study. In the present study, five companies of steel industry have been selected on the basis of availability of data and market capitalization.

Following is the list of companies:

Sr. No.	Company Name
1	TATA Steel
2	JSW Steel
3	Visa Steel Ltd
4	Manaksia Steel
5	Steel Exchange India Ltd.

Data Collection and Study Period

The study used secondary data which was collected from annual financial reports and official websites of the sample firms. The financial information was obtained from Capitaline database package for the study period from 2016-17 to 2020-21.

Tools Used for Analysis

For the purpose of analysis of the study, researcher has used descriptive statistics and correlation. Descriptive statistics help us to know the nature of the variables under the study and correlation analysis indicates the significant relationship between the dependent and independent variables.

Results & Discussions**Table 1: Debt to Equity ratio**

Company	2020-21	2019-20	2018-19	2017-18	2016-17	Mean	Std. Dev
Tata Steel	0.30	0.53	0.38	0.41	0.56	.44	.108
JSW Steel	0.87	1.20	0.94	1.14	1.38	1.11	.205
Visa Steel Ltd.	-1.08	14.54	6.03	4.95	-4.34	4.02	7.271
Manaksia Steel	0.29	0.21	0.00	0.53	0.36	.28	.195
Steel Exchange India Ltd.	1.37	-11.10	-6.19	-8.98	13.07	-2.37	9.835

Source: Annual reports of selected steel companies (2016-17 to 2020-21)

The above Table 1 depicts that among all steel companies the ratio of Visa Steel Limited is comparatively higher with a mean of 4.02 which shows that Visa Steel company is antagonistic in financing its growth with debt. Whereas, this ratio is relatively low in case of Manaksia Steel with a mean of 0.28 which implies that the company wants to retain control in its hands. In addition, this company and Tata Steel Company have made few changes in the debt- equity mix as compared to other companies due to its low standard deviation. Considering the above results, Steel Exchange India Ltd is having maximum standard deviation of 9.835 which signifies that it has made a lot of changes in the composition of capital structure over the period of time. On the other hand, companies with negative debt equity ratio may be seen as perilous for analysts, creditors and investors as it is considered as a indication of financial volatility.

Table 2: Interest Coverage Ratio

Company	2020-21	2019-20	2018-19	2017-18	2016-17	Mean	Std. Dev
Tata Steel	6.24	3.18	6.75	4.47	3.26	4.78	1.657
JSW Steel	4.42	2.40	4.09	2.97	2.41	3.26	.946
Visa Steel Ltd.	-2.83	-8.82	-7.66	-1.64	-2.9	-4.77	3.233
Manaksia Steel	24.55	6.43	7.05	7.77	4.28	10.02	8.229
Steel Exchange India Ltd.	4.38	15.62	-0.05	-0.24	0.33	4.01	6.764

Source: Annual reports of selected steel companies (2016-17 to 2020-21)

Higher interest coverage ratio depicts that the company can pay for its interest expense several times pertaining to its debt commitments. Manaksia Steel average interest coverage ratio over the last 5 financial years indicates. that the Company has enough profits to service the debt. On the other hand, Visa Steel Limited com-

pany depicts negative interest coverage ratio with a mean of -4.77 which signifies that company cannot meet its current interest payment obligations. It is a red flag for investors as it can be an early sign of impending bankruptcy.

Table 3: Operating Profit Ratio

Company	2020-21	2019-20	2018-19	2017-18	2016-17	Mean	Std. Dev
Tata Steel	33.55	24.59	29.12	26.46	24.74	27.69	3.749
JSW Steel	27.23	19.47	23.98	21.14	22.07	22.78	2.975
Visa Steel Ltd.	-9.32	-5.67	-0.92	4	3.17	-1.75	5.715
Manaksia Steel	8.70	3.28	3.58	7.40	7.95	6.18	2.556
Steel Exchange India Ltd.	9.06	1.66	-1.18	5.82	9.0	4.87	4.539

Source: Annual reports of selected steel companies (2016-17 to 2020-21)

From the above table, it is clear that Tata Steel and JSW Steel are having maximum operating profit ratio with the mean of 27.69 and 22.78 as compared to other companies under study, illustrating that these companies have less financial risk and are efficiently utilizing its operations by quickly converting its sales into profits. Whereas, Visa Steel is experiencing a negative operating profit ratio indicating that it is inefficient in their operations and is unable to recover its fixed and variable costs.

Furthermore, companies with high standard deviation like Visa Steel & Steel Exchange India Ltd signifies that their operating profits are fluctuating at a very high pace. On the other hand, companies with low standard deviation like JSW Steel & Manaksia Steel implies that these firms are grossing its operating profits in an average fashion.

Table 4: Net Profit Ratio

Company	2020-21	2019-20	2018-19	2017-18	2016-17	Mean	Std. Dev
Tata Steel	20.97	11.15	14.91	6.99	7.17	12.24	5.869
JSW Steel	11.86	8.23	10.52	7.11	6.84	8.91	2.196
Visa Steel Ltd.	51.21	-24.38	-8.11	-3.21	-10.21	1.06	29.119
Manaksia Steel	5.07	1.78	1.49	3.37	2.73	2.89	1.432
Steel Exchange India Ltd.	15.58	8.23	-3.58	-18.45	-12.36	-2.12	14.090

Source: Annual reports of selected steel companies (2016-17 to 2020-21)

Table 4. depicts that Net Profit ratio is highest in case of Tata Steel with the mean score of 12.24 during the study period which implies that it is an indicator of good financial health as well as it is in better position to cope up with the challenges of the market. On the other hand, Steel Exchange India Ltd depicts a negative Net Profit ratio indicating that that the company is unprofitable and making less money than it is spending. Also, high standard deviation of Visa Steel Limited shows that the net profits of this company are fluctuating at a very high pace, whereas Manaksia Steel Ltd. depicts very low level of deviation in their return.

Table 5: Return on Capital Employed Ratio

Company	2020-21	2019-20	2018-19	2017-18	2016-17	Mean	Std. Dev
Tata Steel	13.56	9.49	17.12	12.87	9.89	12.59	3.100
JSW Steel	16.78	11.13	21.75	18.06	16.00	16.74	3.836
Visa Steel Ltd.	27.01	-20.95	-9.53	-1.87	-7.85	-2.64	17.955
Manaksia Steel	12.52	5.77	10.07	16.85	11.51	11.34	4.013
Steel Exchange India Ltd.	14.99	17.58	-2.50	-9.40	8.96	5.93	11.544

Source: Annual reports of selected steel companies (2016-17 to 2020-21)

The overall descriptive statistics given in Table 5 shows that Return on Capital Employed ratio is highest in case of Tata Steel & Manaksia Steel having the mean value of 12.59 & 11.34 respectively, which signifies that these firms are utilizing their funds effectively. On the contrary, Visa Steel Ltd. has negative ROCE which implies that company is incurring a loss and unable to manage their funds efficiently. Also, high standard deviation of Visa Steel Ltd. shows variation in their earnings.

Table 6: Return on Net Worth/ Equity Ratio

Company	2020-21	2019-20	2018-19	2017-18	2016-17	Mean	Std. Dev
Tata Steel	15.03	9.04	14.95	6.77	6.93	10.54	4.156
JSW Steel	17.86	13.79	23.27	16.57	14.84	17.27	3.703
Visa Steel Ltd.	0.00	-240.74	-54.83	-14.76	0.00	-62.07	102.371
Manaksia Steel	9.00	4.50	5.53	9.45	5.72	6.84	2.232
Steel Exchange India Ltd.	46.28	-84.72	0.00	0.00	-235.03	-54.69	111.357

Source: Annual reports of selected steel companies (2016-17 to 2020-21)

Table 6 shows that Return on Equity is highest in case of JSW Steel with the mean

score of 17.27 and negative in case of Visa Steel Ltd. & Steel Exchange India Ltd during the study period. This shows that JSW Steel performance is strong and it is using its investors' funds effectively whereas negative returns of Visa Steel Ltd. & Steel Exchange India Ltd illustrates that a firm may be mismanaged and could be reinvesting earnings into fruitless assets. Furthermore, their higher standard deviation of 102.37 and 111.357 depicts very high level of variation in their return.

Table 7: Correlations Matrix

		DEQ	ICR	NP	OP	ROE	ROCE
DEQ	Pearson Correlation	1	-.399*	-.253	-.013	-.602**	-.231
	Sig. (2-tailed)		.048	.002	.042	.001	.021
	N	25	25	25	25	25	25
ICR	Pearson Correlation	-.399*	1	.269	.266	.328	.543**
	Sig. (2-tailed)	.048		.001	.008	.010	.000
	N	25	25	25	25	25	25
NP	Pearson Correlation	-.253	.269	1	.262	.518**	.819**
	Sig. (2-tailed)	.002	.001		.205	.008	<.001
	N	25	25	25	25	25	25
OP	Pearson Correlation	-.013	.266	.262	1	.395	.452*
	Sig. (2-tailed)	.042	.008	.205		.051	.023
	N	25	25	25	25	25	25
ROE	Pearson Correlation	-.602**	.328	.518**	.395	1	.460*
	Sig. (2-tailed)	.001	.010	.008	.051		.021
	N	25	25	25	25	25	25
ROCE	Pearson Correlation	-.231	.543**	.819**	.452*	.460*	1
	Sig. (2-tailed)	.021	.000	<.001	.023	.021	
	N	25	25	25	25	25	25

*. Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

The results of the above table of correlation analysis shows that Debt equity Ratio has a negative correlation with the Net Profit Ratio, Operating Profit Ratio, Return on Equity and Return on Capital Employed Ratio. It has been depicted from the table that r value of NP (-.253 ; sig. value = .002) , OP (-.013 ; sig. value = .042) , ROE (

-.602 ; sig. value = .001) . ROCE (-.231 ; sig. value = .021) Since the P value is smaller than the significant value i.e. .05 in all the above cases, so null hypothesis has been rejected. This implies that if the component of debt increased belligerently, it will harshly influence the returns of the organization. Moreover, the companies are baring themselves to more risk and they can lose control if they do it. However, ICR is positively correlated with the profitability ratios i.e. (r = .269 ; sig. value = .001 of NP), (r = .266 ; sig. value = .008 of OP), (r = .328 ; sig. value = .010 of ROE), (r = .543 ; sig. value = .000 of ROCE). It has been analysed that P values of all the variables were less than .05, thus null hypothesis has been rejected, which shows there is an association between ICR and profitability ratios. It can be concluded that it has positive effect on profitability ratios and thus significantly contributing to the returns of the firms under study.

Results:

No.	Hypotheses	Null Hypothesis Accepted / rejected
H1	There is no significant association between Debt to equity and Operating profit	Rejected
H2	There is no significant association between Debt to equity and Net profit.	Rejected
H3	There is no significant association between Debt to equity and Return on Capital Employed.	Rejected
H4	There is no significant association between Debt to equity and Return on Equity.	Rejected
H5	There is no significant association between Interest Coverage Ratio and Operating profit.	Rejected
H6	There is no significant association between Interest Coverage Ratio and Net profit	Rejected
H7	There is no significant association between Interest Coverage Ratio and Return on Capital Employed.	Rejected
H8	There is no significant association between Interest Coverage Ratio and Return on Equity.	Rejected

Recommendations

It is observed that capital structure has an influence on the profitability of the steel companies. At the end, based on these results the following recommendations are suggested that managers should emphasis on improving their existing capital structure so that, the firms can maximize the profitability and optimize the benefits of leverage. Besides, it is to be kept in mind that interest is a tax deductible expense; the additional debt will increase the firm's Profitability, but, on the contrary, beyond a particular limit of debt in the capital structure increases the financial risk of the company. So company should focus more on one source of financing that will increase the company's Profitability. Though, the variables used in this present

study do not contemplate the study from every angle, so there is a need to do further research by considering some more countenancing macroeconomic variables. In future research, it is also suggested to have longer time frame by including larger sample of firms to further examine the different results with this present study. Thus, more determinants in different aspects should be reconnoitered in future.

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