IMPACTOOF CAPITAL STRUCTURES ON PROFITABILITY OF SELECT STEEL COMPANIES IN INDIA

S. Jayaprakash
Research Scholar, Park's College (Autonomous), Tirupur

ABSTRACT

Capital structure is a combination of various long term finances such as long-term debt, equity which is share of the capital which includes surpluses and as well as reserves which are also called as retained earnings, preference share capital and debentures. A firm can raise two fund types which are the equity funds and the borrowed funds. Profit is an important source for allocation of funds and an efficiency measurement. Manufacturing of steel signifies the backbone for an economy across the world. Since steel is used in many purposes the increased consumption/ usage of steel is an indicator of newer construction activities, production, infrastructure development, use of capital goods, expenditure on defense and increase of agriculture and so on. Our country is presently the seventh biggest manufacturer of steel when compared with the world. Rapid transformation happening globally, India is also a part of this phenomenon. Contribution of industries towards economic growth is much more faster and India is entering into the fold of developed economies because of the contribution of giant manufacturing companies, foreign direct investments and export performances significantly add-up to the GDP and countries progress as well. Steel companies in India play major role towards this cause is a positive growth sign observed by the researcher, therefore, made an attempt to assess how far, select steel companies in India efficiently manage its debt and equity to achieve profitability. Aim of the study is to examine the financial efficiency and impact of capital structures on profitability of select steel companies in India. The research applied in the study is Analytical Research Design. 10 companies were randomly selected for the study. Capital Structures impact on profitability during 2007-08 to 2016-2017 among steel companies considered for analysis. Tools used are 'Z' Score Model, Correlation and Regression Analysis. Result shows some of the companies predicted certainty of bankruptcy due to financial distress. Debt and equity contributed significantly towards growth of the select steel companies to achieve profit which also contributed towards the growth of the companies selected for the study.

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1. INTRODUCTION

Capital structure is a combination of various long term finances such as long-term debt, equity which is share of the capital which includes surpluses and as well as reserves which are also called as retained earnings, preference share capital and debentures. A firm can raise two fund types which are the equity funds and the borrowed funds. To get fund through equity shares a firm has to sell their shares of the company. Ownership rights of the holders represent the number of shares held. Dividend and capital gains are the returns for the shareholder's. Ordinary/ common and preference share holders are the two types available. According to Mr.Soloman "Financial management is concerned with the efficient use of Capital Funds which is an important economic resource. Capital structure is decided by the firm for running their business. Investment decisions are made every time by the firm involving financing decisions. When new funds are raised then new capital structures are formed depending on the amount and type. This financial decision will involve an understanding of the existing capital structure and also consider the factors which are instrumental in financial decision making. Profit is an important source for allocation of funds and an efficiency measurement. For financial management profit is an efficiency measurement and control, for owners it's a measurement of value of their investment, for the creditors, it's a margin of safety, for the employees it's a cause of fringe benefits, for the government it's a measurement of tax payable capacity, for a country it's a measurement of economic progress and increase in the standard of living.

Manufacturing of steel signifies the backbone for an economy across the world. Since steel is used in many purposes the increased consumption/ usage of steel is an indicator of newer construction activities, production, infrastructure development, use of capital goods, expenditure on defense and increase of agriculture and so on. There is always a close relation between the growth of gross domestic product (GDP) of a country and the relevant consumption of steel of that year, which means there is always a direct relation between the investments made in the economy and in the growth of steel as an industry. Steel Industry is able to provide a significant space for the development of economy in the country through the exchange of foreign currencies, generating jobs, creation of development, improvement in techniques. Our country is presently the seventh biggest manufacturer of steel when compared with the world. This sector is facing many testing situations over the past few years, which are caused due to over capacity of production, lesser demand, slow improvement and various changing tariffs policies.

2. LITERATURE REVIEW

Dipak J. Shah, (2017), stated that capital structure is a combination of two types of sources of funds viz. i) Own funds ii) Loan funds. In this own funds includes equity capital, preference capital and reserves and surpluses. Loan fund includes long term loans both secured and un secured like debentures, loan from bank, loan from financial institutions, public deposits et. From the analysis he found that capital structure of all sect pharmaceutical companies of Gujarat is levered. In capital

structure, the ratio of owner's funds is more i.e. 72 percent when compare to debt fund i.e. 28 percent. The capital structure of all selected pharmaceutical companies is not the same in all aspects. They are drastically different.

Tamilselvi, et.al., (2018), noticed that capital structure is an important area in financial decision making because it is related with other financial decision areas also. She made an attempt to know the effect of various mix of capital to determine the optimum capital structure which is more viable and cost less. To find out this, structural equation model is used to test the hypothesis. The model said that the measured variables are unfair except the liquidity that decided the capital structure of chosen firms in software industry.

3. STATEMENT OF THE PROBLEM

Rapid transformation happening globally, India is also a part of this phenomenon. Contribution of industries towards economic growth is much more faster and India is entering into the fold of developed economies because of the contribution of giant manufacturing companies, foreign direct investments and export performances significantly add-up to the GDP and countries progress as well. Steel companies in India play major role towards this cause is a positive growth sign observed by the researcher, therefore, made an attempt to assess how far, select steel companies in India efficiently manage its debt and equity to achieve profitability. It is important to note that the excessive use of debt may endanger the very survival of the firm. In contrast the conservative policy may deprive the firm in terms of magnifying the rate of return of its equity shareholders. Hence, a study is conducted to analyze the major indicators examining the efficiency of company's situation, possibility of countering bankruptcy.

4. OBJECTIVES OF THE STUDY

- To examine the financial efficiency and impact of capital structures on profitability of select steel companies in India.

5. METHOGOLOGY

Methodology is a way of systematically solving a research problem. It may be understood as a science of studying how research is done scientifically. It explains various steps that are generally adopted by a researcher in studying the research problem. The research applied in the study is Analytical Research Design. A total of 15 companies were identified during the initial period in which 10 companies were randomly selected considering the volume of business (sales and total asset). Impact of Capital Structures on profitability of select steel companies in India during 2007-08 to 2016-2017 are considered for analysis. The statistical tools used for the study are 'Z' Score Model, Correlation and Regression Analysis.

6. LIMITATIONS OF THE STUDY

The study period is limited to ten years only. Therefore, a detailed trend analysis covering a lengthy period has not been carried out.

7. ANALYSIS AND RESULTS

Table 1: Correlation between the ratios

		Debt Ratio	Asset Structure	Profitability	Growth Opportunities	Size	Uniqueness	Business risk	Non-debt Tax Shields	Liquidity
Debt Ratio	Pearson Correlation	1	.397**	-.005	.028	-.098	.159	-.146	.177	-.307**
	Sig. (2-tailed)		.000	.962	.784	.331	.114	.146	.079	.002
Asset Structure	Pearson Correlation		1	-.127	.107	.360**	.217*	.056	.180	-.598**
	Sig. (2-tailed)			.209	.290	.000	.030	.582	.073	.000
Profitability	Pearson Correlation			1	.081	-.219*	-.066	.030	-.024	.150
	Sig. (2-tailed)				.424	.029	.516	.767	.813	.136
Growth Opportunities	Pearson Correlation				1	-.076	.010	-.434**	.074	-.108
	Sig. (2-tailed)					.454	.921	.000	.465	.283
Size	Pearson Correlation					1	.420**	.052	.330**	-.100
	Sig. (2-tailed)						.000	.610	.001	.321
Uniqueness	Pearson Correlation						1	.063	.260**	-.207*
	Sig. (2-tailed)							.537	.009	.039
Business risk	Pearson Correlation							1	-.109	-.009
	Sig. (2-tailed)								.282	.931
Non-debt Tax Shields	Pearson Correlation								1	.045
	Sig. (2-tailed)									.657
Liquidity	Pearson Correlation									1
	Sig. (2-tailed)									

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table 1 reveals that debt ratio as dependent variable and all eight variables as independent variables correlation is compared between the capital structure ratios from which three variables (asset structure, non-debt tax shield and liquidity) out of eight are found to be significant at 1% and 10% levels. Asset structure i.e. net fixed asset to total asset ratio is found significant positive correlation (r=0.397, Sig.0.000) with debt ratio. Likewise, non-debt shield ratio i.e. depreciation by total assets is correlated (r=0.177, Sig.0.079) with debt ration at 10% level. Liquidity ratio (current asset / current liabilities) exhibits inverse correlation (r=-0.307, Sig.0.000) with debt ratio to reject null hypothesis. It is evident that profitability (r=-0.005, Sig.0.962), Growth opportunities (r=0.028, Sig.0.784), Size (r=-0.098, Sig.0.331), Uniqueness (r=0.159, Sig.0.114) and business risk (r=-0.146, Sig.0.146) are found to be insignificant to accept null hypothesis. Four out of eight independent variables performed inverse relationship with debt ratio in which only liquidity is found significant. While observing the results it is evident that all variables selected for the study functioned as per theories set out earlier. Asset structure is in line with previous studies having positive relationship with debt ratio signifies, increase

in non-current asset portion to total asset will help financiers weigh-up the collateral value high. Therefore, asset structures of the select steel companies have an important role in the debt ratio. Based on the results regression analysis is carried out in the following part of the study.

8. REGRESSION ANALYSIS

In connection with correlation, regression analysis (enter method) is carried out to understand how far the explanatory variables predicts the debt ratio among the steel companies selected for the study. All independent (eight variables) are considered for regression analysis, therefore, the model represented as

$$\text{Debt ratio} = \alpha + \beta_1 \text{aststru} + \beta_2 \text{profbty} + \beta_3 \text{grwth} + \beta_4 \text{siz} + \beta_5 \text{unqnes} + \beta_6 \text{bsrsk} + \beta_7 \text{ndts} + \beta_3 \text{lqdty} + e$$

Where

aststru=Asset Structure, profbty=Profitability, grwth=Growth Opportunities, siz=Size, unqnes=Uniqueness, bsrsk=Business risk, ndts=Non-debt Tax Shields, lqdty=Liquidity

Analysis considered ten years period of time series. This cross sectional regression is analyzed using time series average data considered over panel regression analysis. The regression results are presented hereunder.

Table 2: Model summary measuring Debt Ratio predicted by Explanatory Variables

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.575[a]	.331	.272	.30960

Predictors: (Constant), Current Asset / Current Liability, Coeff of op profit, Log N of Total Asset, EBIT / Capital employed, Depreciation / Total Asset, Growth in Sales, Selling expenses / Gross sales, NFA / TA

Table 2 explains the power through R square is 0.331, reveals 33% of variance predicted on the debt ratio by all eight independent variables.

Table 3: ANOVA measuring the model fitness

Sum of Squares	Df	Mean Square	F	Sig.	Sum of Squares
Regression	4.312	8	.539	5.623	.000[a]
Residual	8.722	91	.096		
Total	13.034	99			

Predictors: (Constant), Current Asset / Current Liability, Coeff of op profit, Log N of Total Asset, EBIT / Capital employed, Depreciation / Total Asset, Growth in Sales, Selling expenses / Gross sales, NFA / TA

Dependent Variable: TD / TA

Result of ANOVA clarifies the model is statistically F(8,91)=5.623 significant (0.000), hence, concluded that the model fitness is achieved which means all eight independent variables considered for the model explained the debt ratio (dependent variable) significantly to achieve the fitness level.

To check the existence of multi-colinearity problem VIF (variance inflation factor) is considered for calculation, signifies no variable overloaded violating the benchmark (5-10) set by Gujariti and Sangeetha (2007) confirming the data of select steel companies considered for do not have multi-collinearity issues.

Table 4: Coefficients measuring Debt Ratio predicted by Explanatory Variables

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.014	.241		4.206	.000		
NFA / TA	.829	.209	.469	3.962	.000	.526	1.903
EBIT / Capital employed	.013	.106	.011	.124	.902	.918	1.089
Growth in Sales	-.217	.125	-.170	-1.738	.086	.770	1.299
Log N of Total Asset	-.104	.027	-.406	-3.822	.000	.651	1.536
Selling expenses / Gross sales	**1.103**	**.575**	**.188**	**1.916**	**.059**	.765	1.308
Coeff of op profit	-.038	.017	-.219	-2.258	.026	.779	1.283
Depreciation / Total Asset	3.775	2.118	.169	1.782	.078	.819	1.222
Current Asset / Current Liability	-.039	.076	-.058	-.514	.608	.576	1.737

a. Dependent Variable: TD / TA

While observing significance from the coefficient table results shows 1% level of significance with respect to Asset structure (NFA/TA), Size (Log N of total assets). One variable i.e. Business Risk (Coeff. of op. profit) found to be significant at 5% level. Three variables namely, Growth opportunities (growth in sales), Uniqueness (selling expenses / gross sales) and Non-debt tax shield (NDTS) are found to be significant at 10% level. Asset structure is also called tangibility sharing positive sign (β=0.829, SE=0.209, t=3.962, Sig.0.000) as per trade off theory and no specific relationship according to pecking order theory, followed by profitability shared positive sign (β=0.013, SE=0.106, t=0.124, Sig.0.902) as per trade-off theory, while, growth in sales shared negative sign (β=-0.217, SE=0.125, t=-1.738, Sig.0.086) as per trade-off theory, firm size (generally called size) shared negative sign (β=-0.104, SE=0.027, t=-3.822, Sig.0.000) as per pecking order theory, uniqueness i.e. selling expenses to gross sales shared positive sign (β=1.103, SE=0.575, t=1.916, Sig.0.059) while trade off theory made a mention as negative however, there is no specific relationship according to pecking order theory. Business risk (coeff. of operating profit) shared negative sign (β=-0.038, SE=0.017, t=-2.258, Sig.0.026) as per trade off and pecking order theories, while NDTS (non-debt tax shield is the depreciation to total asset) shared positive sign (β=3.775, SE=2.118, t=1.782, Sig.0.078) which complies with pecking order theory which defines no specific relation and finally liquidity (current

asset to current liability) shared negative sign (β=-0.039, SE=0.076, t=-0.514, Sig.0.608) complies with pecking order theory.

9. "Z" SCORE ANALYSIS

Edward Altman formulated Z-Score for Bankruptcy prediction is a formula multivariate in nature measuring financial health of a firm is a potential tool diagnosing to forecast the probability- of company may encounter distress or bankruptcy situation within a selected period of time. Z-Score often effectively predicts bankruptcy (72%-80% reliability) accurately

Altman's Z-Score Model is appropriate for private manufacturing companies. **Bankruptcy is not likely for companies score of 2.90 or above, below score of 1.81 strong sign of bankruptcy.**

Five common business ratios are used to predict bankruptcy using Z-Score, in which weighting system is used to compute Altman model determining the chance of a firm may face distress or going bankrupt. 10 steel manufacturing selected to find Altman's Z-Score to understand financial health are detailed hereunder:

"As per Altman's model if the Z-Score is < 1.8, then the company is considered to be in bankruptcy zone, and has high probability of failure. If the Z-Score lies in 1.8 to 3.0, then the company is considered to be in grey zone i.e. safety zone, where the company should be under careful watch. If Z-Score is > 3.0, then the company is said to be in good financial health, and will be solvent in the future."

Table 5: Z-Score of Consolidated Altman's 'Z' Score Model

Years	Bhushan Steel	JSW Steel	Jindal Steel and Power	SAIL	Steel Exchange Ltd.
2007-08	2.56	2.39	2.60	3.73	3.86
2008-09	2.66	1.64	2.57	3.25	3.15
2009-10	3.25	2.02	2.34	3.07	2.41
2010-11	1.43	2.08	2.12	2.95	2.55
2011-12	1.46	1.83	2.18	3.11	2.69
2012-13	1.41	2.08	2.08	2.91	1.93
2013-14	1.06	2.00	1.68	2.57	2.11
2014-15	0.80	1.98	1.27	2.17	1.83
2015-16	0.26	1.14	1.12	1.36	1.84
2016-17	0.14	1.86	1.13	1.33	1.31
Z	**1.502**	**1.901**	**1.908**	**2.645**	**2.367**

Years	Tata Steel Ltd.	Uttam Galva	Visa Steel	Essar Steel	Rashtriya Ispat
2007-08	3.60	2.02	1.69	2.56	2.92
2008-09	3.91	2.14	0.77	1.61	2.80
2009-10	4.07	2.26	1.36	1.65	2.90
2010-11	1.71	1.87	1.15	1.98	3.26
2011-12	5.10	1.55	0.21	1.94	3.05
2012-13	5.30	1.54	0.70	1.82	3.09
2013-14	4.64	1.19	0.58	1.84	3.55
2014-15	5.48	1.42	0.08	1.25	3.56
2015-16	3.68	0.41	-0.97	0.50	2.54
2016-17	3.43	0.46	-0.56	1.29	2.55
Z	**4.092**	**1.489**	**0.500**	**1.643**	**3.022**

The financial efficiency of all 10 steel manufacturing companies revealed that the bankruptcy situation was almost certainly found with respect to Bhushan steel due to certainty of bankruptcy is observed only from the periods 2010-11 to 2016-17 which had significantly exhibited poor performance during the mentioned periods. Likewise, Uttam Galva entered uncertainty zone from 2011-12 to 2016-17, the company's performance drastically declined during these periods. Visa Steel is in complete distress situation due to its poor performance through the study period, while performance of Essar Steel only declined sharply during 2014-15 to 2016-17 which is marginally below the threshold (1.8). While, out of four companies two companies (JSW steel and Jindal Steel) are strongly found to be in the zone of ignorance was marginally higher when compared to other distressed units. SAIL and Steel Exchange, though not have reached upto the threshold level (>3), however, found to be strong enough to overcome distress when compared with all the other six companies. Two companies namely, Tata Steel and Rashtriya Ispat though had recorded positive and reached above the threshold (>3), Tata steel recorded declining trend also Rashtriya Ispat, however entered in the zone of ignorance during 2015-16 and 2016-17. Average position of both companies revealed strong financial situation signifies the financial health of the two companies is positive and possibility to be oblige its future commitments.

10. SUMMARY OF RESULT AND CONCLUSION

- Debt portion of the select steel companies negatively influenced by growth and risk factors, also the profitability does not signify relationship which confirms growth only at 0.013 which mean a unit increase in debt increases profitability only by 0.013 times. Therefore, much attention needed for a improvement to reduce the cost and increase efficiency in production. Debt portion of the companies attracts interest which is observed from the profitability also needed attention for improvement. Growth of the business revealed positive coefficient when compared to debt ratio signifies increase in the growth decreases the debt ratio. It is understandable that high growth of a

firm may attract equity investors however, may end up in the risk of attracting negativity among lenders sentiments.

- Major influencing factor of debt ratio is the business risk. Negative relationship is observed between debt ratio and business risk means, when there is an increased risk certainly there is a decline in debt ratio. Bankruptcy cost increases due to debt therefore, the select steel companies need to maintain the proportion of the debt (borrowings) and equity (share holder funds) to keep the capital structure stable. Also it is mandatory to reduce debt during deceleration of economic growth because; debt attracts interest (fixed percentage) to be paid by the company though the company is not making profit. It is concluded that the companies may reduce their burden by reducing their debt that may significantly affect the firms during rough times.

11. SUGGESTIONS

- Financial efficiency is an area needed significant improvement by select steel companies and in particular among Visa Steel, Bhushan Steel, Uttam Galva and Essar steel which are under performing and expected to predict bankruptcy due to financial distress. It is suggested that improvement in net asset, earnings of the company, sales to be enhanced significantly that can improve its market share and profitability position to avoid distress situation.

- There is a need to achieve the required return on asset to improve the Debt Equity position of the select companies. The profitability reveals impact on the Return on Assets, which means that improved return on the Earnings Per Share by the investors can be achieved if the underlying factors are strengthened.

- Cost benefit analysis is an activity professionally needed to be carried out to utilize the capital structure to its optimum level and also make sure of availing tax advantages that can significantly decline the cost based financial distress.

12. CONCLUSION

Result shows some of the companies predicted certainty of bankruptcy due to financial distress. Debt and equity contributed significantly towards growth of the select steel companies to achieve profit which also contributed towards the growth of the companies selected for the study. The contributions of suggestions are expected to be useful for the policy framers, economists, government and corporate bodies, especially investors while making financial and investment policy decisions.

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