What Drives Shareholders' Return? Evidence from Indian Steel Sector

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In this paper we attempted to test as to what exactly shareholders' return depended on in case of the firms constituting Indian steel sector. The investigation is primarily based on Du-Pont's five factor model. The results reveal that the firms on an aggregate basis could not use the factors that under their control to maximize the return. Specifically speaking, while the firms in general are expected to leverage operating profit margin, assets turnover and equity multiplier to maximize the return, the firms in the present study could use only equity multiplier to maximize the return. The study also revealed that the factors like tax burden and interest burden which are beyond the control of the firm did not have any impact on ROE trend. Thus the study reveals that the firms in Indian steel sector could not maximize ROE the way they should have.

Field of Research: Corporate Finance

1. Introduction

Maximizing shareholders' wealth has been gaining paramount importance and becoming the order of the day in the corporate world. Historically, based on previous research findings the important component to gauge company's performance seems to be return on equity. Higher the ROE better is the company's performance, but the ratio strongly depends on many factors such as industry, economic environment (inflation, macroeconomic risks, etc.). Higher ROE does not necessarily mean better financial performance of the company but may result in high financial leverage which is dangerous for a company's solvency. Return on equity is a keenly observed number among learned investors. It is a strong measure of how well the management of a company creates value for its shareholders. Du-Pont's decomposition of ROE that way helps us in measuring the performance of the management and find out if it could be appreciated for increasing trend in ROE. Though there are many research studies conducted on application of Du-Pont model, our review of research indicates that there were no many studies in Indian context and steel sector specifically. We therefore feel that there is a dire need to carry out research in this area and let the stakeholders know of as to what exact factors drove ROE of the firms in Indian steel sector.

Though this research is no completely different from the existing researches on the topic, it provides some meaningful insights into understanding as to how exactly trend in ROE of Indian steel sector got affected during the period 2002 through 2011. The paper brought out the impact of each specific driver of ROE with special reference to Indian

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steel sector. Thus this paper makes its own contribution to the growth and development of the body of knowledge in the area of ROE, capital structure decisions, operating margins etc.

The paper is organized into five sections. Section one deals with introduction, section deals with review of literature, section three deals with methodology of the study, section four deals with results and discussions and section five contains conclusions. The hypotheses are developed in methodology section and tested appropriately in discussions section while analyzing the results of the study.

2. Review of Literature

While there may be ample number of studies on ROE and Du-Pont model, we have reviewed the studies on a select basis focusing more on the latest period. The review has been done and arranged in chronological order for better understanding of the developments took place in research pertaining to the topic.

Hawawini and Viallet (1999) proposed a change to the DuPont model which resulted in five different ratios that combine to form ROE. In their modification they acknowledge that the financial statements that firms prepare for their annual reports are not always useful to managers making operating and financial decisions. This in fact lead to the extension of Du-pont model into five factor model incorporating yax burden and interest burden. Brigham and Houston, (2001) supported this extension saying that the modified model was a powerful tool to illustrate the interconnectedness of a firm's income statement and its balance sheet and to develop straight-forward strategies for improving the firm's ROE. Followed by this, Nissim & Penman (2001) suggested using a modified version of the traditional DuPont model in order to eliminate the effects of financial leverage and other factors not under the control of those managers. Using operating income to sales and asset turnover based on operating assets limits the performance measure of management to those factors over which the management has the most control. Thus the extension has lead to both advantages and disadvantages in using the model to measure the performance of the management. In this regard Sundararajan, *etal* (2002), stated that while ROA, ROE, and interest margin (and non-interest expenses) to gross income remain the key measures and they should ideally be supplemented by the analysis of other operating ratios. On the other hand, while not discounting the these observations, Soliman (2004) found that industry-specific DuPont multiplicative components provide more useful valuation than do economy-wide components, suggesting that industry-specific ratios have increased validity. Barclay and Smith (2005) revisited the capital-structure puzzle and concluded that different capital-structure theories lead to different and diametrically opposed decisions and outcomes. Though this study is directly connected to Du-Pont model, it provides insight into understanding as to how capital structure decision would affect ROE. Studying the impact of assets turnover on ROE, Mark T. Soliman (2008) in his study found that a change in asset turnover is positively related to future changes in earnings. The analysis indicated that the Du-Pont components represent an incremental and viable form of information about the operating characteristics of a firm. Hoje and Yong (2008) examined the financial structure of Japanese companies in order to determine the

compatibility with agency predictions. Having carried out multiple regression analysis they identified that debt equity ratio could get influenced by the growth rate, the size of the firm and agency costs of the firm which in turn demonstrated significant impact on ROE. Sanjay.J. Bhayani (2009) identified that there existed no relationship between financial leverage and cost of capital while there was positive correlation between degree of leverage and cost of capital in Indian cement companies. This study revealed that financial leverage does not influence price earnings ratio and total value of the firm. NyoNyo Aung Kyaw and Hla Theingi (2009) analyzed the performance differences using Du-Pont analysis. Consistent with the theoretical underpinnings, the study revealed positive relationship between debt ratios and ROE. In addition, better asset management and higher leverage lead to higher profitability. Slim and Fathi (2010) investigated the impact of operating and financial leverage on firms' value among non-financial USA firms. The findings revealed that operating leverage and business risk could explain the variations in the return and the value of the firm. The degree of financial leverage was found to be having greater impact on the value of the firm. Monica and Abir (2010) in their study attempted to isolate various characteristics that would influence capital structure. The study found out that there was an inverse relationship between financial leverage and growth prospects of companies whereas there was positive correlation between debt ratio and size of the company. Investigating the relationship between corporate governance and leverage decisions, Christopher *etal* (2010) found out that the firms were more inclined to use debt component in the capital structure when corporate governance weakens. Studying triangle relationship among firm size, capital structure and financial performance, ROE of Turkey based companies. S.Christina Sheela, 2011, in their study summarized that there was evident and significant relationship between the financial performance utilization of fixed assets and working capital. This study reveals that assets turnover is the prime driver of ROE. Erol Muzir (2011) found out that the impact of firm size on performance and sustainability would vary in line with the way expansion is financed. The study revealed that debt financing increases the risk exposure of the firm. Ahmed Arif Almazari (2012), studied the financial performance of the Jordanian Arab commercial bank for the period 2000-2009 by using the DuPont system of financial analysis which is based on analysis of return on equity model. He found that the financial performance of Arab Bank is relatively steady and reflects minimal volatility in the return on equity**.**

It is evident from the above reviews that the research was focused primarily on some part of Du-Pont model in other countries than India. Also we observe that there was no research carried out with special reference to Indian steel sector. Another motivation to focus on this sector in India is that steel sector is one of the most prominent industries of any economy and it also need huge amount of capital expenditure. Therefore utilization of assets, capital mix decision, operating profit margin, tax burden and interest burden play a significant role in maximizing the return to the shareholders.

3. Research Methodology

3.1 Objectives of the Study

Keeping in view the significance of maximizing shareholders' return as the ultimate measure of management's performance, the present study investigates into as to how Indian steel sector went about in achieving this measure. To be precise the study aims at:

1. Analyzing the trend in ROE of the firms in Indian Steel Sector.
2. Assessing the impact of specific factors on ROE of the firms in Indian Steel Sector.

3.2 Hypothesis

The study to test the following hypothesis:

H_1: ROE of Indian Steel Sector does not depend on profitability, assets turnover, leverage, tax burden and interest burden
H_2: Profitability does not influence ROE
H_3: There exists no relationship between ROE and assets turnover
H_4: Leverage does not impact ROE
H_5: Tax factor does not influence ROE
H_6: There is no relationship between ROE and interest burden
H_7: The time factor does not have any impact on ROE

The scope of the study is confined to Indian Steel Sector. The rationale behind choosing this industry is that, as in case of any other manufacturing industry, steel industry is largely capital intensive, apart from being labor intensive, requiring the manager to explore appropriate sources of funds to meet with growing needs of capital expenditure. Unlike service sectors, manufacturing sector warrant for huge capital expenditure in the both initial period and as the business keeps growing. The need for such capital expenditure is also long term in nature requiring funds to be blocked in long lived assets. Therefore decision with respect to choosing of appropriate mix of funds in case of capital intensive industries like steel sector is very crucial as it would affect the liquidity and profitability position of the company. Also the firm specific factors like operating profit margin, assets turnover and leverage matter a lot in manufacturing firms in terms of their impact on return on equity which is not the same in case of service sector. The sample companies taken in the study are from steel sector in India. According to Centre for Monitoring Indian Economy (CMIE) steel sector currently constitutes 332 companies. However some of the companies have been eliminated due to non availability of sufficient and required data and as some of the firms were outliers in terms of data distribution. Therefore the year-wise number of companies taken for the study is as follows:

Year	Number of Sample Companies
2002	181
2003	179
2004	177
2005	187
2006	184
2007	175
2008	169
2009	172
2010	183
2011	171

It may be noted that the variation in sample size across the years is very minimal and of course such variation also may not matter much as the analysis has been done on yearly basis. In any case sample taken in the study is significant enough to arrive at conclusions.

3.3 Model Development

Inorder to test the hypothesis set for the study, we have used Du-Pont's five factor model. For the purpose of developing deeper insight into decomposition of and the effect of various factors that affect ROE, we attempted to study relationship between ROE (dependent factor) and profitability i.e. operating profit margin, assets turnover, leverage, tax burden and interest burden(independent independent variables). We also opine that there is no specific need to talk much about the operational definitions of these variables as they are well known in the field of corporate finance. The models used for testing the hypothesis of the study are as follows:

$ROE = \alpha + \beta_1 Prof + \beta_2 ATO + \beta_3 Lev + \beta_4 Tax + \beta_5 Int + \mu$---- Model 1
$ROE = \alpha + \beta_1 Prof + \mu$ ---- Model 2
$ROE = \alpha + \beta_1 ATO + \mu$ ---- Model 3
$ROE = \alpha + \beta_1 Lev + \mu$ ---- Model 4
$ROE = \alpha + \beta_1 Tax + \mu$ ---- Model 5
$ROE = \alpha + \beta_1 Int + \mu$ ---- Model 6

Where

ROE : Return on Equity
Prof : Profitability
ATO : Assets Turnover
Lev : Leverage
Tax : Tax burden
Int : Interest burden
α : Intercept
$\beta_1, \beta_2, \beta_3, \beta_4$ and β_5: Beta coefficients of independent variables
μ : Standard Error

The above regression models have been run using SPSS 15.0 through ENTER method. In the process of analyzing and interpreting the results we have used some of key statistics like coefficient of correlation (R), co-efficient of determination (R^2), Significance F (Sig.F), Beta co-efficient (β), t- statistic('t'), Durbin Watson's coefficient (DW) and ANOVA.

4. Analysis and Interpretation of the Results

Results and discussions are done primarily towards meeting of the objectives and testing of hypotheses. The sequence followed in analyzing results and discussed is in line with the models developed in earlier section. Thus firstly we have analyzed as to how all independent variables affected ROE together followed by the impact of every independent variable through separate discussions.

Table 1: Summary statistics of the model 1 pertaining to overall analysis between ROE as the dependent variable and profitability, turnover, leverage, tax burden and interest burden as predictor variable							
Year	α	R	R^2	Adj. R^2	Std. Error	Sig. F	D.W
2002	-0.131	0.726	0.528	0.514	2.361	0.000	1.991
2003	-0.091	0.393	0.154	0.13	0.863	0.000	2.236
2004	1.598	0.996	0.992	0.992	3.017	0.000	1.747
2005	0.062	0.513	0.263	0.243	1.651	0.000	1.978
2006	-0.521	0.718	0.516	0.502	1.395	0.000	1.935
2007	0.113	0.166	0.028	0.001	0.537	0.400	1.995
2008	-1.214	0.433	0.187	0.165	5.305	0.000	2.011
2009	0.179	0.411	0.169	0.146	1.092	0.000	2.249
2010	-0.021	0.189	0.036	0.009	1.815	0.249	2.105
2011	0.082	0.179	0.032	0.005	0.462	0.311	2.009

Table 2: Un-standardized beta Coefficients and 't' statistic of the independent variables in model 1					
Independent variable →	Profitability	Turnover	Leverage	Tax burden	Interest burden
Year ↓	'β' and ('t' value)	'β' and ('t' value)	'β' and ('t' value)	'β' and ('t' value)	'β' and ('t' value)
2002	-0.001 (-.579)*	0.097 (0.870)*	0.030 (13.93)	0.102 (0.386)*	-0.023 (-0.664)*
2003	-0.005 (-0.965)*	-0.002 (-0.280)*	0.016 (5.475)	0.272 (1.536)*	0.006 (0.472)*
2004	0.001 (0.108)*	-0.124 (-1.468)*	-0.154 (-147.72)	-0.886 (-1.735)*	-0.009 (-0.235)*
2005	0.006 (0.353)*	-0.008 (-0.146)*	0.084 (7.999)	0.114 (0.581)*	0.015 (0.545)*
2006	-0.003 (-0.643)*	0.041 (0.927)*	0.180 (13.787)	0.003 (0.045)*	0.044 (1.315)*
2007	-0.002 (-0.381)*	-0.030 (-1.822)*	0.014 (1.190)*	0.051 (0.487)*	0.020 (0.550)*
2008	2.836 (5.391)	0.056 (0.521)*	-0.075 (-3.449)	1.309 (0.879)*	0.000 (0.060)*
2009	0.062 (0.899)*	-0.192 (-4.621)	0.049 (2.955)	0.012 (0.060)*	0.011 (0.488)*
2010	0.622 (2.377)*	0.000 (0.199)*	0.047 (0.972)*	0.002 (0.059)*	0.096 (0.713)*
2011	0.089 (1.297)*	0.001 (0.913)*	-0.026 (-1.487)	0.028 (0.619)*	-0.038 (-0.673)*
* Significant at 5% level					

Table 1 contains the results pertaining to model 1. It reveals the combined effect of all the independent variables (i.e. profitability, turnover, leverage, tax burden and interest burden and therefore hereafter independent variables) on ROE in every year. As revealed by R^2 the explained portion of the influence exercised by independent variables on ROE has been high in the years 2002 and 2004 indicating that shareholders return in these two years depended highly on all the independent variables together. This however is not the case in rest of the years in which R^2 has been low. The standard error term in the years 2002, 2004 and 2008 has been exceptionally high indicating high variability of the data and less reliability of overall ROE model in these years. With an exception in the years 2007, 2010 and 2011, Sig. F during the study period is less than 0.05 and hence we reject H_1 and conclude that ROE of Indian steel sector depended significantly on profitability, turnover, leverage, tax burden and interest burden. This implies that the firms in Indian steel sector had used these independent factors as drivers to maximize the shareholders' return. Except in the years 2003 and 2009, the Durbin Watson's co-efficient was almost closer to 2 indicating that there was no auto-correlation among the models. This in turn implies that the model fit in these years was justified in terms of explaining the relationship between ROE and independent variables. Thus it is meaningful to say that ROE of the Indian steel sector depended on all independent factors together.

The beta coefficients and't' values of independent factors are captured in table 2. As it could be observed, profitability had high positive influence on ROE in the years 2008 (2.836) and 2010 (0.622) while it had negligible impact in the rest of the years. While the coefficients of other independent variables showed mixed results in terms of their impact on ROE, the 't' values indicate that the impact was significant in case of most of the variables in most of the years. However of all the variables, leverage seems to have impacted ROE relatively higher than that of other variables. This implies to us that ROE of Indian steel sector has largely depended on the capital structure design of the firms.

Table 3: Summary details of regression model 2 between ROE and Profitability								
Year	α	R	R^2	Adj. R^2	Std. Error	Sig. F	Predictor 'β' and ('t' value)	D.W
2002	0.307	0.037	0.001	-0.004	3.394	0.620	-0.002 (-0.497)*	2.017
2003	0.109	0.062	0.004	-0.002	0.927	0.408	-0.005 (-0.830)*	2.458
2004	2.800	0.005	0.000	-0.006	33.545	0.944	0.006 (-0.070)*	2.014
2005	0.185	0.028	0.001	-0.005	1.902	0.708	0.008 (-0.375)*	2.449
2006	-0.193	0.023	0.001	-0.005	1.983	0.757	-0.002 (-0.309)*	2.038
2007	0.124	0.019	0.000	-0.005	0.539	0.795	-0.002 (-0.260)*	1.998
2008	-0.287	0.361	0.131	0.126	5.426	0.000	2.781 (5.272)	1.996
2009	-0.066	0.078	0.006	0.001	1.182	0.287	0.080 (1.068)*	2.074
2010	0.151	0.169	0.029	0.023	1.802	0.020	0.606 (2.339)	2.049
2011	0.034	0.096	0.009	0.004	0.462	0.189	0.091 (1.318)*	1.997
* Significant at 5% level								

Summary statistics pertaining to the impact exercised by the profitability on ROE of Indian steel sector have been captured in table 3. The values of both R and R^2 indicate that the relationship explained between ROE and profitability across the firms in Indian steel sector has been very week during all the years of the study period. The standard error of the model in most of the years has been high revealing the high volatility of the data distribution indicating less reliability of the model fit. Especially in the years 2002, 2004 and 2008, the standard error of the model has been very high when compared to that of the rest of the years. The Sig. F of the model is less than 0.05 only in the years 2008 and 2010 and therefore we reject H_2 and conclude that ROE depended significantly on profitability only in the years 2008 and 2010. And therefore H_1 is accepted in the rest of the years and concluded that ROE did not depend on profitability

in these years accordingly. This finding implies that the operating profit margin of the firms did not have any major impact on shareholders' return. The Durbin Watson's coefficient indicates that the model fit was justified in almost all the years except in the year 2005. This means that the model application in most of the years has been justified enough to test the hypothesis that ROE does not depend on profitability. The beta coefficients of profitability are also highly negligible except in the years 2008 and 2010. As it was suggested by Du-Pont, operating profit margin should be one of the major drivers of ROE which indicates the efficiency of the management of the firm. But the findings in this study reveal that the margin did not drive ROE of the firms significantly in case of Indian steel sector.

Table 4: Summary details of regression model 3 between ROE and Turnover								
Year	A	R	R^2	Adj. R^2	Std. Error	Sig. F	Predictor 'β' and ('t' value)	D.W
2002	0.231	0.021	0.000	-0.005	3.396	0.780	0.045 (0.280)*	2.014
2003	0.107	0.011	0.000	-0.005	0.928	0.886	-0.001 (-0.143)*	2.474
2004	4.244	0.055	0.003	-0.003	33.495	0.461	-0.688 (-0.738)*	2.001
2005	0.233	0.027	0.001	-0.005	1.902	0.717	-0.021 (-0.363)*	2.474
2006	-0.323	0.076	0.006	0.000	1.977	0.301	0.064 (1.038)*	2.007
2007	0.186	0.133	0.018	0.012	0.534	0.070	-0.029 (-1.821)*	1.986
2008	-0.131	0.030	0.001	-0.005	5.817	0.687	0.045 (0.404)*	2.006
2009	0.343	0.353	0.124	0.120	1.109	0.000	-0.213 (-5.128)	2.148
2010	0.217	0.030	0.001	-0.005	1.827	0.687	0.000 (0.403)*	2.040
2011	0.038	0.072	0.005	0.000	0.463	0.329	0.001 (0.979)*	1.987
* Significant at 5% level								

As suggested in the du-Pont model, the efficiency of assets management of a firm should be assessed in terms of its contribution to ROE. In line with operating profit margin, assets turnover is also one of the major drivers of ROE. Thus in this context, the summary regression results pertaining to the relationship between ROE and assets turnover have been depicted in table 4. As in the case of profitability, assets turnover also seems to have not driven ROE of Indian steel sector during the study period. As revealed by R^2, the extent of the relationship explained by assets turnover on ROE has been found to be very low and therefore un-explained portion was very high. This implies that assets turnover could not contribute to the maximization of shareholders'

return. The standard error of the model was also very high in many years indicating high volatility of the data distribution pertaining to ROE and assets turnover relationship. It is worth noting that the Sig. F was less than 0.05 only in the year 2009. This in turn implies that we reject H_3 only in the year 2008 and accept in the rest of the years and conclude that ROE of Indian steel sector did not depend on assets turnover. It is therefore found that with an exception in the year 2008, the firms in Indian steel sector could not leverage assets turnover to maximize shareholders' return during the study period. The Durbin Watson's coefficient reveals that the model testing was very well justified and therefore this finding further consolidates that assets turnover could not play any role in shareholders' return maximization. The low beta coefficients of assets turnover also further strengthens this finding.

Year	A	R	R^2	Adj. R^2	Std. Error	Sig. F	Predictor 'β' and ('t' value)	D.W
2002	0.055	0.723	0.523	0.521	2.307	0.000	0.030 (14.248)	1.997
2003	0.115	0.371	0.137	0.133	0.848	0.000	0.016 (5.428)	2.341
2004	0.612	0.996	0.992	0.992	2.978	0.000	-0.154 (-150.10)	1.762
2005	0.152	0.510	0.260	0.256	1.637	0.000	0.084 (8.060)	1.999
2006	-0.373	0.712	0.507	0.504	1.392	0.000	0.179 (13.794)	2.019
2007	0.106	0.075	0.006	0.000	0.538	0.311	0.011 (1.016)*	1.996
2008	0.140	0.235	0.055	0.050	5.657	0.001	-0.076 (-3.282)	2.006
2009	-0.182	0.252	0.063	0.058	1.147	0.001	0.060 (3.539)	2.197
2010	0.163	0.048	0.002	-0.003	1.826	0.516	0.030 (0.651)*	2.047
2011	0.094	0.114	0.013	0.008	0.467	0.122	-0.026 (-1.555)*	2.011

Table 5: Summary details of regression model 4 between ROE and Leverage

* Significant at 5% level

Another variable in Du-Pont's decomposed ROE model is leverage. The way the firms finance their capital structure would also impact ROE over a period of time. Results pertaining to how significant has been the impact of capital structure decision on ROE of the firms in Indian steel sector have been summarized in table 5. A closer look into the values of R^2 reveals that in most of the years the explained portion of the relationship between ROE and leverage has been high and significant enough to arrive at the conclusion that leverage matters in achieving ROE. However during the later years of the study period, the unexplained portion was more indicating that there were

other factors than leverage that could influence ROE. Though the standard error term in most of the years has been slightly high, the Sig. F indicates that there was significant relationship between ROE and leverage. To be precise, as Sig. F is less than 0.05 in all the years barring 2007, 2010 and 2011, we understand that leverage exercised significant influence on ROE. Based on this, we reject H_4 and conclude that ROE of the firms in Indian steel sector depended significantly on the way the firms designed their capital structure. The beta coefficients reveal that the impact exercised by leverage, though it matters, however, has not been very high. The Durbin Watson's coefficient indicates that the model fit has been justified during the entire period of study except in the year 2003 in which there was some amount of auto correlation among the error terms. Thus it makes a sense to say that testing as to what extent leverage influenced ROE is very much meaningful. This finding also gains importance In the light of the fact that steel sector is capital intensive which calls for commitment of funds in the long live assets. We therefore, based on results say that capital structure decision of the firms in Indian steel sector had an impact on the ROE during the years 2002 through 2011 with an exception in the years 2007, 2010 and 2011.

Table 6: Summary details of regression model 5 between ROE and Tax burden								
Year	A	R	R^2	Adj. R^2	Std. Error	Sig. F	Predictor 'β' and ('t' value)	D.W
2002	0.193	0.028	0.001	-0.005	3.340	0.700	0.129 (0.386)*	2.009
2003	0.010	0.056	0.003	-0.002	0.912	0.447	0.117 (0.762)*	2.451
2004	1.019	0.032	0.001	-0.004	32.984	0.666	2.094 (0.432)*	2.015
2005	0.107	0.032	0.001	-0.004	1.902	0.665	0.098 (0.434)*	2.471
2006	-0.178	0.010	0.000	-0.005	1.983	0.889	-0.013 (-0.140)*	2.034
2007	0.102	0.020	0.000	-0.005	0.539	0.787	0.028 (0.270)*	1.995
2008	0.320	0.023	0.001	-0.005	5.818	0.751	-0.478 (-0.318)*	2.004
2009	-0.029	0.012	0.000	-0.005	1.185	0.869	-0.036 (-0.166)*	2.077
2010	0.215	0.031	0.001	-0.004	1.827	0.678	0.006 (0.416)*	2.041
2011	0.012	0.060	0.004	-0.002	0.464	0.418	0.035 (0.812)*	1.973
* Significant at 5% level								

The tax rules in the country concerned would also have an impact on ROE. Higher tax margins would result in lower ROE and vice-versa. The tax margin to manufacturing sector in India has been on the higher side (almost close to 33%) having significant

impact on profit after taxes of the firms. Du-Pont suggests that if ROE of the firms has been affected primarily by tax rules in the country, the management of the firms may not be responsible for either increasing or decreasing trend in ROE as it is beyond the its control. The details pertaining to the relationship between ROE and tax burden of the firms in Indian steel sector have captured in table 6. The regression model in this context revealed that tax factor did not have any impact on ROE. If we probe further into the results, R^2 indicates that the explained portion of the relationship between ROE and tax has been very low throughout the study period. The standard error term also reveals that there was very high volatility in the distribution of the data pertaining to this relationship. This would mean that the reliability factor in the model was less. The beta coefficients of tax factor also reveal that, except in the years 2002 and 2008, the influence of tax factor on ROE was very less. The Durbin Watson's coefficient reveals that there was no auto correlation among the error terms which implies better justification of the model testing. It is worth noting that the Sig. F was greater than 0.05 in every year and therefore we accept H_5 and conclude that ROE of the firms in Indian steel sector did not depend on the tax factor. This implies that the tax factor could influence the trend in ROE.

Year	A	R	R^2	Adj. R^2	Std. Error	Sig. F	Predictor 'β' and ('t' value)	D.W
2002	0.321	0.027	0.001	-0.005	3.395	0.714	-0.018 (-0.368)*	2.015
2003	0.103	0.031	0.001	-0.005	0.928	0.681	0.005 (0.412)*	2.473
2004	2.585	0.041	0.002	-0.004	33.517	0.582	0.223 (0.552)*	1.991
2005	0.177	0.019	0.000	-0.005	1.903	0.798	0.008 (0.256)*	2.468
2006	-0.207	0.023	0.001	-0.005	1.983	0.758	0.015 (0.308)*	2.028
2007	0.106	0.047	0.002	-0.003	0.538	0.522	0.023 (0.642)*	1.999
2008	-0.041	0.002	0.000	-0.005	5.820	0.983	-5.2E-005 (-0.021)*	2.004
2009	-0.062	0.025	0.001	-0.005	1.185	0.730	0.009 (0.346)*	2.062
2010	0.187	0.026	0.001	-0.005	1.827	0.720	0.046 (0.359)*	2.061
2011	0.063	0.047	0.002	-0.003	0.464	0.527	-0.034 (-0.634)*	1.971

Table 7: Summary details of regression model 6 between ROE and Interest burden

* Significant at 5% level

The last factor in Du-Pont's five factor ROE model is interest burden. As the interest burden increases ROE decreases and vice-versa. The interest rates regime in a

country depends on a host of factors and hence is beyond the control of the management of the firms. However the firms need to exercise enough caution in mixing the debt component in their capital structure. The results pertaining to the relationship between ROE and interest burden of the firms in Indian steel sector are summarized in table 7. As in the case of tax factor, the explained portion of the relationship between ROE and interest burden, as revealed by R^2, has been very low during the study period. The standard error term is also found to be very high in most of the years indicating high variability and less reliability in the distribution of the data pertaining to ROE and interest burden. As the Durbin Watson's coefficient is close to 2 in most of the years (except in the years 2003 and 2005) we say that the model has been justified to test the hypothesis that there existed no relationship between ROE and interest burden. The beta coefficients indicate that the interest burden did not have higher effect on ROE in all the years. As the Sig. F is greater than 0.05 in every year we accept H_6 and conclude that ROE of the firms in Indian steel sector did not depend on interest burden.

Table 8: ANOVA of ROE during the period 2002 through 2011						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	3.58E+09	1	3.58E+09	55674430	0	3.844078
Within Groups	228130.3	3552	64.22588			
Total	3.58E+09	3553				

Table 8 contains the details pertaining to ANOVA of ROE of the firms in Indian steel sector for the period 2002 through 2011. As P-value is less than 0.05 we reject H_7 and conclude that ROE of the firms in Indian steel sector did not vary over the period 2002 through 2011. This implies that the time factor did not have any impact on ROE.

5. Conclusion

Maximization of shareholders' return remains as central point of action in any corporate. Every strategic decision that a firm takes would ultimately be oriented towards this goal and therefore ROE has been viewed as the bottom line of the performance the management of the firms. While there are ample number of researches on finding out as to the firms went about in maximizing the shareholders' return, this study attempted to find out as to which specific factors drove shareholders' return of the firms in Indian steel sector. The study reveals that ROE was primarily driven by the equity multiplier in most of the years during the study period. The factors like operating profit margin, assets turnover, tax burden and interest burden could not influence shareholders' return. This would mean to us that the firms failed to leverage internal factors like operating profit margin and assets turnover to maximize the return which should have been the actual case. Thus the study proves that the capital structure decisions or the way the firms design their capital structure would impact ROE in real life situation according the statistical results obtained in the study. The study therefore is of significance to the shareholders as it provides some significant inputs. The limitations that the study suffers from are: firstly, the findings from the historical data may not be representative of the future. Secondly, findings and conclusions are purely based on

statistical testing that may have certain limitations. Finally the external factors, other than the ones taken in this study, have not been taken into account while analyzing shareholders' return. Despite these and probably any other limitations, the study has got its own significance in terms of creating value add to the body of knowledge. Nevertheless, we feel that there is need to extend this research on many other sectors across the globe and therefore we welcome the researchers to take it further in any value adding manner.

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