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Impact of Capital Structure on the Value of the Firm with Reference to Indian Paper Industry

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Abstract : The major objectives are to analyse the capital structure impact on the value of the firm, to evaluate the relationship between capital structure variables and the firm value, to find out the extent and direction of relationship between capital structure and the firm value. Value of the firm was measured through ROA, ROE and ROS. Ratio analysis, Correlation and Multiple regression was used in the research. The investors preferring to invest in paper industry should look for ROE as the major component since this study found ROE based model is the best for predicting the firm value.

Keywords : *Capital structure, Value of the firm, Debt and Equity.*

1. INTRODUCTION

The mix of debt and equity is called as capital structure and different financial instruments could be used in the companies' capital structure. This impact the firm value of the companies and is one of the important decisions of the companies. Capital structure is the most significant discipline of company's operations. Capital structure decision is a decision is a vital decision with great implication for the firm's sustainability. The ability of the organization to carry out their stakeholders need is closely related to the capital structure. The determination of a company's capital structure is a difficult task to achieve. Capital structure and its influence on the firm financial performance and overall value has been remained an issue of great attention amongst financial scholars since the decisive research of (Modigliani & Miller, 1958) arguing that under perfect market setting capital structure doesn't influence in value of the firm. This proposition explains that value of firm is measured by real assets not, the mode they are financed. (Jensen & Meckling, 1976) drew concentration to the impact of capital structure on the performance of enterprises, number of tests as an extension port to inspect the relationship between performance of firm and financial leverage. Firm performance and capital structure has succeeded in attracting a good deal of public interest because it is a tool for socio-economic development. This study analyses the capital structure impact on firm value of Indian paper industry. The major objectives are to study the impact of capital structure on the firm value, to study the relationship between capital structure variables and the firm value, to find out the extent and direction of relationship between capital structure and the firm value.

Hypothesis

H_{01}: There is no significant impact of Capital structure (LTDTA) on Firm Value (ROA).

H_{02}: There is no significant impact of Capital structure (LTDTA) on Firm Value (ROE)

H_{03}: There is no significant impact of Capital structure (LTDTA) on Firm Value (ROS)

2. METHODS

The study used analytical research design with 5 years data from 2011 to 2015. Secondary data was used with tools Ratio analysis and Multiple regression. Firm value proxies used in the study were Return on Asset (ROA), Return on Equity (ROE) and Return on Sales (ROS). Proxy for Capital structure was Long term debt to total asset (LTDTA), other control variables were Asset utilisation (AU), Firm Size (LTA) measured as natural logarithm of Total assets, Earnings per share (EPS), Dividend per share (DPS) and Market price of share (MPS). The companies chosen were Tamil Nadu Newsprint and Papers Limited, Ballarpur Industries, International Paper APPM, JK Paper Ltd, West Coast Papers, Rainbow Papers, Seshasayee Paper and boards limited, Ruchira Papers, Star Paper mills, Servalakshmi papers and Shreyans industries.

$$ROA = \beta1\ (LTDTA) + \beta2\ (AU) + \beta3\ (LTA) + \beta4\ (EPS) + \beta5\ (DPS) + \beta6\ (MPS) + e$$

$$ROE = \beta1\ (LTDTA) + \beta2\ (AU) + \beta3\ (LTA) + \beta4\ (EPS) + \beta5\ (DPS) + \beta6\ (MPS) + e$$

$$ROS = \beta1\ (LTDTA) + \beta2\ (AU) + \beta3\ (LTA) + \beta4\ (EPS) + \beta5\ (DPS) + \beta6\ (MPS) + e$$

3. RESULTS AND DISCUSSION

3.1. Impact of Return on Assets (ROA) on Firm Value

Table 1

Descriptive statistics

	Mean	*STD. Deviation*
ROA	82.76	80.82
LTDTA	.53	.25
AU	1.31	1.06
LTA	6.41	1.21
EPS	3.55	13.81
DPS	1.26	1.83
MPS	77.97	84.60

Table 2

Multicollinearity

	ROA	*LTDTA*	*AU*	*LTA*	*EPS*	*DPS*
ROA						
LTDTA	–.241					
AU	–.068	–.450				
LTA	.251	.134	–.787			
EPS	.637	–.140	–.106	.252		
DPS	.766	–.091	–.146	.323	.785	
MPS	.761	–.134	–.124	.294	.333	.491

Table 2 shows the absence of multicollinearity among the selected variables since the correlation between the variables were less than 80%.

The mean of ROA, LTDTA, AU, LTA, EPS, DPS and MPS are 82.75, 0.52, 1.31, 6.40, 3.54, 1.26 and 77.97 respectively. The standard deviation of MPS is very high (84.59) and very low for LTDTA (0.25)

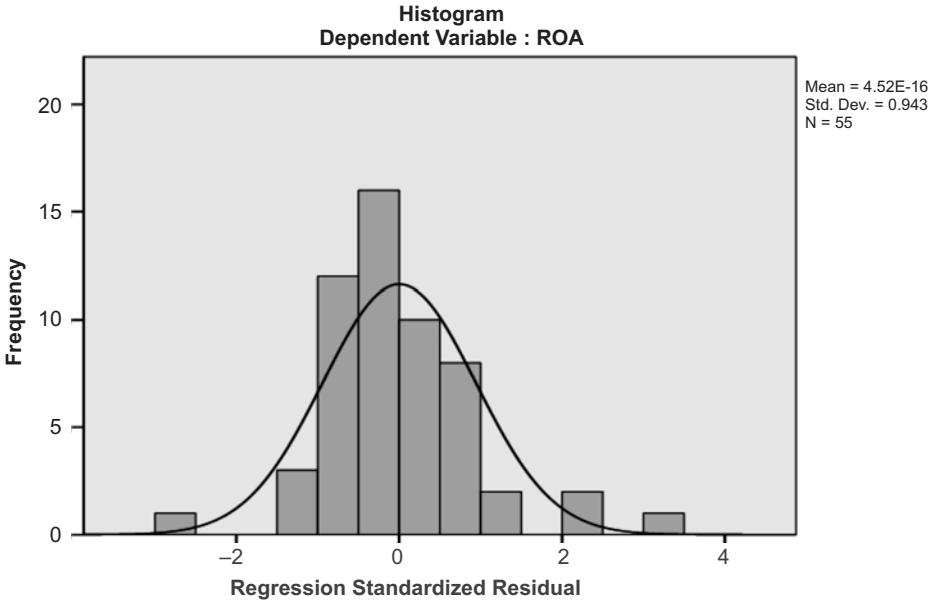

Figure 1: Normality

The above histogram shows that the data are normal which is the basic condition for performing multiple regression.

Table 3
Multiple Regression of Impact of ROA on firm Value

Variables	*B*	*t-stat*	*P-value*
C	98.479	1.476	.147
LTDTA	-43.615	-1.724	.091
AU	-6.027	-.634	.529
LTA	-7.680	-.972	.336
EPS	.832	1.376	.175
DPS	18.231	3.680	.001**
MPS	.493	6.917	.000**
R Square	0.809		
Adjusted R Square	0.785		
F Stat	33.908		
Prob (F – Stat)	0.000**		

** Significant at 5% level

In multiple regressions, the p value of LTDTA, AU, LTA, and EPS is more than 5% which implies that the capital structure, asset utilisation, firm size and earnings do not impact the firm value. But the DPS and MPS have p value of less than 5%. This shows that dividend and market price of share impact the firm value. Null Hypothesis H_{01} is accepted, so, there was no significant impact of Capital structure (LTDTA) on Firm Value (ROA).

3.2. Impact of Return on Equity (ROE) on Firm Value

Table 4
Descriptive Statistics

	Mean	*STD. Deviation*
ROE	83.74	60.29
LTDTA	.53	0.25
AU	1.31	1.06
LTA	6.41	1.21
EPS	3.55	13.81
DPS	1.26	1.83
MPS	77.97	84.60

The mean of ROE, LTDTA, AU, LTA, EPS, DPS and MPS are 83.74, 0.52, 1.31, 6.40, 3.54, 1.26 and 77.97 respectively. The standard deviation of MPS is very high (84.59) and very low for LTDTA (0.25).

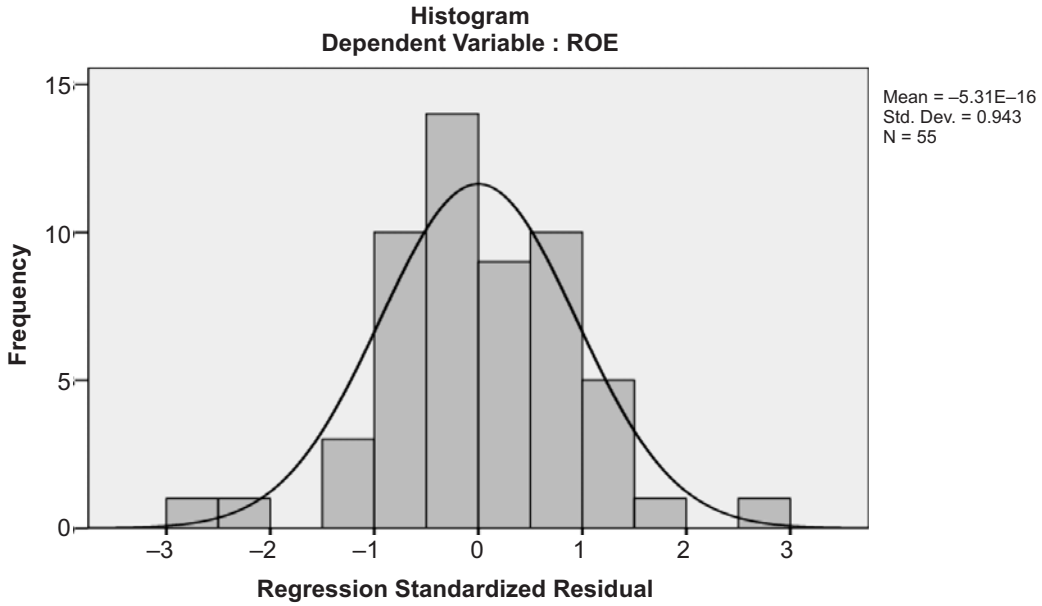

Figure 2 : Normality

The above histogram shows that the data are normal which is the basic condition for performing multiple regression.

Table 5
Multicollinearity

	ROE	*LTDTA*	*AU*	*LTA*	*EPS*	*DPS*
ROE						
LTDTA	–.015					
AU	–.370	–.450				
LTA	.789	.134	–.787			
EPS	.296	–.140	–.106	.252		
DPS	.472	–.091	–.146	.323	.785	
MPS	.382	–.134	–.124	.294	.333	.491

Table 5 shows the absence of multicollinearity among the selected variables since the correlation between the variables were less than 80%.

Table 6
Multiple regression of impact of ROE on firm Value

Variables	*B*	*t-stat*	*P-value*
C	–4185.484	–9.345	.000**
LTDTA	375.173	2.210	.032**
AU	425.572	6.671	.000**
LTA	648.228	12.218	.000**
EPS	–7.753	–1.910	0.062
DPS	99.977	3.007	.004**
MPS	.174	.363	0.718
R Square	0.845		
Adjusted R Square	0.826		
F Stat	43.776		
Prob (F – Stat)	0.000**		

** Significant at 5% level

In multiple regressions, the p value of EPS and MPS is more than 5% which implies that the earnings per share and market price of shares do not impact the firm value. But LTDTA, AU, LTA, and DPS have *p* value of less than 5%. This shows that capital structure, asset utilisation, firm size and dividend impact the firm value. Null Hypothesis H_{02} was rejected so, there was significant impact of Capital structure (LTDTA) on Firm Value (ROE).

3.3. Impact of Return on Sales (ROS) on Firm Value

Table 7

Descriptive Statistics

	Mean	*STD. Deviation*
ROS	0.11	0.10
LTDTA	.53	.25
AU	1.31	1.06
LTA	6.41	1.21
EPS	3.55	13.81
DPS	1.26	1.83
MPS	77.97	84.60

The mean of ROS, LTDTA, AU, LTA, EPS, DPS and MPS are 0.11, 0.52, 1.31, 6.40, 3.54, 1.26 and 77.97 respectively. The standard deviation of MPS is very high (84.59) and very low for LTDTA (0.25).

Table 8

Multicollinearity

	ROS	*LTDTA*	*AU*	*LTA*	*EPS*	*DPS*
ROS						
LTDTA	–.111					
AU	–.326	–.450				
LTA	.539	.134	–.787			
EPS	.603	–.140	–.106	.252		
DPS	.474	–.091	–.146	.323	.785	
MPS	.273	–.134	–.124	.294	.333	.491

Table 8 shows the absence of multicollinearity among the selected variables since the correlation between the variables were less than 80%.

Table 9

Multiple Regression of Impact of ROS on firm Value

Variables	*B*	*t–stat*	*P–value*
C	–.180	–1.305	.198
LTDTA	–.030	–.580	.565
AU	.009	.476	.636
LTA	.047	2.849	.006**
EPS	.005	3.697	.001**
DPS	–.009	–.869	.389
MPS	–.009	–.006	.995
R Square	0.543		
Adjusted R Square	0.486		
F Stat	9.510		
Prob (F – Stat)	0.000**		

** Significant at 5% level

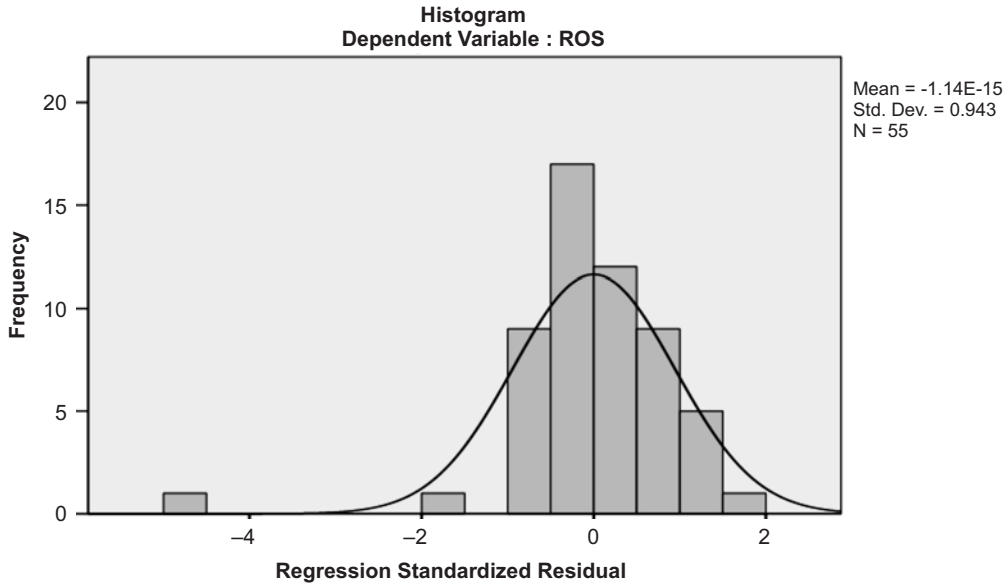

Figure 3: Normality

The above histogram shows that the data are normal which is the basic condition for performing multiple regression.

In multiple regressions, the p value of LTDTA, AU, DPS and MPS is more than 5% which implies that the capital structure, asset utilisation, dividend and market price of shares do not impact the firm value. But the LTA and EPS have p value of less than 5%. This shows that firm size and earnings per share impact the firm value. Null Hypothesis H_{03} is accepted so, there was no significant impact of Capital structure (LTDTA) on Firm Value (ROS)

4. CONCLUSION

When Debt equity ratio increases, the Return on equity and Return on Assets decreases and vice versa. So, the companies should strive to obtain optimal debt equity ratio in order to achieve maximum growth and profitability. The companies should utilize their assets and retained earnings in order to avoid the use of more external debt which is always have inverse relationship with the firm value. The investors preferring to invest in paper industry should look for ROE as the major component since this study found ROE based model is the best for predicting the firm value. Size of the firm along with Capital structure impact the value of the firm which implies that the small firms which use more debt and large firm which uses less debt impacts their companies' value. Small firms which use more debt should consider their shareholders wealth also because more debt may decrease their wealth. Dividend per share along with capital structure impacts the value of the firm. More dividends mean less money to pay interest for debt and vice versa. So, the companies should design optimal payout policy to satisfy their shareholders as well as use debt for the company's growth.

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