



Impact of Corporate Leverage on Profitability - Evidence from Indian Paper Industry

KEYWORDS

Corporate Capital Structure, Corporate Profitability, Leverage, Short-term Funds, Long-Term Funds and Indian Paper Industry.

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ABSTRACT *Financing the firm's assets is a very crucial problem in every business and as a general rule there should be a proper mix of debt and equity capital in financing firm's assets. While designing an optimal capital structure, the management has to keep in mind the objective of maximizing the value of the firm. Thus, an attempt has been made in this study to find the relationship between the leverage and profitability. The empirical analysis reveals that there is a positive and significant impact of leverage measured in terms of total debt to total capital with the return on equity of both the Indian paper industry and the large scale sector. Seven out of ten companies showed a positive relationship between leverage and return on equity and this relationship is negative in the remaining companies, but the result confirms statistically significant impact between these variables in all the selected companies during the study period. Thus, the overall analysis proves that there was a positive and statistically significant relationship between leverage measured in terms of total debt to total capital and return on equity of most of the selected companies during the study period. The study also disclosed a negative and statistically significant relationship between leverage measured in terms of short-term debt to total capital and long-term debt to total capital with return on equity of the most of the selected companies during the study period.*

Financial management of any corporate sector revolves around three major decisions, viz., financial decisions, investment decisions and dividend decisions. Financial decisions are concerned with the sources of finance, i.e. from where finances should be raised. There are basically two sources of finance i.e. short-term and long-term. The capital structure of a company is determined by the long-term sources of finance. **Pandey (2005, p.5)** stated that the term capital structure is used to represent the proportionate relationship between debt and equity. A business enterprise generally procures its permanent capital in the form of long-term debt, preference shares, ordinary shares and reserves and surpluses. These are individual components, which when taken together, would constitute a company's capital structure. Thus the aim of capital structure management is the profit maximization or wealth maximization ensuring minimum cost of capital and maximum rate of return to the common shareholders. **Chakraborty (1981, p.111)** stated that a judicious mix of debt and equity securities would maximize the value of equity. The financial manager of corporate has to plan an optimum capital structure for the company in such a way that it gives the maximum benefits and thus maximizes the wealth of shareholders.

Having determined its investment policy, a company should plan the sources of finance and their mix. Companies which do not formally plan their capital structures are likely to have uneconomical and imbalanced capital structures and could face unforgivable difficulties in raising capital on favourable terms in the long-run. Also inappropriate mix of sources of finance can render the operations of the companies inflexible. The composition of capital structure is governed by a number of factors and no uniform standard can be prescribed for all the enterprises. Sectors of industry or trade to which a particular enterprise belongs can, however, provide a broad pattern of composition. For instance, a public utility concern, such as an electricity supply company can absorb a greater proportion of bor-

rowed funds than an enterprise in a more competitive sector of industry due to more stability in earnings in the case of former than the latter. Within these broad parameters, each enterprise will have to plan its own capital structure keeping in view both its short-term requirements and long-term expansion programmes.

Statement of the Problem

Financing the firm's assets is a very crucial problem in every business and as a general rule there should be a proper mix of debt and equity capital in financing firm's assets. While designing an optimal capital structure, the management has to keep in mind the objective of maximizing the value of the firm. Thus, an attempt has been made in this study to find the relationship between the leverage and profitability. Based on the above facts, the researcher has probed the following question.

What is the relationship between leverage and profitability of selected large scale companies in Indian Paper Industry?

Selection of sample

Keeping in view of the scope of the study, it is decided to include all the large scale paper companies under Indian paper industry working before or from the year 1996-97 to 2009-2010. There are 21 large scale paper companies operated in India. But, owing to several constraints such as the non-availability of financial statements or the non-working of a company in a particular year and merger and acquisition etc., it is compelled to restrict the number of sample companies to ten. The Capitaline and CMIE database publish key financial data of Indian corporate sector systematically. Hence, Capitaline and CMIE databases proved to be complimentary to finalize the sample for the study. The exhaustive list of paper industry in India from Capitaline was cross checked with CMIE database to sort out companies to fit in as the sample for the study. The comprehensive list of companies prepared from the database was modified by sorting out the firms using the fol-

lowing criteria.

Those were not in operation for a year during the period of study.

Those were in operation but non-availability of data for the whole study period.

Those that were merged with another company during the period of study.

Those that had below 50,000 MT installed capacity.

The list of large paper companies selected included in the present study along with the year of incorporation, ownership pattern and its market share is presented in Table 1. It is evident from Table 1 that sample companies represent 60.37 percentage of market share in the Indian paper industry. Thus, the findings based on the occurrence of such representative sample may be presumed to be true representative of paper industry in the country.

Period of study

The period 1997-98 to 2009-10 is selected for this study of Indian paper industry. This 13 years period is chosen in order to have a fairly, reasonably reliable and up -to-date financial data would be available.

Sources of data

The data required for the study have been obtained from secondary sources. The study is mainly based on secondary data. The major sources of data analysed and interpreted in this study related to all those companies selected is collected from "PROWESS" database, which is the most reliable and the empowered corporate database of Centre for Monitoring Indian Economy (CMIE). Besides Prowess database, relevant secondary data have also been collected from BSE Official Directory, CMIE publications, published annual reports of the companies, annual survey of industries, business news papers, Reports on Currency and Finance, Centre for Industrial and Economic Research (CIER's) Industrial Data Book, publications of the Indian Pulp and Paper Technical Association (IPPTA), Libraries of various research institutions, through internet and from official websites of the selected companies. Various journals and periodicals on finance and industry have also been reviewed.

Analysis of the empirical relationship between Leverage and Profitability

This part of the study seeks to explore the impact of capital structure on the profitability of the selected companies. The capital structure decision is crucial for any business organization. This decision is an important decision because of the need to maximize the returns to various organizational constituencies and also because of the impact of such a decision on firm's ability to deal with its competitive environment. The capital structure of a firm is actually a mix of different securities. A company can issue dozens of distinct securities in countless combinations: however, it attempts to find the particular combination that maximizes the wealth of the shareholders through the objective of profit maximization. Unfortunately, researchers in financial management have not found optimal capital structure. Hence, lack of consensus about the optimal capital structure and profitability has necessitated the study of impact of capital structure on profitability. Since businesses with relatively stable income stream are less subject to the possibility of decline, they may find it desirable to rely heav-

ily on debt financing. On the other hand, firms with risky income streams are less able to assume fixed charges securities as a source of finance. Many researchers have tried to examine the impact of capital structure on profitability. **Chakraborty(1977), Bhat (1980), Ramkumar et al., (1996), Sudhansu (2005), Joshua Arbor (2005) and Ramesh K.Singla (2006)** studied the relationship between profitability and capital structure. All these researchers have established either positive or negative relationship between these two variables.

Regression analysis is used to investigate the impact of capital structure on profitability measured by return on equity. Variables used for the multiple regression analysis include profitability and leverage ratios. Profitability is operationalized using a commonly used accounting based measure: the ratio of return on equity to the leverage ratios. The leverage ratios used in this model are; Short-term debt to the total capital, long- term debt to total capital and total debt to total capital. The impact of leverage on profitability is estimated in the following regression models by using firm size and sales growths as control variables.

$$ROE = \alpha + \beta_1 (SDTC) + \beta_2 (STA) + \beta_3 (GS) + e_{it} \text{ ----- (1)}$$

$$ROE = \alpha + \beta_1 (LDTC) + \beta_2 (STA) + \beta_3 (GS) + e_{it} \text{ ----- (2)}$$

$$ROE = \alpha + \beta_1 (TDTC) + \beta_2 (STA) + \beta_3 (GS) + e_{it} \text{ ----- (3)}$$

Where, ROE - Return on equity (EBIT divided by equity) for firm i in time t.

SDTC - Short-term debt to total capital for firm i in time t.

LDTC - Long-term debt to total capital for firm i in time t.

TDTC - Total debt to total capital for firm i in time t.

STA - Size of total assets for firm i in time t.

GS - Growth of sales for firm i in time t and

e_{it} - Error term for firm i in time t.

The return on equity communicates the earning power of the company for the amount of capital invested in the business. It indicates how the management has used the funds supplied by creditors and owners. The higher the ratio, the more efficient can be considered as enterprises in using funds entrusted to it. Further, an investor can judge the future prospects of business enterprises by taking into consideration the earning capacity of capital employed.

Model I

Table 2 presents the multiple regression analysis of return on equity with short-term debt to total capital, size of total assets and growth of sales of selected large scale companies in Indian paper industry. The result declares that the leverage measured by short-term debt to total capital has registered a positive and significant relationship with the return on equity of both the Indian paper industry and the large scale sector of the Indian paper industry at 5 per cent level of significance. The co-efficient of determination (R^2) in Indian paper industry explains 85 per cent changes in the return on equity by the independent variables like short-term debt to total capital, size of total assets and growth of sales. But in case of sector average, 58 per cent changes in return on equity are explained by the inde-

pendent variables. The regression analysis also reveals that Hindustan Paper Corporation Limited exposed a strong relationship between leverage and profitability during the study period.

The beta co-efficient of short-term debt to total capital showed a positive and significant relationship with the Indian paper industry (0.21) and also in the large scale sector (0.14) at five per cent level of significance. The result of regression analysis also reveals that among the individual companies the beta co-efficient of leverage is negative in eight out of ten companies but statistically significant in all the selected companies at 5 per cent level of significance. Thus, it is concluded that there is an inverse relationship between short-term debt to total capital and return on equity of the selected companies during the study period. It is clear from the empirical analysis that the leverage measured by size of total assets has registered a positive and significant relationship with the return on equity of both the industry and the large scale sector at 5 per cent level of significance. In case of individual companies, it has registered a positive relationship with all the selected companies except Andhra Pradesh Paper Mills Limited (-0.02), Hindustan Paper Corporation Limited (-0.23) and West Coast Paper Mills Limited (-0.06) during the study period. Thus, the selected companies showed both positive and negative relationship with regard to size of total assets on return on equity.

The beta co-efficient of growth of sales shows a positive impact on return on equity of the Indian paper industry (0.11) and also in sector average (0.06). In case of individual companies, the value of beta co-efficient of growth of sales showed a positive impact in seven out of ten companies and statistically significant in all the selected companies. Thus, the empirical result of regression analysis discloses that, majority of the selected companies have a significant impact of short-term debt to total capital, size of total assets and growth of sales on return on equity. These results are consistent with the results of **Sudhansu (2005)** and **Joshua Arbor (2005)** who found positive relationship between these variables in their study. Thus, the result in regression model (1) reveals a significant relationship between profitability and short-term debt to total capital. This suggests that short-term debt tends to be less expensive and therefore, companies may increase the short-term debt with a relatively low interest rate will definitely lead to an increase in the profit levels.

Model II

Table 3 presents the multiple regression analysis of return on equity with long-term debt to total capital, size of total assets and growth of sales of selected large scale companies in Indian paper industry. The result explains that long-term debt to total capital, size of total assets and the growth of sales influence the return on equity. The co-efficient of determination (R^2) in paper industry is 0.89; in case of sector average it is 0.62. The co-efficient of determination (R^2) registered the highest value in Ballarpur Industries Limited (0.79) and it was the lowest in JK Paper Mills Limited (0.43). This result also proved by the value of adjusted R^2 . Thus, it shows the goodness of the model. The result of beta co-efficient of long-term debt to total capital indicates a significantly negative association with return on equity of Indian paper industry (-0.03) and large scale sector (-0.10). The analysis also reveals a negative relationship between leverage and return on equity of seven out of ten companies but it is also noticed that, it is statistically significant in all the selected companies. Size of the total

asset is another relevant explanatory variable of profitability of Indian paper industry. The beta co-efficient of size of total asset proves a negative impact with leverage in seven out of ten companies. The estimate also shows that the beta co-efficient of growth of sales was negative and statistically significant in six out of ten companies.

Thus, it is concluded that the result of regression model (II) shows a significantly negative impact of capital structure on profitability of majority of the selected companies. This implies that a decrease in the profitability is associated with increase in long-term debt to total capital position. This is explained by the fact that long-term debts are relatively expensive and therefore, employing high proportions of long-term debt would lead to less profitability. The result of inverse relationship between capital structure and profitability is supported by the earlier findings of **Graham et al., (2000)**, **Booth et al., (2001)** and **Joshua Arbor (2005)** who found negative relationship between capital structure and profitability.

Model III

Table 4 presents the multiple regression analysis of return on equity with total debt to total capital, size of total assets and growth of sales of selected large scale companies in Indian paper industry during the study period. It can be observed from the model that the co-efficient of determination R^2 explains 87 per cent of the variation in the return on equity can be captured by independent variables for Indian paper industry and it is 47 per cent for large scale sector of the Indian paper industry. Among the individual companies the co-efficient of determination ranges between 41 per cent (Rama Newsprint and Papers Limited) to 71 per cent (West Coast Paper Mills Limited) variation. This is also proved by the value of adjusted R^2 and F value. First there seems to be a mixed relationship between the total debt to total capital and return on equity. The empirical analysis reveals that there is a positive and significant impact of leverage (0.15) on the return on equity of both the Indian paper industry and the large scale sector. Seven out of ten companies recorded positive relationship between return on equity and leverage and this relationship is negative in the remaining companies. But the result confirms that the leverage was statistically significant in all the selected companies during the study period. These findings are consistent with the results of **Sudhansu (2005)** and **Joshua arbor (2005)** who found a positive relationship between these variables in their study.

The relationship between return on equity and size of the total assets appears to be positive in both the Indian paper industry and large scale sector. The estimate indicates that though it is positive but statistically insignificant. These findings are in line with those of **Nazeer (1991)**, **Bharti (1995)**, **Sudhansu (2005)** and **Karamjeet Sing (2006)** who found positive relationship between return on equity and size of total assets in their study. However, seven out of ten companies shows a negative relationship between return on equity and size of total assets but statistically significant at 5 per cent level of significance. As for as the growth of sales is concerned, its relationship with return on equity turns out to be positive and significant in the Indian paper industry and also in the large scale sector of the Indian paper industry. In case of individual companies, the beta co-efficient of growth of sales is positive in six out of ten companies, but statistically significant in all the selected companies. It is the highest in Hindustan Paper Corporation Limited (0.47) and lowest in Mysore Paper Mills Limited (-0.32). The results of 't' also suggests that

there is a significant relationship between return on equity with all the independent variables of the majority of the selected companies. It should be emphasized that **Sudhansu (2005)**, **Karamjeet Sing (2006)**, **Vanyale Narendra and Abhinav Sharma (2006)**, **Boopen et al. (2007)** and **Santi Gopal Maji (2007)** found similar results in their studies. Thus, the results from regression analysis indicate a significant association between total debt to total capital and profitability of the majority of the selected companies. This significantly positive relation implies that an increase in the debt position is associated with an increase in profitability. Thus, the higher the debt, the higher is the profitability performance. Again, this suggests that profitable firms depend more on debt as their main financing option. The result also shows positive relationship between the control variables (firm size and sale growth) and profitability.

To sum up, the return on equity measures the contribution of net income invested by the stockholders. It is a measure of the efficiency of the owners' invested capital. The results from the regression model (1), (2) and (3) denote the goodness of the model. The F-statistics also prove the validity of the estimated models. Thus, it is concluded that there is a negative relationship between capital structure (measured in terms of long term debt to total capital and short-term debt to total capital) and profitability of majority of the selected companies in the Indian paper industry during the period under study. But there is a positive relationship between capital structure (measured in terms of total debt to total capital) and profitability of majority of the selected companies. Hence, capital structure decision plays a vital role in attracting or diverting investments in the corporate field. Apart from attracting different types of investors, it also affects the value of firm by affecting its expected earnings.

Conclusion

The empirical analysis reveals that there is a positive and significant impact of leverage measured in terms of total debt to total capital with the return on equity of both the Indian paper industry and the large scale sector. Seven out of ten companies showed a positive relationship between leverage and return on equity and this relationship is negative in the remaining companies, but the result confirms statistically significant impact between these variables in all the selected companies during the study period. These findings are consistent with the results of **Sudhansu (2005)** and **Joshua Abor (2005)** who found a positive relationship between leverage and return on equity. Thus, the overall analysis proves that there was a positive and statistically significant relationship between leverage measured in terms of total debt to total capital and return on equity of most of the selected companies during the study period. The study also disclosed a negative and statistically significant relationship between leverage measured in terms of short-term debt to total capital and long-term debt to total capital with return on equity of the most of the selected companies during the study period.

Table 1 Selected paper companies for the study

S. No	Name of the Company	Year of incorporation.	Ownership	Market Share
1.	Andhra Pradesh Paper Mills Limited	1964	Bangur L.N.,	2.84
2.	Ballarpur Industries Limited	1945	Avantha group	9.26

3.	Hindustan Paper Corporation Limited	1983	Govt. of India	4.49
4.	Hindustan Newsprint Limited	1970	Govt. of India	10.49
5.	JK Paper Mills Limited	1960	Singhania Harishanker	4.51
6.	Mysore Paper Mills Limited	1936	State Govt. of Karnataka	8.73
7.	Rama Newsprint and Papers Limited	1991	Bangur group	9.71
8.	Seshasayee Paper and Boards Limited	1960	Ervin group	2.63
9.	Tamil Nadu Newsprint and Papers Ltd.	1979	State Govt. of Tamil Nadu	4.50
10.	West Coast Paper Mills Limited	1955	Bangur group	3.11
	Total Market Share			60.37

Source: Prowess database

Table 2 Impact of capital structure on profitability - Regression Results (Dependent variable: Return on equity)
 $[ROE = + \beta_1(SDTC) + \beta_2(STA) + \beta_3(GS) + e]$

Com-pa-nies	Con-stant (α)	Beta co-efficient (SDTC)	Beta co-efficient (STA)	Beta co-efficient (GS)	R ²	Adj. R ²	F	P	DW
AP	1.91	-0.36 (1.54**)	-0.02 (2.31**)	-0.32 (3.00*)	0.54	0.38	3.49**	0.06	1.47
BAL	2.64	0.19 (1.35**)	0.05 (2.75*)	0.35 (3.74*)	0.72	0.63	7.73*	0.01	1.03
HP	2.64	0.20 (5.3*)	-0.53 (2.12**)	0.04 (2.73*)	0.83	0.77	14.59*	0.00	1.74
HNP	2.69	-0.21 (1.95**)	0.23 (1.72**)	0.37 (1.66**)	0.45	0.27	2.47**	0.13	1.90
JK	1.25	-0.25 (1.92**)	0.35 (1.40*)	-0.29 (2.5**)	0.49	0.31	2.83**	0.10	1.74
MP	2.45	-0.25 (1.42**)	0.06 (2.13**)	0.21 (2.63**)	0.48	0.30	2.72**	0.11	1.77
RN	2.84	-0.26 (1.77**)	0.14 (1.37**)	0.46 (2.13*)	0.50	0.33	3.00**	0.09	1.90
SP	1.39	-0.05 (2.18**)	0.18 (2.57**)	0.36 (2.01**)	0.40	0.20	2.00	0.18	1.55
TNP	1.91	-0.14 (1.27**)	0.11 (1.54**)	0.10 (1.45**)	0.51	0.35	3.13**	0.08	1.96
WC	2.98	-0.16 (2.75*)	-0.06 (1.84**)	-0.06 (2.91*)	0.54	0.39	3.51**	0.06	1.97
Sector	1.15	0.14 (3.1*)	0.01 (2.10**)	0.06 (1.66**)	0.58	0.43	4.06**	0.04	1.57
In-dustry	1.21	0.21 (1.66**)	0.26 (1.72**)	0.11 (4.37*)	0.85	0.77	14.12*	0.00	1.99

ROE - Return on equity (EBIT divided by equity);
 SDTC- Short-term debt to total capital;
 STA - Size of total assets;
 GS - Growth of sales;
 β_1, β_2 - Regression co-efficient
 * - Significant at 0.01 level; ** - Significant at 0.05 level;
 Figures within parentheses indicate 't' values
 DW- Durbin Watson Statistics
 Source: Computed

Table 3
Impact of capital structure on profitability - Regression Results

Dependent variable: Return on equity
 $ROE = \alpha + \beta_1 (LDTC) + \beta_2 (STA) + \beta_3 (GS) + e$

Companies	Constant (α)	Beta co-efficient (LDTC)	Beta co- efficient (STA)	Beta co- efficient (GS)	R ²	Adj. R ²	F	P	DW
AP	1.42	-0.28 (1.39**)	-0.21 (3.04*)	-0.03 (1.78*)	0.54	0.36	3.25**	0.07	1.12
BAL	1.00	0.52 (2.37**)	-0.01 (3.12*)	-0.49 (4.83*)	0.79	0.73	11.58*	0.00	1.19
HP	1.61	-0.01 (3.83*)	-0.67 (1.9**)	0.55 (2.51**)	0.73	0.64	8.20*	0.01	1.99
HNP	1.72	-0.02 (2.30**)	-0.26 (1.81**)	-0.31 (1.64**)	0.62	0.49	4.85**	0.03	1.90
JK	1.11	-0.22 (1.37**)	0.38 (1.90**)	-0.39 (2.23**)	0.43	0.24	2.29**	0.15	1.75
MP	1.11	0.60 (1.63**)	0.25 (1.52**)	-0.86 (2.23**)	0.50	0.34	3.05**	0.09	1.40
RN	1.73	-0.12 (1.73**)	-0.22 (1.62**)	0.27 (1.95**)	0.50	0.33	2.94**	0.09	1.95
SP	1.57	0.56 (1.42**)	-0.27 (1.95**)	0.26 (1.77**)	0.51	0.35	3.11**	0.08	1.86
TNP	1.45	-0.34 (2.36**)	0.22 (1.91**)	0.30 (1.93**)	0.64	0.52	5.40*	0.02	1.26
WC	1.98	-0.26 (2.59**)	-0.15 (1.81**)	-0.81 (2.02**)	0.51	0.35	3.16**	0.08	1.60
Sector	-1.93	0.10 (2.10**)	0.01 (1.69**)	0.39 (1.75**)	0.62	-0.17	0.41	0.75	1.89
Industry	-1.03	-0.03 (2.60*)	-0.09 (0.92)	-0.16 (6.88*)	0.89	0.85	23.54*	0.00	1.96

ROE - Return on equity (EBIT divided by equity);

LDTC - Long-term debt to total capital; STA - Size of total assets;

GS - Growth of sales; β_1, β_2 - Regression co-efficient

* - Significant at 0.01 level; ** - Significant at 0.05 level;

Figures within parentheses indicate 't' values

DW- Durbin Watson Statistics

Source: Computed

Table 4

Impact of capital structure on profitability - Regression results

(Dependent Variable - Return on equity
 $ROE = \alpha + \beta_1 (TDTC) + \beta_2 (STA) + \beta_3 (GS) + e$

Companies	Constant (α)	Beta Co- efficient (TDTC)	Beta Co- efficient (STA)	Beta Co- efficient (GS)	R ²	Adj. R ²	F	P	DW
AP	2.53	-0.21 (1.43**)	-0.01 (3.17*)	-0.11 (2.56**)	0.53	0.37	3.32**	0.07	1.07
BAL	-2.78	0.39 (0.58)	0.09 (2.29**)	0.18 (3.28*)	0.68	0.57	6.32*	0.01	1.10
HP	-2.00	0.23 (2.04**)	0.58 (2.69**)	0.47 (2.05**)	0.52	0.36	3.24**	0.08	1.84
HNP	-1.26	-0.51 (1.89**)	-0.29 (2.03**)	0.40 (3.03*)	0.56	0.41	3.81**	0.05	1.97
JK	2.18	0.42 (2.82*)	0.44 (2.04**)	-0.08 (3.29*)	0.64	0.51	5.24*	0.02	1.51
MP	2.73	0.09 (2.38**)	0.33 (2.79*)	-0.07 (2.56*)	0.55	0.40	3.70**	0.05	1.84
RN	-2.50	0.48 (1.11**)	-0.19 (3.40*)	0.14 (1.67**)	0.41	0.21	2.06	0.18	1.90
SP	-2.87	0.19 (1.43**)	0.12 (2.45**)	0.15 (1.56**)	0.51	0.35	3.12**	0.08	1.90
TNP	-1.91	0.09 (2.34**)	0.23 (2.24**)	0.16 (1.82**)	0.64	0.52	5.37*	0.02	1.42
WC	2.16	0.02 (4.19*)	0.02 (3.07*)	-0.32 (1.91**)	0.71	0.62	7.40*	0.01	1.09

Sector	-2.42	0.75	0.03	0.42	0.47	0.52	1.10	0.40	1.99
		(1.35**)	(0.3)	(1.72**)					
Industry	-2.70	0.15	0.16	0.34	0.87	0.83	20.70*	0.00	1.96
		(2.24**)	(1.45)	(5.31*)					

ROE - Return on equity (EBIT divided by equity);

TDTC- Total debt to total capital;

STA - Size of total assets;

GS - Growth of sales; β_1 β_2 – Regression co-efficient

* - Significant at 0.01 level; ** - Significant at 0.05 level;

Figures within parentheses indicate 't' values

DW- Durbin Watson Statistics

Source: Computed

REFERENCE

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