

Capital Structure Determinants of the Indian Manufacturing Sector: An Empirical Study

¹Biswajit Ghose & ²Kailash Chandra Kabra

¹Assistant Professor, Department of Commerce, Mahatma Gandhi Central University,
Bihar-845401, India &

²Associate Professor, Department of Commerce, North- Eastern Hill University,
Shillong, Meghalaya- 22, India

Abstract

This study examines the determinants of capital structure for 1415 listed Indian manufacturing firms over a period of nine years from 2005-2013. Specifically, the study investigates the predictions of important capital structure theories in determining firms' level of total debt (TD), long-term debt (LTD) and short-term debt (STD). In order to fulfil its purposes, the study uses the panel fixed effect regression model based on the Hausman test for endogeneity. The study finds support for both trade-off and pecking order theory but not for market timing theory. Size is positively related to leverage ratios consistent with the arguments of trade-off theory. Tangibility is positively related to the level of TD and LTD but not to STD. This suggests lesser importance of collateral for STD. The relationship between profitability and debt ratios are negative which confirm the predictions of pecking order theory. The coefficients for NDTs are positive which contradicts the arguments of trade-off theory but consistent with the findings of Chakraborty, (2013) for Indian firms. Growth does not have impact on overall debt level but positively influence the level of LTD (pecking order argument) and negatively influence the level of STD (trade-off argument). M/B ratio positively affects the debt ratios which are not in line with the market timing argument. Rather, it supports the arguments of simple pecking order theory that firms with higher growth options maintain more debt. Finally, uniqueness has negative coefficients which suggest lower debt levels for firms dealing with unique and specialized products.

Keywords : Capital Structure, Leverage, Long-term debt, Short-term debt, Fixed effect regression

JEL Classification : G30; G32

1. Introduction

Capital Structure is one of the most extensively studied topics in the field of modern corporate finance. The growing number of works on capital structure is justified on the

ground that it is one of the most critical financial decisions faced by financial managers. The choice of right capital structure is important as it affects the overall costs of capital and ultimately the value of the firm. The financial manager has to compare the costs and benefits of different sources of finance which mainly include debt and equity, and decide their (sources of finance) mix in such a way that the overall costs of capital is minimum and the value of the firm is maximum. Although sounds simple, even after more than five decades of active research since the seminal work of Modigliani and Miller, (1958), the capital structure decision of firms' is still a puzzle for the researchers (Myers, 1977).

Financial managers' need to consider some complicated questions while deciding their capital structure. Some of the common questions include: firstly, should the firm be financed by only equity or a combination of debt and equity? Secondly, if the decision is combination of debt and equity, what should be the mix, what factors should be considered to decide the mix and what will be the consequences? Thirdly, should the financing needs be met from internally generated funds or to go to the external market for the same? Fourthly, what is their future growth prospect and how the same is going to be affected by the present debt-equity choice? Fifthly, what is their position in the equity market and how maximum benefit can be reaped from the market by their debt-equity choice? There are many more considerations like this and therefore, financial managers need to access their financial positions carefully to arrive into a particular decision. The past few decades have seen a number of studies investigating the factors that determine firms' capital structure decisions. However, most of the prior studies are confined to advanced countries like US and UK and the studies examining the determinants of capital structure in emerging economies in general and India in particular are very limited. The present study aims to fulfill this gap by undertaking a study in Indian manufacturing sector.

The rest of the paper is organized as follows. Section 2 provides brief literature review and formulates hypothesis. The methodological framework is discussed in section 3 followed by section 4 which provides the empirical analysis. Finally, section 5 summaries the conclusions of the study.

2. Review of Literature

This section reviews three important theories of capital structure and discuss the possible impact of some of the important determinants of capital structure based on theoretical justifications.

2.1 Capital Structure Theories

2.1.1 The Trade-off Theory

The trade-off theory states that the capital structure is determined by establishing a trade-off between the benefits and costs of debt. The benefits of debt mainly include the

tax advantage of interest on debt (Modigliani & Miller, 1963), mitigating owner-manager agency conflicts (Jensen & Meckling, 1976) and mitigating agency costs of free cash flow (Jensen, 1986). On the other hand, the costs of debt include the financial distress and bankruptcy costs (Karus & Litzenberger, 1973), shareholder-debtholder agency conflicts (Jensen & Meckling, 1976) and the loss of future investment opportunities with positive NPV (Myers, 1977). Therefore, the optimal capital structure is the trade-off point where the marginal benefit of adding additional debts equals to their marginal cost (Karus & Litzenberger, 1973; Jensen & Meckling, 1976; Myers, 1977; Jensen, 1986).

2.1.2 The Pecking Order Theory :

The pecking order theory of capital structure is based on the information asymmetry between insiders and outsiders (Myers, 1984; Myers & Majluf, 1984). It states that due to information asymmetry, access to capital market by firms give adverse signal to outsiders. As a result, external financing becomes costly and induces firms to follow a hierarchy in their financing i.e. to prefer internal financing to external financing and when it comes to external financing, to prefer debt financing to equity financing due to less adverse selection costs associated with debt. According to this theory, firms financing decisions are not driven by the optimum or target capital structure which is in direct contrast to trade-off theory.

2.1.3. The Market Timing Theory :

The third important theory of capital structure is the market timing theory. Like pecking order theory, it also challenges the trade-off theory arguing that firms' financing decisions are not influenced by optimum or target capital structure. According to this theory, firms' financing decision is influenced by their current positions in the capital market. Firms issue equity when they perceive them to be overvalued and repurchase when they perceive them to be undervalued and these market timings have a persistent effect on capital structure. It argues firms' capital structure as the cumulative outcome of their past attempts to time the market (Baker & Wurgler, 2002).

2.2. Determinants of Capital Structure: Possible Linkage

2.2.1. Size and Capital Structure :

The larger firms are financially stable and are generally more diversified than the smaller firms, which reduces their financial distress and bankruptcy risk. Moreover, they enjoy better reputation and access in the market which ultimately reduces their costs of borrowings. Therefore, the trade-off theory predicts a positive relationship between size and leverage ratios. The pecking order theory on the other hand predicts inverse relationship between the two. It argues that the large firms face less information asymmetry and adverse

selection costs in accessing the equity market. Moreover, they are more profitable and have more retained earnings to meet their financing requirements.

2.2.2. Tangibility and Capital Structure :

Firms' capital structure is also influenced by their nature of assets. Higher the proportion of tangible assets i.e. property, plant and equipment in the total assets, higher is the security for creditors in case of default. In addition, tangible assets can be used as collateral for raising finance through debt. Therefore, the trade-off theory predicts a positive relationship between tangibility and debt level. On the contrary, firms with higher proportion of tangible assets face lesser information asymmetry and adverse selection problems. Therefore, the pecking order theory predicts a negative relationship between the two.

2.2.3 Profitability and Capital Structure :

Firms with higher profitability are expected to have better ability to meet their debt related responsibilities and are less prone to bankruptcy. Moreover, they have higher taxable income to shield. Therefore, trade-off theory predicts positive relationship between profitability and leverage. However, firms with higher profitability will also have higher level of retained earnings to meet their financing requirements. Therefore, pecking order theory predicts negative relationship between profitability and leverage.

2.2.4 Non-debt tax shields (NDTS) and Capital Structure :

The most visible benefit of debt in the capital structure is the tax saved on interest paid by firms. Therefore, firms with higher taxable income generally prefer debt to reap the tax benefit. DeAngelo & Masulis (1980) argues that NDTS (like tax benefits from depreciation and amortization expenses) serve as a substitute for debt tax shield. Further, they do not suffer from debt related costs. Therefore, the trade-off theory expects a negative relationship between NDTS and leverage.

2.2.5 Growth and Capital Structure :

Maintaining financial flexibility to finance future growth opportunities is one of the most important considerations for debt-equity choice for financial managers (Graham & Harvey, 2001). Firms with debt overhang find it difficult to finance their positive NPV projects in future. Therefore, firms with favorable growth opportunities ex-ante preserve debt capacity to avoid ex-post underinvestment problem (Myers, 1977; DeAngelo & DeAngelo, 2007). Moreover, firms with higher growth opportunities suffer less from agency costs of free cash flow (Jensen, 1986). Considering these arguments, trade-off theory expects an inverse relationship between leverage and growth opportunities. On the contrary, firms with higher growth opportunities would be in more need of fund to meet their financing requirement. Therefore, the simple version of pecking order theory predicts a direct

relationship between the two. However, in its complex version, it predicts an inverse relationship as firms may try to maintain low risk debt capacity in order to avoid new equity offerings to finance future investment proposals.

2.2.6 M/B Ratio and Capital Structure:

M/B ratio indicates the extent of equity mispricing in the market. A higher M/B ratio denotes better market price of equity and vice versa. Therefore, if capital structure is driven by market timing theory, there should be inverse relationship between M/B ratio and leverage ratios as firms will try to time the equity market by issuing equity when the market price is high and by repurchasing equity when the market price is low. Moreover, a higher M/B ratio also indicates higher growth opportunities which again suggest its negative relationship with leverage ratio as per trade-off and modified pecking order arguments. However, it may exhibit positive relationship as per the simple version of pecking order theory as firms with higher growth prospects will need more funds to meet their financing requirements.

2.2.7 Uniqueness and Capital Structure :

Titman & Wessels (1988) argue that firms' capital structure is influenced by their nature of business. Firms dealing with unique and specialized products generally maintain a lower level of debt. This is because these firms have more specialized labor that do not have a favorable labor market if the firm goes into bankruptcy or liquidation. Moreover, the specialized equipment used by these firms does not find a readily available resell market which reduces their collateral value. Therefore, they are expected to maintain ex-ante lower leverage to avoid the ex-post higher cost of liquidation.

3. Methodological Framework

3.1 Measures of Leverage :

Different measures of leverage have been suggested in the literature but the most relevant measure depends upon the objective of the study. There are two important issues that a researcher faces with regard to measurement of leverage - first, whether to use book leverage or market leverage and second, which particular ratio to be used. There are strong arguments in the literature in favor of both book and market value measure of leverage. The proponents of book value measure argue that the changes in market value of debt neither affect its tax benefit nor the repayment liability towards its holders in the event of bankruptcy (Banerjee et al., 2000). Moreover the performance history of firms is better reflected by book leverage because it is directly related to past changes in balance sheet figures of assets and liabilities and is not affected by the dramatic fluctuations in market values (Jalilvand & Harris, 1984; Loof, 2004). On the other hand, supporters of market value measure of leverage criticize book value measure as being backward looking. They argue that the market value measure is future oriented which reflects the expected future

cash flows from both tangible and intangible assets of the firm (Loof, 2004). Moreover, market value ultimately determines the real value of a firm because being historical in nature, a firm may show negative book value of equity even if they have positive market values (Banerjee et. al., 2000). Following prior studies (Jalilvand & Harris, 1984; Shyam-sunder & Myers, 1999; Qian et. al., 2009), this study uses the book value measure of leverage as the market value of debt is not available. With regard to definition of leverage, following Rajan & Zingales (1995), the authors have used the ratio of debt (total debt, long-term debt or short-term debt) to capital employed, where capital employed is the sum of total debt and total equity. Leverage ratio defined in this way better reflects the past financing decisions of firms and also takes care of agency problems of debt (Rajan & Zingales, 1995).

3.2 Empirical Model :

The study uses a panel data fixed effect (FE) regression model in order to test the hypotheses. The panel data models are useful because of more information, more variability, less collinearity, more degrees of freedom and more efficiency (Gujarati et al., 2012). Further, the panel data models allow accounting for the impact of cross-sectional heterogeneity on the dependent variable. Specifically, the study uses the following regression model :

$$LEV_{it} = \beta_1 (Size_{it}) + \beta_2 (Tangibility_{it}) + \beta_3 (Profitability_{it}) + \beta_4 (NDTS_{it}) + \beta_5 (Growth_{it}) + \beta_6 (M/B\ Ratio_{it}) + \beta_7 (Uniqueness_{it}) + \alpha_i + v_t + \varepsilon_{it}$$

where, LEV is the respective leverage ratio i.e. TD, LTD or STD. The variables in the right hand side of the equation are the determinants mentioned above which are expected to have influence on firms' leverage ratios. The descriptions of variables are provided in Table-1. α_i and v_t account for the unobserved firm specific and year specific fixed effects respectively. The study uses Hausman test to choose between the random effect and FE models under the null hypothesis that the former is appropriate. The study adjusts the standard errors for heteroskedasticity by using the procedure of White (1980).

Table 1
Description of Variables

Variables	Definition
TD	Total debt ratio measured as ratio of total debt to capital employed (CE)
LTD	Long-term debt ratio measured as ratio of long-term debt to CE
STD	Short-term debt ratio measured as ratio of short-term debt to CE
Size	Size of firms measured as natural logarithm of total assets
Tangibility	Tangibility of assets measured as ratio of PPE to total assets
Profitability	Profitability of firms measured as ratio of EBIT to total assets
NDTS	Non-debt tax shields measured as ratio of depreciation to net sales

Growth	Growth of firm measured as percentage change in Net Sales from previous to current year
M/B Ratio	Proxy for equity market valuation measured as ratio of market value to book value of assets
UNIQ	Uniqueness of firms measured as ratio of selling expenses to net sales

3.3 Data Description and Descriptive Statistics :

The initial sample consists of all listed Indian manufacturing firms available in 'CapitalinePlus' database over the period of 2005-2013. The study excludes firms for which data are not available for the entire study period. Following prior studies, it also excludes firms with non-positive total assets and net sales (Byoun, 2008) and firms with missing data of required variables (Ozkan, 2001; Shyam-sunder and Myers, 1999). The final dataset includes 12735 firm-year observations with a balanced panel of 1415 firms over the period of 9 years.

Table 2
Descriptive Statistics of Variables Used

Variable	Mean	Median	Std. Dev.	Min	Max
TD	0.46	0.44	0.39	0.00	2.49
LTD	0.22	0.16	0.25	0.00	1.40
STD	0.24	0.21	0.22	0.00	1.29
Size	4.90	4.81	1.82	0.90	9.91
Tangibility	0.34	0.32	0.19	0.00	0.95
Profitability	0.09	0.09	0.09	-0.20	0.43
NDTS	0.04	0.03	0.05	0.00	0.48
Growth	0.17	0.11	0.31	-0.38	2.19
M/B Ratio	1.24	0.96	0.98	0.05	7.06
Uniqueness	2.27	1.64	2.44	0.17	20.86

Table 2 reports the descriptive statistics which includes the mean, median, standard deviation, minimum and maximum values of dependent and independent variables. Following prior studies like Flannery and Rangan (2006) and Byoun (2008), all the variables are winsorised at the 1st and 99th percentiles to avoid the influence of extreme observations, except the debt ratios which are winsorised only at 99th percentiles as they include many

zero values. Table-3 reports the correlation matrix of independent variables which shows that the correlations between the independent variables are not alarming. Moreover, the VIF values are much lesser than 10 for all the variables, which indicates that the multicollinearity is not a serious threat to the results (Gujarati et al., 2012).

Table 3
Correlation Matrix of Independent Variables.

Variables	Size	Tangibi- lity	Profita- bility	NDTS	Growth	M/B Ratio	Unique- ness	VIF
Size	1							1.24
Tangibility	-0.03*	1						1.24
Profitability	0.18*	-0.10*	1					1.24
NDTS	-0.06*	0.40*	-0.20*	1				1.26
Growth0.12*	-0.14*	0.24*	-0.15*		1			1.13
M/B Ratio	0.23*	-0.10*	0.27*	0.02**	0.07*	1		1.31
Uniqueness	-0.16*	-0.14*	0.23*	-0.06*	0.02**	0.32*	1	1.25

Note : *, * and *** denote coefficients are significant at 1%, 5% and 10% level respectively.

4. Empirical Analysis

This section analyses the empirical results obtained from FE regression models which are presented in table 4, 5 and 6 for TD, LTD and STD respectively. The models in general show a good fit as the adjusted R² values vary between 0.66 to 0.77, which are reasonably high. The p-values corresponding to independent variables show that most of the variables are significant with expected signs. The Wald tests 1 and 2 show that the impact of firm characteristics and time dummies are jointly significant in all the cases at 1% level of significance. Finally, the significant chi-square values for Hausman test in all the models indicate that the FE model is appropriate.

The constants are significant in all the cases with positive sign. This implies that keeping other things constant, firms in Indian manufacturing sector maintain an average TD level of 30%. The results however show that firms maintain a lower level of LTD (9%) in comparison to STD (21%) which possibly indicate the intension of firms to avoid long term commitments associated with the LTD.

The coefficients of size are positively significant in all the cases. These findings are in line with the argument of trade-off theory that larger firms are generally more diversified, have lower information asymmetry and bankruptcy risk which permits them to maintain a higher level of debt than the smaller firms. The smaller economic and statistical significance of size for STD than LTD implies that firms rely more on the latter than the former as they

grow larger (Bhaduri, 2002; Titman and Wessels, 1988). The positive coefficients for size are also consistent with the findings of many prior studies like Rajan & Zingales (1995); Fama & French (2002); Frank & Goyal, (2003); Korajczyk & Levy (2003); Drobetz & Wanzenried (2006); Flannery & Rangan (2006); Manos et. al. (2007); Byoun (2008); Quin et. al. (2009); Dang et. al. (2012). However, these findings are against the arguments of pecking order theory that due to higher internally generated funds and lesser adverse selection costs of equity issuance, larger firms are expected to maintain lower level of debts.

The coefficient estimates of tangibility are positively significant in case of TD and LTD, whereas statistically insignificant in case of STD. These results indicate that nature of assets have significant influence on the overall debt (TD) level through the LTD. The positive coefficients confirm the arguments of trade-off theory that firms with the higher proportion of tangible assets in total assets face lower costs of debt as there is higher security for the lenders in case of default. Moreover, its statistical insignificant coefficients for STD indicate that tangibility of assets or collateral to be more specific is not an important consideration for STD. The positive coefficients for tangibility confirm the findings of prior empirical works like Rajan & Zingales (1995); Frank & Goyal (2003); Korajczyk & Levy (2003); Drobetz & Wanzenried (2006); Flannery & Rangan (2006); Byoun (2008); Quin et al. (2009); Chakraborty (2010); Dang et. al. (2012); Mukherjee & Mahakud (2012); Handoo & Sharma (2014).

The coefficients of profitability are highly significant with negative sign. The negative coefficients of profitability are in line with the arguments of pecking order theory and are consistent with the findings of Rajan & Zingales (1995); Ozkan (2001); Fama & French (2002); Frank & Goyal (2003); Korajczyk & Levy (2003); Drobetz & Wanzenried (2006); Flannery & Rangan (2006); Manos et. al. (2007); Byoun (2008); Quin et. al. (2009); Chakraborty (2010); Mukherjee & Mahakud (2010); Dang et. al. (2012); Mukherjee & Mahakud (2012); Ganguli (2013); Handoo & Sharma (2014). The external funds (both debt and equity) are subjected to adverse selection costs due to information asymmetry between insiders and outsiders. Therefore, firms generally prefer internally generated funds to external funds to meet their financing needs. As a result, firms with higher profitability maintain lower level of debts.

The coefficients of NDTs exhibit significantly positive relationship with leverage ratios. The positive coefficients of NDTs are in contrast to the arguments of trade-off theory that firms with higher NDTs generally maintain lower level of debts as the former substitutes the latter in minimizing the tax liability (DeAngelo and Masulis, 1980). However, these results are similar to the findings of Bradley et. al. (1984), Chakraborty (2010) and Chakraborty, (2013). The positive coefficients for NDTs are possibly the impact of tangibility

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of assets as higher level of depreciation also indicates higher tangibility (Bradley et. al., 1984).

Table 4
Results of FE Regression model for TD

Variables	Coefficients	Standard Error	t-statistics	P- Value
Constant	0.30	0.05	5.56	(0.00)*
Size	0.03	0.01	3.11	(0.00)*
Tangibility	0.20	0.04	4.82	(0.00)*
Profitability	-0.40	0.07	-5.75	(0.00)*
NDTS	0.51	0.13	3.77	(0.00)*
Growth	-0.01	0.01	-0.87	(0.38)
M/B Ratio	0.14	0.02	8.83	(0.00)*
Uniqueness	-0.07	0.01	-6.94	(0.00)*
Year 2006	-0.03	0.01	-5.76	(0.00)*
Year 2007	-0.04	0.01	-4.94	(0.00)*
Year 2008	-0.06	0.01	-5.75	(0.00)*
Year 2009	-0.06	0.01	-5.02	(0.00)*
Year 2010	-0.09	0.01	-7.01	(0.00)*
Year 2011	-0.09	0.01	-6.48	(0.00)*
Year 2012	-0.09	0.02	-5.76	(0.00)*
Year 2013	-0.09	0.02	-5.34	(0.00)*
Adjusted R2		0.77		
Wald Test (1)		(20.21)*		
Wald Test (2)		(9.51)*		
Hausman Test		(370.54)*		

Note : It reports the coefficients, standard errors, t-statistics and p-values. Figures under parentheses for Wald Test and Hausman Test are F-statistics and Chi-square statistics respectively. *, * and *** denote coefficients are significant at 1%, 5% and 10% level respectively.

Table 5
Results of FE Regression model for LTD.

Variables	Coefficients	Standard Error	t-statistics	P- Value
Constant	0.09	0.04	2.34	(0.02)**

Size	0.02	0.01	2.88	(0.00)*
Tangibility	0.21	0.03	7.44	(0.00)*
Profitability	-0.22	0.04	-5.34	(0.00)*
NDTS	0.17	0.09	1.96	(0.05)***
Growth	0.02	0.01	2.50	(0.01)**
M/B Ratio	0.07	0.01	8.37	(0.00)*
Uniqueness	-0.04	0.01	-6.50	(0.00)*
Year 2006	-0.01	0.00	-2.81	(0.00)*
Year 2007	-0.01	0.01	-1.90	(0.06)***
Year 2008	-0.02	0.01	-3.47	(0.00)*
Year 2009	-0.02	0.01	-2.76	(0.00)*
Year 2010	-0.04	0.01	-4.05	(0.00)*
Year 2011	-0.11	0.01	-10.18	(0.00)*
Year 2012	-0.11	0.01	-10.08	(0.00)*
Year 2013	-0.12	0.01	-9.84	(0.00)*
Adjusted R2			0.68	
Wald Test (1)			(38.51)*	
Wald Test (2)			(32.76)*	
Hausman Test			(272.27)*	

Note : It reports the coefficients, standard errors, t-statistics and p-values. Figures under parentheses for Wald Test and Hausman Test are F-statistics and Chi-square statistics respectively. *, * and *** denote coefficients are significant at 1%, 5% and 10% level respectively.

Table 6
Results of FE Regression model for STD.

Variables	Coefficients	Standard Error	t-statistics	P- Value
Constant	0.21	0.03	6.54	(0.00)*
Size	0.01	0.01	1.85	(0.07)***
Tangibility	-0.03	0.03	-0.97	(0.33)
Profitability	-0.17	0.04	-4.15	(0.00)*
NDTS	0.24	0.10	2.33	(0.02)**
Growth	-0.02	0.11	-4.47	(0.00)*
M/B Ratio	0.06	0.01	6.92	(0.00)*
Uniqueness	-0.03	0.00	-6.33	(0.00)*
Year 2006	-0.02	0.00	-4.58	(0.00)*
Year 2007	-0.03	0.01	-5.06	(0.00)*

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Year 2008	-0.03	0.01	-4.76	(0.00)*
Year 2009	-0.03	0.01	-4.37	(0.00)*
Year 2010	-0.05	0.01	-6.08	(0.00)*
Year 2011	0.00	0.01	0.43	(0.67)
Year 2012	0.02	0.01	1.49	(0.14)
Year 2013	0.02	0.01	1.64	(0.10)
Adjusted R2			0.66	
Wald Test (1)			(29.52)*	
Wald Test (2)			(32.43)*	
Hausman Test			(180.38)*	

Note : It reports the coefficients, standard errors, t-statistics and p-values. Figures under parentheses for Wald Test and Hausman Test are F-statistics and Chi-square statistics respectively. *, * and *** denote coefficients are significant at 1%, 5% and 10% level respectively.

The relationship between growth and leverage ratio is not same for TD, LTD and STD. The coefficient of growth for TD is insignificant which implies that growth does not have significant influence on the overall debt level which is against both trade-off and pecking order arguments. The coefficient is positively significant in case of LTD which is in line with arguments of pecking order theory that firms with higher growth options need more funds and therefore maintain high leverage and also consistent with the finding of prior studies like Titman & Wessels, (1998); Bhaduri, (2002) and Handoo & Sharma, (2014). On the contrary, the coefficient is negatively significant in case of STD which implies that firms with higher growth opportunities substitute STD with LTD possibly to avoid the higher flotation costs, greater opportunity costs of management time and, higher reinvestment and liquidity risk associated with STD (Diamond, 1991; Easterwood & Kadapakkam, 1994; Barclay & Smith, 1995).

The M/B ratio is positively related to debt ratios and is highly significant in all the cases. These positive relationships are in contrast to the argument of market timing theory that firms with favorable pricing in the equity market generally maintain lower level of debts as they capitalize the market opportunities by issuing equity shares. Moreover, these results are also against the arguments of trade-off and modified pecking order theory and many prior empirical evidence that firms with favorable growth opportunities preserve debt capacity to avoid under investment problem in future (Myers, 1977; Rajan & Zingales, 1995; Ozkan, 2001; Frank & Goyal, 2003; Korajczyk & Levy, 2003; DeAngelo & DeAngelo, 2007; Byoun, 2008; Mukherjee & Mahakud, 2010; Dang et. al., 2012; Mukherjee & Mahakud, 2012). However, these results are consistent with the arguments of simple pecking order

theory that firms with higher growth opportunities need more funds and therefore raise more debt to meet their financing requirements.

Finally, the coefficient estimates of uniqueness are negatively significant in all the cases. The negative coefficients of uniqueness support the argument of Titman & Wessels (1988) that stakeholders of firms dealing with unique and specialized products suffer most from financial distress and bankruptcy risks. Therefore, they maintain ex-ante lower leverage to avoid the ex-post higher cost of liquidation. The result is also consistent with the findings of Bhaduri (2002) and Chakraborty (2010) for Indian firms.

5. Conclusions

This paper is an attempt to investigate the determinants of capital structure of firms pertaining to Indian manufacturing sector and to revalidate the findings of prior empirical works. More specifically, the study examines the predictions of important capital structure theories in determining firms' level of TD, LTD and STD. It uses data of 1415 listed Indian firms over a period of nine years from 2005-2013. The panel data FE regression model has been used by taking TD, LTD and STD as dependent variables in order to fulfill the purposes on the basis of Hausman test of endogeneity. Overall, the models are showing better fit with significant coefficients for explanatory variables, high adjusted R² values ranging between 0.66 to 0.77, significant results for Wald tests and Hausman tests.

Most of the findings from the study are in consistent with the arguments of trade-off theory and pecking order theory but do not support the predictions of market timing theory. Size is positively related to leverage ratios which imply that larger firms maintain more debt than the smaller firms. Tangibility is positively related to TD and LTD which suggest that firms with more tangible assets have more LTD and as a result higher TD. This suggests lower costs of debt for these firms' due to the availability of more collateral and lesser default risk. However, tangibility does not have significant influence on STD which suggests collateral is not an important factor to raise STD. The coefficient of profitability is negative which means firms with higher profitability maintain lesser debt as they use internally generated funds to meet their financing requirements. This is consistent with the arguments of pecking order theory. NDTS has positive coefficients which rejects the trade-off argument that firms with higher NDTS maintain lesser debt but confirms the findings of Bradley et. al. (1984), Chakraborty (2010) and Chakraborty, (2013). Growth does not have influence on the overall debt level. However, firms with higher growth opportunities use more of LTD and less of STD possibly to avoid higher reinvestment and liquidity risk associated with the latter. The positive coefficients of M/B ratio do not support the argument of market timing theory that firms with better equity market valuations rely more on equity and less on debt. However, as higher M/B ratio also indicates higher growth opportunities, its positive coefficients supports the simple

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pecking order argument that firms with higher growth opportunities use more debt to finance their projects. Finally, uniqueness has negative coefficients which confirms that firms dealing with unique and specialized products maintain lower level of debts.

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