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Resource Utilization, Ownership Concentration and Capital Structure Decisions: An Empirical Study of Indian Firms

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Abstract

This empirical investigation delves into the intricate dynamics surrounding resource utilization, ownership concentration, and capital structure decisions within Indian firms. Drawing on the annual financial data of 1,102 non-financial firms that were continuously listed on the Bombay Stock Exchange from the year ending 31st March, 2007 to 31st March, 2019 encompassing 14,326 firm-year observations in a panel structure, our study employs dynamic panel data techniques for data analysis. We explore how resource utilization capability, cash generation capability and ownership concentration affect the capital structure decisions of the firms. This paper is perhaps the first paper to introduce the un-observable firm characteristic resource utilization capability and cash generation capability in the empirical models. To proxy these characteristics indexes of observed accounting ratios were created using Principal Component Analysis. Profitability, Industry Leverage, Size, Growth opportunity, Net working capital to total assets ratio, assets tangibility and financial distress were used as control variables.

The research reveals that firms exhibiting superior resource utilization capabilities tend to issue more debt, while enhanced cash generation capabilities negatively influence the leverage targets. Firms with concentrated ownership, whether by promoters or other entities, exhibit a positive non-linear relationship with leverage—high ownership concentration positively influences leverage, whereas low ownership concentration negatively impacts firm leverage. Additionally, our findings highlight the significant impact of profitability, financial distress, average industry leverage, growth opportunities and the proportion of net working capital to total assets ratio on leverage.

This research contributes to the corporate finance literature, offering valuable insights for practitioners, policymakers, and scholars navigating the intricacies of capital structure in emerging market contexts.

Key-words: Efficiency, Cash Capability, Leverage, Ownership concentration, promoter's shareholding, Dynamic panel data, Indian firms

1. Introduction

There is extant literature available in academia that try to explain the financing behavior of the firms and the factors that affect such behavior. There have been significant contributions by Modigliani and Miller's (1958 and 1963), Kraus and Litzenberger (1973), Jensen and Meckling (1976), Miller (1977) Bradley et al., (1984), Myers and Majluf (1984), Baker and Wurgler (2002) that sets the theoretical framework within which the empirical findings have been inferred by the researchers. However, there is no single theory that is fit to explain the observed heterogeneity in the capital structures. Also, most of the variables that have been used to explain the heterogeneous behavior of capital structures either in the form of variables of interest or control variables represent the capacity of a firm to borrow. These variables are easily observable through various financial ratios obtained from accounting records of the firms like profitability, tangibility, size, etc. These

variables only provide tentative idea of the borrowing capacity of the firms but how much a firm will borrow also depends upon the capability to borrow.

However, capability being an unobservable variable cannot be directly determined to be used in regression models. Therefore, this research explores the relationship among resource utilization, ownership concentration and capital structure. This study has introduced two latent variables- resource utilization capability and cash generation capability in our dynamic panel regression models representing the capabilities of the firms to utilize the available resources and the capability to generate cash. To proxy these two capabilities, we have formed two indexes utilizing the technique of Principal Component Analysis (PCA) to determine the respective weights to be associated with various observable accounting ratios used to determine these two variables.

Additionally, for Indian firms the conflict between ownership and management may assume to be non-existent due to the fact that most of the Indian firms are family owned businesses (Rajakumar and Heney, 2007; Basu and Sen, 2015) with promoters holding key executive positions. The ownership concentration in the hands of a few large shareholders also provides control of the firm intensely aligns their interests with firms' interests doing away with manager shareholder conflict (Ganguli, 2013). However, it may also lead to a conflict between equity shareholder and the lenders due to the fact that if a project is financed by raising high levels of debt and the project is a success, large portion of the returns generated by the project are enjoyed by the equity shareholders but if the project fails the consequences are born by the lenders due to limited liability of the equity shareholders. There is another possibility that if the projects are financed by debt the equity shareholders may undertake very risky unworthy projects because the debt contracts incentivizes equity shareholders to invest sub-optimally. Therefore, the equity shareholders may have a tendency to appropriate the resources of debt holders for their own value creation. Also, the 'controlling argument' suggests the owner managed firms issue more debt to finance future projects in order to retain the control on the firm. Both the arguments suggest a positive association between promoter's shareholding and leverage levels of the firm. In continuation the researchers also need to answer whether similar relationship between ownership concentration and leverage exists if the ownership is concentrated in the hands of non-promoters.

This study considerably advances the body of current literature on three fronts. First of all, it shows how a company's capital structure decisions are influenced by its ability to use resources, showing how better resource utilization enables companies to increase financial leverage while retaining stable risk levels. Second, it contends that a company's debt levels are determined by its long-term cash producing capabilities rather than its short-term cash holdings, challenging conventional wisdom on the relationship between cash holdings and leverage. In conclusion, the research offers strong proof in favour of the 'controlling argument,' exhibiting favourable correlations among the promoter's shares, ownership concentration, and leverage, hence highlighting a complex and non-linear relationship between the two.

2. Previous Literature and Hypothesis Development

Ever since the empirical study on financing decision started appearing for the first time in 1980s, there has been hundreds of research papers published on this topic. However, the empirical findings largely lack any consensus over which factors determine the target capital structure of an average firm. The review paper by Kumar et al., (2017) reveals that year 2001 onwards the major research work on capital structure determinants gained momentum. Most of these research papers are based on empirical research utilizing secondary data analysis and most of these researches belong to large firms in developed economies. Both pecking- order theory and trade-off theory have been successful in explaining the broad financing patterns but neither of the theories has been successful in explaining much of the heterogeneity observed in capital structures (Graham and Leary, 2011).

Further, Harris and Raviv (1991) conclude that the researchers generally agree that leverage of a firm increases with firm's size, asset tangibility, growth opportunities, and non-debt tax shield opportunities and

decreases with expenditures made on research and development, advertisement expenses, uniqueness of the product, profitability and bankruptcy probability. However, with changes in the world economy in the last thirty years the financing patterns might have changed (Frank and Goyal, 2009). Therefore, the researchers have started looking at alternative explanations to gain more insights into the corporate financing decisions.

In the Indian context the empirical evidences by Guha- Khasnobis and Bhaduri (2002) using dynamic panel data analysis conducted on 697 firms revealed that the lag term of the dependent variable i.e. leverage and size were positively related with the long-term borrowings and profitability was negatively related to the leverage ratio. Another attempt by Chakraborty (2010) to analyze the factors influencing the capital structure of the Indian firms using a panel data analysis of 1,169 Indian non-financial firms that were listed on either NSE or BSE for a period of fourteen years from 1995-2008 applying fully modified OLS and GMM revealed that leverage was negatively correlated with profitability, growth and size but shown a positive correlation with tangibility of the assets, non-debt tax shield (NDTS) and product uniqueness. The positive correlation of NDTS with firm leverage is in contradiction to results obtained in the studies by Prowse, S. D, (1990), Ozkhan (2001) and Huang and Song (2006). Both the studies by obtained data from CMIE database Prowess.

Titman (1984) gave an alternate explanation by proposing non-financial stakeholder theory that was extended by Du et. al (2014). Du et. al (2014) applied Instrument Variable technique on panel data of 13,622 firms obtained from Compustat from 1971 to 2009. The study used a variable Cost Structure defined as ratio of Selling General and Administrative expenses to operating cost with and without depreciation claiming it to be a proxy for product uniqueness and non-financial stakeholders, to test the hypothesis that firms producing unique products use lesser debt and this relationship is stronger for firms with higher expected default probabilities. However, the variable Cost Structure is better suited proxy for product cost control and uniqueness as the firms dealing in unique products are expected to spend more on development, branding and placement of the product among the target audience than a proxy for stakeholder theory. The negative relationship of this variable with leverage is due to the fact that by reducing such expenses the firms can reduce the operating risk and hence can bear increased financial risk. The study by Chen et. al (2016) also supports the opinion as it uses the same variable a proxy for operating leverage. Kalh et. al (2014) also used Cost Structure as a proxy of operating leverage. Both the studies make a successful attempt to provide an alternate explanation about the capital structure through determinants. The operating leverage crowds out financial leverage (Lev, 1974; Ferri and Jones, 1979). In order to reduce operating risk firms need to improve on efficiency; however, to the best of the knowledge of the authors there is no study that directly relates resource utilization capabilities of a firm with its financing decisions.

The financing decisions are taken by key managerial personnel, who manage the affairs of the firm. The diffused shareholding of corporates makes the management stronger (Barle and Means, 1932) paving way for agency problem between managers and shareholders. On the other hand ownership concentration provides motivation to shareholders for effective monitoring of the affairs of the firm reducing agency conflict. Jensen and Meckling (1976) predict that firms with concentrated ownership tend to have lower leverage as higher debt levels bring more monitoring. However, it may be true for economies with market based financial systems, India being an economy with banking based financial system may have an opposite story. Two recent India based studies have provided mixed evidences. Chadha and Sharma (2015) found a negative relationship between promoter shareholding and leverage. But, Shantanu K. Ganguli (2013) observed a positive relationship between the two. A comprehensive study of Latin American firms by Céspedes et. al (2010) also finds evidence consistent with the argument that firms with concentrated ownership tend to have higher leverage as they avoid equity issue to avoid losing control over the firm. It has already been discussed that Indian corporate sector is also characterized by concentrated shareholding with promoters controlling the firm operations as key managerial personnel a positive relationship between ownership concentration and leverage is expected. The next important question to answer is whether there exists similar relationship if the ownership is not concentrated with promoters.

There is lack of consensus in the literature as to which factors reliably explain the observed heterogeneity in capital structure of the firms. Since India follows a banking based debt market, the factors that explain financing behavior of Indian firms may be different that those firms that operate in market based debt

markets. Keeping these research gaps in the mind, the study attempts to formulate and test the following research hypothesis:

H1: Resource utilization capability of the firm positively affects leverage of the firms

H2: Cash generation capability negatively affects leverage of the firms.

H3: Promoter shareholding has significant impact on the leverage of the firms.

H4: Ownership concentration has significant impact leverage of the firms.

H5: There is non- linear relationship between promoter's shareholding/ ownership concentration and firm's leverage.

3. Data sample, variable definitions and methodology

3.1 Data and sample Selection

We have used annual financial data of 1,102 non-financial Indian firms that were listed on Bombay Stock Exchange (BSE) for the year 2007-2019. Our sampling frame included only those firms for which continuous data were available from 2007 to 2019. The final dataset consists of 1,102 Indian firms for 13 years making it 14,326 firm year observations in a panel structure. The data has been primarily obtained from Centre for Monitoring Indian Economy (CMIE) database Prowess.

3.2 Variables under Study

Dependent variable: Leverage

There is wide variation with regard to use of leverage by firms. The firms that use high leverage are comparatively larger, older and have more tangible assets. Such firms face lower earnings volatility and they make lesser expenditure in research and development (Graham and Leary, 2011). There are several definitions of leverage in the literature. For instance Titman and Wessels (1988) scaled short-term debt, long-term debt, and convertible debt by the book value of the equity shares and by the market value of equity share making it six debt–equity ratios. Du, Liu and Shen (2014) used two leverage ratios book leverage and market leverage. Long term debt and short term debt were scaled by the summation of book value of equity, long term debt and short term debt to get book leverage and to determine the market leverage book equity was replaced by market equity. Since our objective is to analyze how firms finance their investment requirements using debt and equity we define leverage as the ratio between long-term debt and total assets.

The novel contribution of this study is the evidence of positive relationship between resource utilization capability and cash generating capabilities of the firm and leverage levels. Efficiency is defined as the ratio of firms output to per unit of input (Liebermann and Dhawan, 2005). There are various accounting ratios such as debtor turnover ratio, assets turnover ratio, inventory turnover ratio, etc. each one of which reflect efficiency in a particular functional area such as receivable management, inventory management, etc. Firms' resource utilization capability is an unobservable resource that transforms the available observable resources into output bringing economies to the firm.

Since the level of firms' resource utilization capability is an unobservable variable we proxy it utilizing the technique of PCA. We assign weight to different accounting ratios representing different functional efficiencies by forming index of weights as obtained using PCA. The same has been reproduced below:

Variables	**Weight (PCA)**
Sales To total expenses	0.066

Creditors turnover	0.0659
Debtors turnover	0.0695
Gross fixed assets utilisation ratio	0.2654
Sales To employees Compensation	0.2505
Total assets utilisation ratio	0.2828
Total	**1**

The firms that are capable of generating higher cash should be able to finance a greater portion of their investment requirements and can better serve their short term liabilities. Another novel contribution of this paper is evidence of negative relationship between cash generating capability of the firm and its leverage level. We argue that in long term improved cash generating capability of the firm substantially reduces the need for external finance to meet the operating and financing needs of the firm. Since capability and policy both are long term phenomenon, cash generating capability is better placed to explain the observed cross sectional differences in leverage levels. We expect a negative relationship between cash capability and leverage.

Since cash generation capability is unobservable we utilize the technique of PCA to determine the weights to be assigned to different observation accounting ratios to proxy it. The observed variables and the corresponding weights calculated to form index using PCA technique have been reproduced below:

Variables	**Weight (PCA)**
Cash and bank balance as % of current assets	0.3769
Cash flow from operating activities to Sales	0.0884
Cash flow from operating activities before tax to PBIT	0.0285
Cash flow from operating activities to Current Liabilities	0.1424
Cash to current liabilities	0.3638
Total	**1**

There is an obvious effect of ownership concentration on capital structure (Rajan and Zingales, 1995). On one hand, the presence of large shareholders on the board of directors reduces the probability of managers using surplus cash in their favor. On the other hand large shareholders avoid equity issue for maintaining the controlling rights in the firm making case for higher debts issues. However, these shareholders may be undiversified and hence, according to Jensen and Meckling (1976) and Rajan and Zinagels (1995) prefer lesser debt if it invites greater monitoring by lenders. Brailsford (2002) suggests a non-linear relationship between managerial ownership and leverage for Australian firms. The evidences of non-linear relationship between concentrated ownership and leverage were also observed by Nigel et. al (2006) for East Asian firms and by Jacelly Céspedes (2010) for Latin American firms.

Following Jacelly Céspedes (2010) we also use the Herfindahl index (Ownership) to test the relationship between ownership concentration and leverage if the ownership concentration is not limited in the hands of promoters. We also use square of the Herfindahl index (Ownership^2) to test whether there exists any non-linear relationship between the two.

The present study uses the fractional shareholding of all the shareholding categories reported by Prowess database. For some companies the sum of reported fractional shareholding was less than one for a few years. Therefore, we readjusted the fractions and new fractional values were calculated by dividing fractional value of one category of a particular year divided by the sum of fractional values of all categories of that year.

We have used the following control variables in our model.

Variables	**Proxy**	**Definition**
Profitability	Profit	Profit before interest and tax/ total assets
Industry Leverage	Ind. Lev.	Average of the firms in an industry
Size	Size	Natural log of total assets
Growth opportunity	MTB	(Total assets- book value equity + market capitalization of equity)/total assets.
Net working capital	WCTA	(Current assets- current liabilities)/ total assets
Assets tangibility	Tangibility	Net fixed assets / total assets
Altman Z Score	Z_Score	Z-Score index suggested by Altman (1968)

4. Data description and analysis

4.1 Descriptive Analysis

We report summary statistics of the selected variables for the entire period of 2007-2019 in table 1. The data has been truncated at 1% in both tails to remove the effect of extreme values. The median leverage is below the mean leverage signifying more than 50% of leverage observations are below average and concentration of higher values above leverage. There is large cross sectional difference in use of leverage by the Indian firms so that the 5^{th} percentile of leverage is 6.15% specifying that 6.15% of total assets have been financed by long term debt while the 95^{th} percentile of leverage ratio is above approximately 70%. The leverage usage by an average firm has shown a decreasing trend over the study period from the average of 40% in 2007 to 32.40% in 2019.

However, there is a different pattern observed for promoter shareholding during the study period. While there is a modest increase in average promoter shareholding from 50.87% in 2007 to 53.34% in 2019 with 52.21% average over the study period.

For detailed descriptive statistics of all the other variables please refer to table 1.

Table 1: Summary statistics (2007-2019)

	Mean	St. Dev	p5	Median	p95	N
Leverage	0.3615	0.2182	0.0615	0.3466	0.6987	14326
Ind Lev	0.3611	0.1102	0.1864	0.3532	0.5700	1677*

Size	3.4751	0.7856	2.2380	3.4457	4.8199	14326
Tangibility	0.3180	0.1753	0.0579	0.3040	0.6289	14326
WCTA	0.0677	0.1889	-0.0970	0.0350	0.3436	14326
Profit	0.0959	0.1088	-0.0244	0.0887	0.2422	14326
Z Score	1.0982	0.6711	0.2772	0.9877	2.2690	14326
MTB	1.2529	1.1859	0.4127	0.8766	3.3677	14326
Ownership	0.3238	0.1221	0.1813	0.2987	0.5715	14272
Cash Cap	5.1768	6.3572	0.3671	2.6148	19.8959	14326
RUC	8.1822	10.2452	2.0993	5.7847	20.9276	14326
PSH	0.5221	0.1648	0.2507	0.5235	0.7585	14326

This table represents industry-year observations. The sample contains observations from 129 industries for all thirteen years making 1677 industry observations, spread across firms it makes 14326 firm-year observations.

A correlation matrix with variance inflated fated factors (VIF) has also been produced in table 2. The correlation coefficients are also not showing any significant correlation between two or more explanatory variables. The observed VIF scores are less than 10 for all the explanatory variables which provide evidence against existence of any possible multi-collinearity between the explanatory variables.

Table 2: Matrix of correlations and VIF

Variables	Ind. Lev.	Size	Tangibility	WCTA	Profit	Z Score	MTB	Ownership	Cash Cap	RUC	PSH	VIF
Ind Lev	1											1.24
Size	0.026	1										1.16
Tangibility	0.348	0.036	1									1.23
WCTA	-0.235	-0.106	-0.276	1								1.17
Profit	-0.099	0.065	-0.067	0.142	1							1.18
Z Score	0.044	-0.21	-0.067	0.03	0.214	1						1.41
MTB	-0.187	0.223	-0.08	0.109	0.274	0.038	1					1.21
Ownership	-0.043	-0.094	-0.1	0.121	0.033	0.057	0.114	1				1.14
Cash Cap	-0.176	0.013	-0.101	0.193	0.149	-0.147	0.155	0.13	1			1.14
RUC	0.097	-0.028	-0.103	-0.003	0.041	0.415	-0.05	0.002	-0.051	1		1.25
PSH	-0.018	0.01	0.003	0.029	0.035	0.051	0.063	0.268	0.033	0.039	1	1.08

For details of abbreviations please refer notes to table 1.

4.2 Model Selection

Numerous research papers in the area of corporate finance use the static panel data models in their empirical analysis for estimating the optimum leverage level by an average firm using equation-1.

$$Lev_{i,t} = \alpha + \beta X_{i,t} + U_i + \epsilon_{i,t} \quad (1)$$

Where, $Lev_{i,t}$ refers to leverage level of firm i at time t, $X_{i,t}$ stand for vector of explanatory variables, U_i denotes unobservable firm fixed effect, and $\epsilon_{i,t}$ is error term. Although static panel data fixed effect models control for the time invariant firm fixed effects such as managerial capabilities, etc., however, such models fail to incorporate any temporal dependency (lags) of the dependent variable. Equation 1 can correctly predict and explain the long-term corporate finance policies of the firm such as dividend payout policy, capital structure, corporate cash holding etc. only with the assumptions of absence of information asymmetry, transaction cost

and other adjustment costs (Drobetz W. et al., 2006). Since such policies are time varying and adjustment towards targets is costly, firms may not fully adjust their capital structures to optimum levels from the levels of previous years. Therefore, the lag term of the dependent variable contains a lot of information making a case for using dynamic panel models as given in equation 2.

$$Lev_{i,t} = \alpha + \delta Lev_{i,t-1} + \beta X_{i,t} + U_i + \epsilon_{i,t} \quad (2)$$

The dynamic models provide two notable advantages over static models. First, it takes care of serially correlated group error terms and second, it is capable of distinguishing between long term and short-term effects of explanatory variables on dependent variable.

In consonance with dynamic behavior of capital structure decisions, we use system generalized methods of moments (GMM) estimator developed by Arellano and Bover (1995) and Blundell and Bond (1998). We use equation 3 for our empirical data analysis for the present study.

$$Lev_{i,t} = \alpha + \delta Lev_{i,t-1} + \beta_j X_{i,t} + \beta_k V_{i,t} + U_i + \epsilon_{i,t} \quad (3)$$

Where, $Lev_{i,t}$ refer to optimum leverage level of firm i at time t, $X_{i,t}$ defining the vector of control variables (size, tangibility, profitability, industry leverage, market to book ratio, net working capital to total assets, and Z Score). While, $V_{i,t}$ means vector representing variable of interest (resource utilization capability, cash capability, promoter's shareholding, ownership concentration and square terms of promoter's shareholding and ownership concentration), U_i is unobservable firm fixed effect, and $\epsilon_{i,t}$ is the error term.

5. Empirical Analysis

We run four models in all. Except the proxies for ownership concentration rest of the variables were included in all the four models. Model-1 includes promoters' shareholding; model-2 includes squares of promoters' shareholding to test the non-linearity of relationship between promoter shareholding and leverage. Model-3 includes ownership concentration score using Herfindahl index and model-4 includes its square term to test the nature of relationship i.e. linear or non-linear.

With regard to the relationship between resource utilization capability achieved through operational efficiency by the firms and the leverage levels, we found positive sign of the coefficient of resource utilization capability in all the four models which is consistent with our argument that firm that can utilize their resources better can afford higher debt levels. Such relationship exists due to the fact that firms which can manage their resources well are in better position to reduce the operating risk which improves the debt bearing capacity of the firm. Of the two capability variables that we used in the model we found stronger negative relationship between cash earnings capability and leverage than positive relationship between firms' resource utilization capability and leverage emphasizing the supremacy cash earning capability in determination of equilibrium levels of leverage. The results are consistent with the expectations we made. The relationship between resource utilization capability and leverage is consistent with trade-off theory predictions while the relationship between cash capability and leverage is consistent with pecking order theory predictions.

With respect to ownership concentration and leverage levels of the firm we found a strong positive relationship between the two. Since Indian firms have highly concentrated ownership in the hands of promoters with controlling rights, we first analyzed the impact of promoter shareholding on leverage levels of the firms using Model 1. We found a strong positive relation between the two (p-value < 1%; t-stats=2.90). The relationship is consistent with findings of Bokpin (2009) on dataset of firms listed on Ghana stock exchange, Driffield et al. (2007) for data of firms belonging to East Asian countries and Ganguli S. K (2013) for Indian firms but our results are more robust with larger sample size and wider time frame. The results are in contrast with the findings Jensen et al. (1992) who found a negative relationship between leverage and insider ownership. In

Indian context our results differ than of Saurabh Chadha and Anil K Sharma (2015) who found a negative relationship between promoter shareholding and leverage. The results provide support for control argument that firms with higher promoter shareholding prefer issuing debt than equity in order to retain control over firms' management. The findings are in contradiction with the argument that family-controlled firms use lesser debt because founding family CEOs are more averse to control risk. With higher leverage the risk of losing control increases because the probability of bankruptcy increases with increasing leverage (DeAngelo and DeAngello, 1985; Mishra C.S. and McConaughy, 1999).

We run Model 3 to check if the financing behavior of the firm managers changes if we drop the condition that the concentration of the ownership lies in the hands of promoters. We use Herfindahl index to calculate the ownership concentration score. It has been calculated as sum of squares of the fractional ownership held by different individuals, group of individuals and institutions belonging to all categories. With score so obtained the ownership concentration may lie with any individual, group of individuals and institutions including promoters. We obtained a positive and significant relationship between ownership concentration score and leverage that reflects the positive impact of ownership concentration on firm leverage irrespective of the fact whether the concentration lies in the hand's promoters or shareholders other than promoters.

However, prior studies by Brailsford et al. (2002), Jacelly Céspedes et al. (2010), Lo et al. (2016) indicate that there exists a non-linear relationship between ownership concentration and leverage of a firm. In order to test such relationship between the two we replaced ownership and promoter shareholding with PSH^2 and Ownership^2 which are square terms of promoters shareholding and ownership score to construct model-2 and model-4 respectively. The empirical findings of model-2 and Model-4 return significant positive coefficients for PSH^2 and Ownership^2 which are consistent with the prior findings of existence of non-linear relationship between ownership concentration and leverage. However, we obtained positive and significant relationship for both Ownership and Ownership^2 with leverage, the relationship between Ownership^2 and leverage is stronger as reflected by higher t-statistics and lower p-value. The results are not different for promoter shareholding as well with t-statistics for PSH^2(3.26) being greater than t- statistics of PSH (2.90). Giving sufficient evidence to conclude that ownership concentration has a positive and significant impact on leverage levels of Indian firms and there exists a non-linear relationship between ownership concentration and leverage.

Throughout the four models we used for experimentation, we didn't find any significant impact of size and tangibility on the leverage levels of the Indian firms.

Table 3: Dynamic panel data output (dependent variable- leverage)

	Model-1	Model-2	Model-3	Model-4
$Leverage_{t-1}$	0.764*** (22.53)	0.767*** (23.19)	0.737*** (22.74)	0.766*** (19.54)
Ind_lev	0.118*** (4.09)	0.117*** (4.02)	0.145*** (5.40)	0.129*** (3.97)
WCTA	-0.0872*** (-3.38)	-0.0870*** (-3.41)	-0.0985*** (-2.98)	-0.0859*** (-3.04)
MTB	0.00381** (2.12)	0.00275 (1.46)	0.00376** (1.98)	0.00406** (2.12)
Z_Score	-0.0333** (-2.29)	-0.0366** (-2.52)	-0.0364*** (-2.65)	-0.0399*** (-2.66)
Profit	-0.226*** (-3.28)	-0.199*** (-2.97)	-0.144* (-1.94)	-0.141* (-1.65)
Tangibility	0.00756 (0.63)	0.00939 (0.75)	0.0140 (1.15)	0.0107 (0.88)

RUC	0.000965** (2.04)	0.000967** (2.05)	0.00122*** (2.90)	0.00128*** (2.93
Size	0.000842 (0.21)	0.000184 (0.04)	0.000178 (0.06)	-0.00137 (-0.39)
CashCap	-0.00154*** (-3.51)	-0.00170*** (-3.74)	-0.00155*** (-4.05)	-0.00157*** (-3.78)
PSH	0.257*** (2.90)			
PSH^2		0.293*** (3.26)		
Ownership			0170* (1.68)	
Ownership^2				0.0218** (2.00)
_cons	-0.0317 (-0.68)	0.0184 (0.57)	0.0862*** (4.26)	0.0927*** (4.50)
No of observations Year Dummies No of firms No. of Instruments AB AR(1) p-value AB AR(2) p-value Sargan-Hensen (2-step p-value)	13224 Yes 1,102 40 0.0000 0.1164 0.3330	13224 Yes 1,102 42 0.0000 0.1226 0.3426	13185 Yes 1,102 52 0.0000 0.1810 0.4039	13185 Yes 1,102 42 0.0000 0.1805 0.2620

t- statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01.

Consistent with pecking order predictions we found the profitability to have a negative impact on leverage of the firm. However, we are strongly of the opinion that such relationship is mechanical in nature due to the construction of the variable itself. The positive relationship between market to book ratio and leverage is also consistent with pecking order predictions that high growth firms employ more debt capital to finance its investment requirements. Such relationship is obvious for Indian firms due to highly concentrated ownership with promoters.

Consistent with agency theory predictions that financially distressed firms raise more debt (Harris and Raviv, 1991) we also obtained a significant negative relationship between Z Score and leverage (Significant at 5% level in model-1 and model-2 and significant at 1% level in model-3 and model-4) and even a stronger negative relationship between net working capital to total assets ratio (Significant at 1% in all the four models). Such relationship clearly that Indian firms find it hard to get long term debt capital to finance their net working capital requirements and probably they manage it through equity issuances. Working capital requirements include all current assets while we are discussing about the net working capital which is financed through long term sources only. It is probably the supplier's side impact of agency problem where financing is difficult due to lack of collaterals in a market where investors have significantly higher risk perceptions.

5 Conclusion

This paper investigates the impact of improving capabilities, both turnover and cash generation capabilities, and the ownership concentration on the target leverage levels of Indian firms. We found that firms with better resource utilization capability issue more debt whereas the improvement in cash generation capability negatively

affects the leverage targets. Firms with concentrated ownership, whether in the hands of promoters or in the hands of people and institutions other than promoters, issue more debt and there exists a non-linear relationship between leverage and ownership concentration meaning that high ownership concentration has a positive impact on leverage but low ownership concentration has negative impact on firm leverage.

If any theory can better explain and predict the financing behavior of Indian firms it is pecking order theory and agency theory. Most of the evidences that we obtained through our empirical data analysis were consistent with pecking order theory predictions. We provide further evidences for significant impact of profitability, financial distress, average industry leverage and proportion of net current assets in the total assets held by the firm. Our empirical findings reject hypothesis one through five. However, we didn't find any statistically significant impact of size (measured by log of total assets) and tangibility on leverage targets of the Indian firms.

The present study helps firm managers focusing on improving their resource utilization capabilities and cash generating capabilities as these variables can significantly revise their leverage targets. The study also contributes to academicians and researchers to explore more about linkages between different types of capabilities that firms develop as they grow and leverage levels of the firms in different cultural and institutional environments.

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