

An Empirical Study on Capital Structure Decision of Select Automobile Companies in India

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Abstract

This paper attempts to examine the firm specific factors which determine the capital structure decisions of publicly traded automobile companies of India. Based on the market capitalization, top ten 2 & 3 wheeler auto mobile companies listed in NSE and BSE are selected. Using multi regression model, accounting data of companies over a period of 10 years from 2007-2016 is chosen and the empirical study is conducted. Firm specific factors such as tangibility, firm size, liquidity, non debt tax shield, growth rate and profitability have been analyzed to check their influence on the leverage structure of the selected automobile companies in Indian context. Total debt leverage is taken as dependent variable and firm specific factors are taken as independent variables. It has been found from the study that except for non debt tax shield all the other factors like tangibility, liquidity, profitability, growth rate and firm size are statistically significant determinants of capital structure of the listed automobile companies.

Key words: Capital Structure, Leverage, Tangibility, Firm Size, Liquidity, Profitability

JEL classification: G32

Introduction

Capital structure refers to the mix of different securities known as debt equity ratio in a corporate firm. Capital structure decisions are considered to be one of the most crucial decisions of a company as it has a direct bearing on the success or failure of the company. A number of theories have been proposed

and lot of research has been done in the past few decades on the capital structure decisions and the factors which influence them. This topic acquired special significance after the publication of seminal papers by Modigliani and Miller (1959, 1963). But neither the research nor the theory has been able to provide satisfactory explanation as to what factors affect the capital structure decisions (Brealey and Myers 1991).

Extensive research has been conducted on developed markets whereas emerging economies is still deficient of such meticulous investigation. There have been quite a few significant papers conducted on country-to-country comparisons (De Jong et al., 2008; Rajan and Zingales, 1995; Booth et al., 2001). Researchers like Bhaduri (2002), Harvey et al (2004) etc have focused on a few European and Asian countries. Bhaduri has conducted research specific to India with highly significant results but chose a limited number of variables and small sample due to limitation of data. Theoretical papers in this field have been even rarer.

Several researchers including Mitton(2006), have already exposed the tendency of convergence between emerging markets and developed economies. The emerging markets are steadily reaching the debt levels of developed countries. It would be convenient if the finding of the developed markets research when dealing with any capital structure problems is applied on emerging markets. However, the matter is not as straightforward as that seems to be. It is crucial to be sure that the

companies, operating in emerging or developed capital market, actually follow the worldwide tendencies and that they choose their capital structure following the same logic. Alves and Ferreira (2007); La Porta et al (1998, 2000) and several others argued that the determinants of Capital Structure are significantly affected by jurisdictional factors like Corporate and Personal Tax System, Corporate Governance, Laws and Regulations of the country. Similarly, the development of the bond/capital markets, Rule of Law, Credit/Share holders Protection, etc, are quite specific to individual countries. It is therefore, very important to study individual emerging countries by themselves rather than the countries pooled together. Due to the uniqueness of India as a country, it is important to understand the behaviour of the firms by studying the country individually.

There is also limited work done specific to India related to capital structure theories and determinants (Booth (2001), Bhaduri (2002); Singh and Kumar (2008); Farhat et al (2009),). India as an emerging economy is based on common law with comfortable external debt environment. It has the potential for enormous expansion and the economy has been growing significantly in recent years. Hence it becomes important for us to understand the significance of capital structure decisions at the macro and micro level of financing (Joy Pathak). At the same time there are several firm specific and country specific factors which influence the capital structure decisions of publicly traded firms in India. Hence it is extremely important for finance policy-makers at the firm or aggregate level to understand what drives corporate financing.

Automobile Industry

India's automobile sector is one of the world's biggest industry. India produces 24 million vehicles as of 2015-16, which is almost 7.1% of the world's GOP. The Indian automobile industry consists of 5 types. They are commercial vehicles, MUV's & cars, 2 wheelers, 3 wheelers and tractors. The two wheeler holds the maximum market share which is about 81%. The Passenger Vehicle holds the market

share of 13%. The exports of automobile in the year 2014-15 has a growth of 15%. By the year 2020 India is expected to become a market leader in 2 and 3 wheeler segment. India's automobile sector is one of the most competitive market in the world (www.ibef.org).

Literature Review

Some of the studies published in the relevant literature on capital structure decisions concerning the developed and developing economies have been included.

D Rakeshkumar Rasiklal Jani (2015). This paper tells about the determinants of capital structure in Automobile segment from 2009 to 2013 involving 3 organizations. The impact of Debt-Equity ratios on other ratio has been investigated in this review. The determinants of short term and long-term debt ratios and determinants of aggregate debt ratios has been considered.

Md . Suresh Babu.N, Prof. Chalam.G.V (2016) Capital structure and its determinants of Automobile organizations has been analysed in this paper. 58 Indian Automobile organizations listed on the Bombay stock exchange from the period 1997-98 to 2010-14 of around 17 years has been analysed. The Results demonstrates that the factors of profitability, size, substantial quality, development, and non-debt impose shield are contrarily related with leverage and risk and liquidity are emphatically related with leverage.

Md. Ashraf Chesti, Md. Khursheed Ali, Mr. Mouhidin Sangmi (2013). Attempt is made in order to learn the effect of capital structure on the profitability of a firm. Automobile industry is concentrated in this review. Around ten organizations for a period of five years are chosen for this study. The scientists have calculated different ratios to accomplish the destinations of the review. The discoveries have revealed that capital structure have measurably critical effect on the organizations profitability. Debt to Equity ratio is related contrarily to the profitability ratios.

Mohan Kumar M.S, Dr. Aswata Narayana T & Rashmi B.H. (2016). In this study the data collected from secondary source of the organization's annual reports. Top five automobile companies are selected which are listed in Bombay Stock Exchange on the basis of sales turnover. The study concludes that there is a positive correlation between DCL, DOL, & EPS and correlation is negative between DFL, EPS, DER is there & among majority of the companies selected for the study during study period. This study found that there is positive correlation between DCL, DOL & EPS which shows that there is a major relationship between, degree of combined leverage, degree of operating leverage & EPS. There is a high financial risk for the Eicher Motor and high earning capacity for Force Motor among the companies selected for the study.

N R Parasuraman and P Janaki Ramudu(2013) demonstrated as to how Indian firms went about in designing their capital structure positions. Regression with ENTER & STEP method has been used. The analysis revealed that the capital structure decisions of Indian firms depended largely on profitability in general and ROCE and RONW in specific in most of the years.

Joy Pathak (2010) examines the relative importance of six factors in the capital structure decisions of publicly traded Indian firms using two independent ordinary least square regression. The objective of this paper is to build on previous studies on the Indian capital market and model all the important factors affecting capital structure decisions of Indian firms post liberalization policy by Government of India. It has been found that factors such as tangibility of assets, growth, firm size, business risk, liquidity, and profitability have significant influences on the leverage structure chosen by firms in the Indian context.

Stein Frydenberg (2004) The author reviews various capital structure theories in this paper. He argues that what could determine capital structure is the pecking order theory and the static trade off theory.

But after the review it has been found that neither of them provides a complete description of the situation and why some firms prefer equity and others debt under different circumstances. The paper is ended by a summary where the option price paradigm is proposed as a comprehensible model that can augment most partial arguments.

Frank and Goyal (2007) In this paper trade-off, pecking order and market timing theory has been analyzed. Factors such as industry median, market to book asset ratio, tangibility, profitability, firm size and expected inflation has been considered for leverage decisions. The empirical evidence seems reasonably consistent with some versions of the tradeoff theory of capital structure.

Kakani & Reddy (1998) This paper provides an empirical examination of the determinants of various capital structure theories. It attempts to develop and test a new theory on capital structure for large manufacturing firms in India. For different empirical and managerial implications short term and long term debt instruments have been measured. The results found are contrary to the classical financial theory.

Baral (2004) has made an attempt to examine the determinants of capital structure -size, business risk, growth rate, earning rate, dividend payout, debt service capacity, and degree of operating leverage of the companies listed to Nepal Stock Exchange Ltd. Eight variable multiple regression model has be used to assess the influence of defined explanatory variables on capital structure. This study shows that size, growth rate and earning rate are statistically significant determinants of capital structure of the listed companies.

Harris & Raviv (1991) This paper focuses on the theories of capital structure theories based on agency cost, asymmetric information, market interactions and corporate control considerations. This paper is developed on the modern theory of capital structure of Modigliani & Miller (1958) where the corporate tax is excluded. Hence the author has concentrated on the non-tax driven capital structure theories.

According to the author there are four determinants of capital structure and changes in the leverage is due to the changes in the stock prices.

Xiaoyan Niu (2008) talks about the capital structure choice and determinants related to many different factors. This thesis firstly present several traditional theories discussed on capital structure, such as trade-off theory, agency cost theory and theory of pecking-order. It suggests seven determined factors influencing the capital structure decisions and the correlations among these factors and the choice of capital structure.

Objective & Methodology

The objective of this paper is to analyze the importance of firm specific factors in the capital structure decisions of publicly traded Automobile companies of India. Further this paper focuses on examining whether the firm specific factors such as tangibility, firm size, liquidity and profitability affect the leverage structure of publicly traded automobile companies of India. Based on the market capitalization, top ten 2 & 3 wheeler automobile companies traded in NSE and BSE are selected. The ratios are calculated from the income statement and balance sheet of companies for a period of ten years ranging from 2007-2016. The data for the empirical analysis is sourced from Moneycontrol.com. The ten companies chosen are TVS motors, Hero moto corp, Bajaj auto, Endurance technologies, Atul auto, LML scooters India ltd, Maharashtra scooter ltd and Kinetic engineering ltd. Multiregression model is used to arrive at the empirical results with total debt leverage as dependent variables and firm specific factors like profitability, tangibility, liquidity, non debt tax shield, growth rate and firm size as independent variables.

Leverage

As can be seen in the literature, various definitions of leverage exist. All these characterizations of leverage revolve around some form of debt ratio. The definitions depend on whether market value or book values are used. In addition, definitions also depend on whether short term debt, long-term debt or total

debt is used. Firms have several types of assets and liabilities and there can be further adjustments made to the definition. For this study, two definitions of leverage has been used and the data is presented accordingly.

Total Debt Leverage: This leverage definition uses a sum of debt in current liabilities and long term debt over the total assets (De Jong et al (2008)).

Firm Specific Independent Variables

a) Tangibility

Tangibility is the characteristic that an asset can be used as collateral to secure debt. Myers and Majluf (1984) argued that firms with more collateral value in their assets tend to issue more debts to take the advantage of low cost. The higher tangibility of assets indicates lower risk for the lender as well as low bankruptcy costs. Among the various factors that decide the capital structure chosen by a firm as mentioned above bankruptcy cost is important. Jensen & Meckling (1976) and Myers (1977) indicated that stockholders of the leveraged firms tend to invest sub-optimally to expropriate wealth from the firm's bondholders, and thus, a positive relation between debt ratios, i.e. leverage, and the collateral value of assets, i.e. tangibility, exists. A good proxy for this is asset tangibility which is measured as the ratio of the net fixed assets to total assets. Consistent with Jensen & Meckling (1976) and Myers (1977) proposition, it would be expected that higher tangibility would result in higher leverage.

b) Firm Size

Firm size has been suggested to be an important variable related to the leverage ratios of the firm. It is also argued that relatively large firms tend to be more diversified and thereby less prone to bankruptcy. Consistent with these arguments, we use firm size as an inverse proxy for the probability of bankruptcy, i.e larger firms are less likely to face distress. These arguments also provide basis to suggest that large firms should be highly leveraged. Similarly, the cost of issuing debt and equity securities is also related to size, and as suggested by Smith (1977) smaller

firms pay many times more to issue new equity and even more in case of debt. The firm size can be measured either as a Log of total Sales or as the Log of total Assets. Titman & Wessels (1988) suggested that logarithmic transformation of sales reflects the size effect and therefore we take the Log of Total Sales as our proxy.

c) Profitability

To take into account asymmetric information issues it is common to use variables such liquidity and profitability. A study by Booth et al (2001) suggested that profitable firms might be able to finance their growth internally by using retained earnings while maintaining a constant debt-equity ratio whereas, less profitable firms have no such choice and are forced to go for debt financing. We propose that Profitability has a negative effect on leverage since more profitable firms will have more financial resources and will use debt as a last issue. Profitability was proxied as the ratio of the Operating income before depreciation to total assets.

d) Liquidity

Consistent with De Jong et al (2008) we agree that the liquidity is the accumulated cash and other liquid assets will serve as the internal source of fund and will be utilised first instead of debt. Therefore, we propose that liquidity has a negative effect on leverage. Liquidity was calculated by dividing the total current assets over the total current liabilities.

e) Non debt tax shield: This ratio is calculated in relation to depreciation and total assets **Kavitha (2014)**.

f) Growth rate: This ratio is the annualized growth rate of revenue, earnings and dividend **Keshar J Baral (2004)**.

Statement of Hypotheses

This study has tested the following null hypothesis on relation between the above defined independent variables and leverage of listed automobile companies:

H0: Total leverage is not influenced by profitability, liquidity, tangibility, non-debt tax shield, firm size and growth rate.

H1: Total leverage is influenced by profitability, liquidity, tangibility, non-debt tax shield, firm size and growth rate.

The regression equation is shown below:

$$LEV(TD) = \beta_0 + \beta_1 TANG + \beta_2 SIZE + \beta_3 PROFIT + \beta_4 LIQUID + \beta_5 NDTs + \beta_6 GR + \epsilon_i$$

Model Diagnostics

Table 1 provides the descriptive statistics for all the variables. Now looking at the diagnostics in Table 3 of the regression model it can be seen that the significance level is .000 which says that the H0 is rejected. That is there is a significant influence of all the independent variables on total leverage.

Table 1 showing the descriptive statistics of selected companies:

Descriptive Statistics

	Mean	Std.Deviation	N
totalleverage	.251859	.2247962	81
liquidityratio	1.207803	.8718027	81
profitabilityratio	.103742	.3023894	81
tangibility	.349572	.1773627	81
nondebttaxshield	.033663	.0435859	81
growthrate	2745.	4321.	
-firmsize	962963	8996539	81
	2.815423	1.0628260	81

Table2 showing the variables of selected companies:

VariablesEntered/Removed

Model	Variables Entered	Variables Removed	Method
1	firmsize, tangibility, profitabilityratio, non-debttax shield, liquidity ratio,growth rate		Enter

a. Dependent Variable:total leverage

b. All requested variable sentered.

Table 3 showing the model summary of the selected companies:

Model Summary										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			Durbin-Watson		
R Square Change				F Change	df1	df2	Sig. F Change			
1	.632a	.399	.350	.1812165	399	8.184	6	74	.000	.875

- a. Predictors: (Constant), firm size, tangibility, profitability ratio, non-debt tax shield, liquidity ratio, growth rate
- b. Dependent Variable: total leverage

4 Table showing the ANOVA table of the selected companies:

ANOVA						
Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	1.613	6	.269	8.184	.000b
Residual	2.430	74			.033	
Total	4.043	80				

- a. Dependent Variable: total leverage
- b. Predictors: (Constant), firm size, tangibility, profitability ratio, non-debt tax shield, liquidity ratio, growth rate

5 Table showing the coefficients of the selected companies:

Coefficients					
Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.	
B	Std. Error	Beta			
1	(Constant)	-.226	.119	-1.904	.061

liquidity ratio	.077	.030	.297	2.589	.012
profitability ratio	-.325	.081	-.438	-4.022	.000
tangibility	.465	.143	.367	3.252	.002
non debt tax shield	-.443	.529	-.086	-.838	.405
growth rate	-2.955E-005	.000	-.568	-3.191	.002
firm size	.125	.039	.593	3.174	.002

From the above study it can be said that all the independent factors have a significant influence on the capital structure decisions of 2 and 3 wheeler automobile companies listed in BSE. There is further scope for research where in macro economic factors can also be considered to analyse the capital structure decisions of the selected companies.

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