

Determinants Of Capital Structure In Automobile Industry In India

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Abstract

A growing firm needs capital. This capital can come either from debt or equity. It is generally accepted that the optimal capital structure of a firm is the combination of debt and equity which ends in the minimum cost of capital. But the determination of an optimal capital structure is not an easy job. The company has to first analyze the important factors viz, the firm's business risk, age, financial distress, liquidity, size, profitability, and growth rate before deciding upon an appropriate capital structure. The fluctuations in the financial markets during the past decade of liberalization have certainly made severe changes in the financial structure of corporate units. In the light of the empirical observations of various studies, the present research attempts to give clear idea on the determinants of the capital structure of Automobile industry in India in the post-liberalization decade. Based on the findings of the research, the owners of the company can avail the advantage of the capital structure by keeping debt at the proper volume. The findings of the study may also provide some sort of help to the investors in choosing a company which is capable of providing a better return for their investment.

Key Words: Profitability, Liquidity, Debt equity, Non Debt Tax Shield and Debt Service Capacity.

Introduction

India, an emerging economy, has witnessed unprecedented levels of economic expansion, along with countries like China, Russia, Mexico and Brazil. India, being a developing economy, has benefited hugely from a strong manufacturing and export oriented industrial framework. India's industrial sector records for 27.6% of the GDP and provides employment to 17% of the total workforce (www.indiaonline.com). Though agriculture is the prime occupation of the majority of the people, the government had always put more effort on the industrial development of the country.

The government aims at attaining self-sufficiency in reduction and protection from foreign competition. Since Independence, India is trying hard to become a diverse industrial base. A growing firm needs capital. This capital can come either from loan or share capital.

It is generally agreed that the optimal capital structure of a firm is the combination of loan and share capital which ends in the minimum cost of capital. But the determination of an optimal capital structure is not an easy job. The company has to first analyze the important factors such as the firm's business risk, age, financial distress, liquidity, size, profitability, and growth rate before deciding upon an appropriate capital structure. All these factors are a pointer to one important fact that companies will have to search for the right capital structure which enhances firm value while minimizing costs. The capital required for investment, while often scarce, can be generated from various sources. How firms choose among these various sources and why, have been the source of much debate in financial literature.

Statement of the Problem

In the nineties, more number of theories have been projected to explain the variations in the debt-to-equity ratios among firms. Few notable Indian studies are : Pandey (1981), Venkatesan (1983), Babu and Jain (1999) and Mallikarjunappa and Carmelita Goveas (2007). Babu and Jain (1999) point out that historically Indian Corporate firms have shown a marked inclination towards debt. But with liberalization, some factors have changed, prompting finance managers to redesign their capital structures. Financial institutions that had followed debt-equity norms of 2:1 and more in the early 1990's are now enforcing a debt equity norm of 1.5 : 1 and even lower. The stated studies broadly support the view that debt ratios are related to profitability, liquidity, non-debt tax shield, business risk, debt service capacity, size and age of the company. However, researchers have come to conflicting conclusions on the character of relationship between these factors and the capital structure of firms. Therefore, there is a requirement for more studies testing the empirical impacts of the various factors influencing capital structure decisions. The changes in the financial markets during the past decade of liberalization have certainly made an crash on the financial structure of corporate units. In the light of the empirical observations of various

studies, the present research attempts to give clear idea on the determinants of the capital structure of Automobile industry in India in the post-liberalization decade.

Methodology

The Study utilizes data obtained from Prowess developed by Centre for Monitoring Indian Economy (CMIE). The empirical work is undertaken to identify determinants of Capital Structure of Automobile Industry in Indian in the era of after liberalization. The variables considered for the present study have been chosen after detailed survey of the available literature on the subject and discussions with several knowledgeable persons in the field of finance.

Sample

The data for this analysis is taken from the Prowess Database provided by CMIE. The CMIE classifies the Indian industries into five sectors such as manufacturing, mining, electricity, services and construction industries. The CMIE database reports accounting information for a large number of firms operating in the Indian Manufacturing sector. From this data set this study selects companies based on the criteria that the companies should have maintained its identity and reported its annual accounts without any gaps from the financial year 1992-93.

Framework of Analysis

The following statistical tools are used for the analysis and interpretation of the Data. Correlation Analysis, Regression Analysis, Step Wise Analysis and Path Analysis

Significance of the study

A company should develop an appropriate capital structure, which is the most advantageous to the company and its owners. This can be done only when all the factors relevant to the company's capital structure decisions are given due weightage.

In the period of liberalization, the Indian financial system in general and the corporate financing practice in particular have undergone significant structural and

other changes. The study acquires significance in the wake of factors affecting Debt Equity Ratio in the liberalized era in the Indian Automobile industries.

Factors Influencing Debt-Equity Ratio

In order to find out the extent of influence of the selected variables on the level of Debt-Equity ratio, Correlation Analysis, Multiple Regression Analysis, stepwise Regression Analysis and Path Analysis has been performed.

Nature and Strength of Relationship between Debt-Equity Ratio and Selected Variables

Sixteen variables have been tested for their association to know the strength and nature of their relationship with Debt/Equity Ratio. Simple Correlation Analysis has been used to ascertain the relationship. It is inferred that the following variables viz., i) Size, ii) Profitability, iii) Non Debt Tax Shield, iv) Selling and Distribution Expenses Ratio, iv) Return on Equity, v) Tax liabilities to operating profit, vi) Net profit Ratio and vii) Debt Service Capacity are found to be associated with Debt/Equity Ratio. The other variables such as growth, age, asset structure, business risk, liquidity, dividend payout ratio, Solvency ratio and depreciation to operating profit are not associated with debt-equity ratio. Their nature of relationship is disclosed hereunder. The table 1 reveals the results of Correlation Analysis.

TABLE – 1
CORRELATION ANALYSIS

Variables	R	r²
Size	-0.196**	0.0384
Growth	-0.21	0.0441
Age	-0.015	0.0002
Asset Structure	0.056	0.0031
Profitability	0.283**	0.0801
Non Debt Tax Shield	-0.187**	0.0350
Business Risk	-0.125	0.0156
Liquidity	0.136	0.0185
Selling and Distribution Expenses Ratio	-0.176*	0.0310
Dividend Payout Ratio	-0.049	0.0024
Return on Equity	0.286**	0.0818
Solvency Ratio	-0.31	0.0961
Depreciation to Operating Profit	-0.043	0.0018
Tax liabilities to operating profit	-0.146*	0.0213
Net profit Ratio	0.342**	0.1170
Debt Service Capacity	-0.162*	0.0262

**1% significant Level

*5% Significant Level

Determinants of Debt-Equity Ratio

The results of the regression analysis reveal that out of the sixteen independent variables ten variables are found to be significantly associated with Debt-Equity ratio. They are: i) Size, ii)Growth, iii)Profitability, iv) Non Debt Tax Shield, v)Business

Risk, vi) Selling and Distribution Expenses Ratio, vii) Dividend Payout ratio, viii) Return on Equity, ix) Solvency ratio and x) Net Profit ratio. The remaining six variables which includes age, asset structure, liquidity, depreciation to operating profit, tax liabilities to operating profit and debt service capacity are not associated with debt-equity ratio in the Automobile Industry. The results of regression analysis are shown in Table 2.

TABLE - 2

DETERMINANTS OF DEBT-EQUITY RATIO-AUTOMOBILE INDUSTRY
MULTIPLE REGRESSION ANALYSIS

Determinants	Regression Coefficient	Standard Error	t' (d.f.=153)
Size	-0.3861**	0.1234	-3.129
Growth	-0.0072**	0.0025	-2.926
Age	-0.0038	0.004	-0.959
Asset Structure	0.2363	0.6459	0.366
Profitability	-1.9523**	0.7509	-2.6
Non Debt Tax Shield	-7.7647**	2.3135	-3.356
Business Risk	-0.5200**	6.85E-04	-6.048
Liquidity	-0.0517	0.1218	-0.424
S&D Exp Ratio	-4.1232**	0.9456	-4.361
Dividend Payout Ratio	-0.4704*	0.189	-2.488
Return on Equity	0.1033*	0.0402	2.566
Solvency Ratio	-0.3917**	0.133	-2.945
Depreciation to Operating Profit	0.0034	0.0018	1.847
Tax liabilities to operating profit	-0.9423	0.4962	-1.899
Net profit Ratio	1.2069**	0.264	4.571
Debt Service Capacity	2.21E-04	4.34E-04	0.508

**1% significant Level

*5% Significant Level

Constant

: 5.2475

Standard Error of estimate	: 0.5429
Adjusted R Squared	: 0.5685
R Squared	: 0.6093*
‘F’ Value	: 14.915

Firm with greater size are expected to have higher debt because they need heavy investment. The regression coefficient between Size and debt-Equity ratio is - 0.3861 signifying a negative relationship between two variables. An increase of one unit in Size i.e Total Assets will have a negative impact on debt-Equity ratio by 38.61 units.

Firms with higher growth rate are expected to have lower debt as well as the firms that are aspiring higher growth, are expected to have higher debt level.

The overall contribution of all the sixteen variables is ascertained by calculating the value of R^2 . The contribution of these variables to Debt-Equity ratio is 60.93 per cent as the value of R^2 is 0.6093.

Factors Prominently Associated with Debt-Equity Ratio

In the stepwise regression equation, the variable ‘Net Profit Ratio’ is introduced as the first variable and the contribution of this variable is found to be 11.70 per cent.

TABLE – 3
STEPWISE REGRESSION ANALYSIS - AUTOMOBILE

Variable steps	Net Profit Ratio	Solvency Ratio	Growth	Business Risk	Selling & Distribution Expenses Ratio	Size	Non Debt Tax Shield	Dividend Payout Ratio	R ²
1	0.4945								0.117
2	0.689	-0.6682							0.303
3	0.714	-0.7029	-0.0108						0.3713
4	0.6815	-0.7541	-0.0113	-0.0013					0.3985
5	0.6782	-0.7403	-0.0112	0.0016	-2.6648				0.4338
6	0.65	-0.4947	-0.0105	-0.0033	-4.7996	-0.4773			0.5095
7	0.6313	-0.4406	-0.0106	-0.0037	-4.9432	-0.4972	6.6421		0.5384
8	0.6353	-0.4817	0.0114	-0.0041	-4.8742	-0.445	7.4995	-0.53	0.5616

The total contribution of the eight variables viz., i) 'Net Profit Ratio', ii) 'Solvency Ratio', iii) 'Growth', iv) 'Business Risk', v) 'Selling and Distribution Expenses Ratio', vi) 'Size', vii) 'Non Debt Tax Shield' and viii) 'Dividend Payout Ratio' accounts for 56.16 per cent. The R² value of the multiple regression amounts to 60.93 per cent. It can be concluded that the difference in the R² value i.e 3.77 per cent is the contribution of the remaining independent variables to the dependent variable Debt-Equity Ratio.

Conclusion

It is inferred from the correlation analysis that the following variables viz., i) Size, ii) Profitability, iii) Non Debt Tax Shield, iv) Selling and Distribution Expenses Ratio, iv) Return on Equity, v) Tax liabilities to operating profit, vi) Net profit Ratio and vii) Debt Service Capacity are found to be associated with Debt/Equity Ratio. The results of the regression analysis reveal that out of the sixteen independent variables ten variables are found to be significantly associated with Debt-Equity ratio. They are: i) Size, ii) Growth, iii) Profitability, iv) Non Debt Tax Shield, v) Business Risk, vi) Selling and Distribution Expenses Ratio, vii) Dividend Payout ratio, viii) Return on Equity, ix) Solvency ratio and x) Net Profit ratio. The results of stepwise regression analysis shows that the total contribution of the eight variables viz., i) 'Net Profit Ratio', ii) 'Solvency Ratio', iii) 'Growth', iv) 'Business Risk', v) 'Selling and Distribution Expenses Ratio', vi) 'Size' vii) 'Non Debt Tax Shield' and viii) 'Dividend Payout Ratio' accounts for 56.16 per cent. In the present study, the researcher identified the significant determinants of capital structure and arrived conclusions useful for the financial managers. Based on the findings of the study the owners of the company may take the advantage of the capital structure by keeping debt at the proper volume. The findings of the study may also render some sort of help to the investors in choosing a company which is capable of providing a better return for their investment. But there are a number of avenues of research in those areas hitherto untouched.

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