

Important Determinants of Capital Structure Decisions of Indian Automobile Industry

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Abstract: *The Capital Structure of a firm describes how it has sourced its finances. This capital structure is comprised of the owned & the owed capital. There are a number of determinants that affect the decisions taken while determining this capital structure like cost of capital, control, flexibility etc. The Indian Automobile Industry is the seventh-largest auto producer in the world with an average annual production of 17.5 Million vehicles. It is the 4th largest automotive market by volume, by 2015. It contributes about 7% to the country's GDP by volume and projects 6 Million-plus vehicles to be sold annually, by 2020. In this paper, we are going to study the capital structure of some of the prominent listed Indian Automobile companies. The objective is to find out the relationship between the capital structure, value of the firm, return on invested capital and various other factors of the firm. We will compare the financial ratios of these companies and find out if there is any correlation amongst them.*

Keywords: *Capital structure, Value of the firm, Return on invested capital and various other factors of the firm*

I. Introduction

The capital structure of a firm shows how it has financed its overall operations and growth by using various available sources of funds. A company's proportion of long and short-term debt is considered while analyzing its capital structure. Capital structure is most likely referring to through the firm's debt-to-equity ratio, which tells us how risky a company is. A company having a greater proportion of debt is usually considered as having greater risk, because this firm is relatively highly levered. Suppose a firm has \$10 million in equity and \$90 million in debt, then it is said to be 10% equity-financed and 90% debt-financed. This firm's ratio of debt to total financing, which is, 90% in this example is referred to as the firm's leverage. The capital structure of a company is comprised of two components: the owned capital and the owed capital.

The Owned Capital includes:

- ❖ *Equity Shares*
- ❖ *Preference Shares*
- ❖ *Retained Earnings and Surplus*

The Owed Capital includes:

- ❖ *Debentures*
- ❖ *Bonds*
- ❖ *Long Term Loans*

1.1 An Overview of the Indian Automobile Industry

The Indian Automobile Industry is the seventh-largest auto producer in the world with an average annual production of 17.5 Million vehicles. It is the 4th largest automotive market by volume, by 2015. It contributes about 7% to the country's GDP by volume and 22% of the country's manufacturing GDP. A young population, an expanding middle class and an increasing interest of the companies in venturing into the rural markets have made the two wheelers segment the leader of the Indian automobile market. The two wheeler segment has 80 percent market share. The overall passenger vehicle segment has just 14 percent market share.

India is also a big player in auto exports, with solid export growth expectations for the near future. Various initiatives by the Government of India like 'Make in India' and the major automobile players in the Indian market are expected to make India a leader in the Four Wheeler and Two Wheeler market in the world by 2020. The industry has estimated that it will sell more than 6 Million-plus vehicles annually, by 2020. Total turnover of the automobile industry was USD 58.5 Billion in 2010-11 and turnover by 2016 is projected to be

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USD 145 Billion. 100% FDI is allowed under the automatic route in the auto sector, subject to all the applicable regulations and laws.

The Indian Automobile Industry comprises of four sectors and some of the companies under each sector are:

Auto - 2 & 3 Wheelers (7 companies)

- Bajaj Auto
- Hero Motocorp
- TVS Motor
- Majestic Auto
- Atul Auto

Auto - LCVs & HCVs (5 companies)

- Ashok Leyland
- Eicher Motors
- TATA Motors
- Force Motors
- SML Isuzu

Auto - Cars & Jeeps (2 companies)

- Maruti Suzuki
- M&M

Auto Ancillaries (72 companies)

- Amtek Auto
- Motherson Sumi
- Castex Tech
- Exide Ind
- Mahindra Comp
- Hind Hardy

1.2 Determinants of capital structure:

Capital structure of a company has to be designed very carefully. The financing decisions should be made with a view to achieve that target capital structure set by the management of the company. After existence of a company for few years, the financial manager then has to deal with the existing capital structure. Almost every company needs funds to finance its activities continuously. Each time the funds have to be arranged, the financial manager needs to consider the advantages and disadvantages of various sources of finance and selects the best option keeping in view the target capital structure.

1.2.1 Important Capital Structure Determinants are:

1.2.2 Choice of investors:

A Company's policy generally is to have different types of investors for their securities. Therefore, a capital structure should give enough choice to all kind of investors to invest. Usually bold and adventurous investors go for equity shares and loans & debentures are often raised keeping in mind conscious investors.

1.2.3 Nature of Business:

Capital structure also depends on the nature of industry the firm operates in. If there are no barriers in industry for the entry of new competing firms, the profit margin of existing firms in the industry would be adversely affected. As a result, the firm may find it more risky to use fixed charge bearing securities.

1.2.4 Financial Leverage or Trading on Equity:

When debt and preference share capital, which are sources of finance with a fixed cost, are used to finance the assets of the company it is known as financial leverage or trading on equity. If the assets financed by debt yield a return greater than the cost of the debt, the earnings per share will increase without an increase in the owners' investment. The EBIT-EPS analysis is an important tool in the hands of the financial manager to get an insight into the firm's capital structure management

1.2.5 Cost of Capital:

Needless to say that it is desirable to minimize the cost of capital. Thus, other things remaining the same, cheaper sources should be preferred. The cost of a source of finance is the return expected by its suppliers

which depends on the degree of risk taken by the suppliers. In order to minimize the overall cost of capital, a company should raise a greater proportion of debt.

1.2.6 Cash Flow:

Conservation is one of the features of a sound capital structure. It is related to the assessment of the liability for fixed charges, created by the use of debt or preference capital in the capital structure in the context of the firm's ability to generate cash to meet these fixed charges which includes payment of interest, principal and preference dividend. If the company employs a high debt or preference capital, the fixed charges will be high

1.2.7 Control:

In designing the capital structure, sometimes the existing management is governed by its desire to continue control over the company. The existing management team may not only decide who is to be elected as the Board of Directors but may also desire to manage the company without any outside interference. The ordinary shareholders have the legal right to elect the directors of the company. If a company issues new shares, there is a risk of loss of control. Losing control often delays the decision of the companies to go public. To avoid this risk of loss of control the companies opt for raise debt capital or issuing preference shares.

1.2.8 Flexibility:

Flexibility means a firm's ability to adapt its capital structure to the needs of the changing conditions. The capital structure of a firm is flexible if it can easily change its capitalization or sources of funds

1.2.9 Size of the Company:

The size of a company greatly influences the availability of funds from different sources. It is difficult for small companies to raise long term loans. Even if they get such long term loans, they get it on inconvenient terms and at a high rate of interest. A larger company thus enjoys greater flexibility in designing the capital structure.

1.2.10 Marketability:

It is the ability of the company to market or sell particular type of security in a particular time frame, which in turn depends upon the readiness of investors to buy that security.

1.2.11 Floatation Costs:

Floatation costs are expenses that are incurred when the funds are raised. Usually, the cost of floating an equity issue is more than the cost of floating a debt. Except in the case of small companies, floatation cost generally is not a very important factor influencing the capital structure of a company.

II. Literature Review

According to GABA, D., & GARG, R. (2012), the effect of different company specific variables includes asset composition, business risk, size, debt service capacity, growth rate and earning rate on the capital structure of selected variables. Regression results revealed that asset composition, business risk and debt service capacity are significant factors in context of automobile industry.

According to Ashraf, T., & Rasool, S. (2013), Out of 7 variables only 3 are significant (Size, tangibility and growth). It means that the firms in automobile sector should keep in mind these factors because these factors determine the leverage decision in this sector. The remaining three factors (profitability, tax, risk and NDTs) are insignificant and do not play any role in the determination of leverage in non-financial firms of automobile sector of Pakistan.

According to Ani, M. A., & Amri, M. A. (2015), higher fixed assets, higher risk and size encourage firms to use the debts in the capital structure.

According to Boateng, A. (2004), Firm characteristics such as size of the JV, type of the industry have effect on the capital structure. Also the level of ownership of partners of the JV influences the capital structure of the firm.

According to Vicente-Lorente, J. (2001). Reputational assets technological capabilities & specific human capital affect the firm's debt ratio in spite of the fact that they are expected to have similar implications as intangible assets and non debt tax shields

TIWARI, A. K., & KRISHNANKUTTY, R. (2014), there is a negative and statistically significant relationship between non-debt tax shields and size and debt and there is a positive and statistically significant relationship between growth and ratio of fixed assets to total assets

Kumar, R., & Bodla, B. S. (2014), Among them, 'cost of borrowing', 'size of the firm', 'collateral value of assets', and liquidity are more important factors than others. The 'cost of borrowing' is found having negative relationship with debt equity ratio

Allen, D. E., Nilapornkul, N., & Powell, R. J. (2013), For Thai banks, nonperforming loans and risk-weighted assets are key factor on book leverage; while GDP growth is only a major factor for market leverage.

III. Research Methodology

1.3 Objective

- To understand the capital structure adopted by the various automobile companies studied under the paper.
- To find out if there is any relationship between the capital structure and the performance of the company.

1.4 Sample Selection

We have selected a sample of six listed automobile companies namely Maruti Suzuki, Tata Motors, Mahindra and Mahindra, Eicher Motors, Force Motors & Ashok Leyland. These companies are directly and indirectly engaged in the production of 2 wheelers, Light commercial vehicles (LCV's), Heavy Commercial vehicles (HCV's), cars and jeeps. Maruti Suzuki is the leading manufacturer of passenger cars in India with a market share of more than 45%. Eicher Motors owns the iconic Royal Enfield motorcycle business, which leads the premium motorcycle segment in India. TATA is the world's 17th-largest motor vehicle manufacturing company, fourth-largest truck manufacturer, and second-largest bus manufacturer by volume. Mahindra and Mahindra is one of the largest vehicle manufacturers by production in India and the largest manufacturer of tractors across the world. Ashok Leyland is the 2nd largest commercial vehicle manufacturer in India, 4th largest manufacturer of buses in the world and 16th largest manufacturer of trucks globally.

1.5 Generation of Hypothesis

H0: there is positive relation between value of firm & debt-equity ratio

H1: there is negative relation between value of firm & debt-equity ratio

H0: there is positive relation between debt-equity ratio and WACC.

H1: there is negative relation between debt-equity & so on

IV. Data Analysis & Interpretation of Indian listed automobile companies

1.6 Mahindra and Mahindra:

	Mar '14	Mar '13	Mar '12	Mar '11	Mar '10
Debt Equity Ratio	0.22	0.22	0.27	0.23	0.37
Value Of Firm	20525.56	17875.2	15129.02	12378.7	10698.7
Degree of Financial Leverage	1.059326	1.04299	1.045134	1.0206	1.05654
Financial Leverage Ratio	65.05067	55.9696	46.7707	40.0253	35.9691
WACC	1.087001	0.80735	0.859842	0.44443	1.07644
Return on Invested Capital	93.02%	95.19%	83.00%	101.81%	66.00%

Interpretation:

With the help of data we were able to calculate debt equity ratio, value of firm, WACC, DOF and so on. Looking at the table give above we can see the various changes done by the company, and the effect it had on the numbers. Lower the WACC the better for company and for Mahindra and Mahindra the lowest WACC was in the year March 2011 when it was just 0.44%. During which even their ROI was highest among five years. The WACC was the highest in the year March 2014 at 1.08% The ROI was the lowest in the year March 2010 at 66%.

1.7 Ashok Leyland:

	Mar '14	Mar '13	Mar '12	Mar '11	Mar '10
Debt Equity Ratio	1.19	1.11	0.83	0.88	0.98
Value Of Firm	7157.87	6663.28	5289.9	5004.81	4603.6
Degree of Financial Leverage	-3.9657	1.80068	1.3699	1.23562	1.187
Financial Leverage Ratio	25.9728	22.4625	25.795	36.1137	34.606
WACC	-2.0388	5.2154	3.962	2.97762	1.722
Return on Invested Capital	0.71%	11.50%	21.27%	25.44%	17.55%

Interpretation:

With the help of data we were able to calculate debt equity ratio, value of firm, WACC, DOF and so on. Looking at the table give above we can see the various changes done by the company, and the effect it had on the numbers. Lower the WACC the better for company and for Ashok Leyland the lowest WACC was in the year Mar 10 at 1.72% and it was the highest in the year March 13 at 5.21%. During year Mar 11 their ROI was highest among five years at 25.44%.

1.8 Force Motors:

	Mar '14	Mar '13	Mar '12	Mar '11	Mar '10
Debt Equity Ratio	0.02	0.04	0.05	0.75	0.52
Value Of Firm	1246.4	1194.94	1202.99	655.09	493.15
Degree of Financial Leverage	1.15	1.43	1.03	1.28	1.33
Financial Leverage Ratio	94.57	90.66	91.27	42.38	32.71
WACC	6.31%	3.31%	129.69%	7.70%	7.69%
Return on Invested Capital	231.56%	25.88%	1131.23%	17.55%	27.09%

Interpretation:

With the help of data we were able to calculate debt equity ratio, value of firm, WACC, DOF and so on. Looking at the table give above we can see the various changes done by the company, and the effect it had on the numbers. Lower the WACC the better for company. Force Motors had the lowest WACC in the year Mar 13 at 7.69%. During year Mar 12, their ROI was highest among five years.

1.9 TATA Motors:

	Mar '14	Mar '13	Mar '12	Mar '11	Mar '10
Debt Equity Ratio	0.76	0.75	0.56	0.73	1.12
Value Of Firm	33669.3	33380.2	30613.9	34627.3	31405.06
Degree of Financial Leverage	-0.30388	8.93323	1.908719	1.629951	1.440443
Financial Leverage Ratio	29.95726	25.92996	21.61775	36.23554	52.49603
WACC	-1.18%	7.32%	4.49%	12.53%	4.56%
Return on Invested Capital	2.21%	2.02%	10.67%	11.86%	13.03%

Interpretation:

With the help of data we were able to calculatedebt equity ratio, value of firm, WACC, DOF and so on. Looking at the table give above we can see the various changes done by the company, and the effect it had on the numbers. Lower the WACC the better for company, and in case of Tata Motors, the lowest WACC was in the year Mar 14. During the year Mar 10 their ROI was highest among five years at 13.03%.

1.10 Maruti Suzuki:

	Mar '14	Mar '13	Mar '12	Mar '11	Mar '10
Debt Equity Ratio	0.08	0.07	0.07	0.01	0.07
Value Of Firm	22,663.10	19,968.10	16,265.70	14,037.70	12,656.50
Degree of Financial Leverage	1.0423195	1.048065	1.063462	1.025725	1.007852
Financial Leverage Ratio	141.16291	122.6186	104.8561	92.36747	78.54775
WACC	4.11%	5.53%	5.90%	6.38%	5.36%
Return on Invested Capital	202.13%	180.69%	195.63%	519.59%	236.94%

Interpretation:

With the help of data we were able to calculate debt equity ratio, value of firm, WACC, DOF and so on. Looking at the table give above we can see the various changes done by the company, and the effect it had on the numbers. Lower the WACC the better for company, and in case of Maruti Suzuki, the lowest WACC was in the year Mar 14 at 4.11% and highest in the year March 2011 at 6.38%. During year Mar 11 their ROI was highest among five years at 519.59% and lowest in the year March 2013 at 180.69%

1.11 Eicher Motors:

	Mar '14	Mar '13	Mar '12	Mar '11	Mar '10
Debt Equity Ratio	0	0	0.03	0.03	0.04
Value Of Firm	1,233.66	825.34	649.06	554.29	474.14
Degree of Financial Leverage	1.0020927	1.000743	1.001496	1.014242	1.029714
Financial Leverage Ratio	38.031031	27.28349	22.28839	19.06972	22.4101
WACC	0.0136531	0.020855	0.018231	0.033659	0.026614
Return on Invested Capital	20.624354	8.97616	3.079345	3.020126	1.698717

Interpretation:

With the help of data we were able to calculate debt equity ratio, value of firm, WACC, DOF and so on. Looking at the table give above we can see the various changes done by the company, and the effect it had on the numbers. Lower the WACC the better for company, and in case of Eicher Motors, the lowest WACC was in the year Mar 14. During year Mar 14, their ROI was highest among five years.

V. Results

1.12 Correlation Matrix:

Interpretation:

	Debt Equity ratio	Value of Firm	Degree of financial leverage	Financial leverage ratio	WACC	Return on Invested Capital
Debt Equity ratio	1.000	0.312	0.129	-0.502	0.684	-0.736
Value of Firm	0.312	1.000	0.763	0.063	-0.259	-0.584
Degree of financial leverage	0.129	0.763	1.000	-0.089	-0.612	-0.209
Financial leverage ratio	-0.502	0.063	-0.089	1.000	-0.358	-0.021
WACC	0.684	-0.259	-0.612	-0.358	1.000	-0.494
Return on Invested Capital	-0.736	-0.584	-0.209	-0.021	-0.494	1.000

The value of the firm, degree of financial leverage and WACC has a positive correlation with Debt equity ratio whereas the financial leverage ratio and Return on invested Capital is negatively correlated with the Debt equity ratio. Here the pecking order theory is appropriately followed.

The Degree of financial leverage & financial leverage ratio is positively correlated to the value of firm and WACC & Return on invested capital are negatively correlated.

The Degree of financial leverage has a negative correlation with financial leverage ratio, WACC and Return on invested capital.

WACC has a negative correlation with Return on invested capital.

We see that there is no strong correlation amongst the determinants of capital structure which again proves that there is no standard defined way to construct the capital structure of the companies

1.13 Regression Analysis

	Multiple R	R Square	Adjusted R Square	Standard Error	F Value
Value of Firm	0.31	0.10	-1.50	13053.31	0.43
Degree of financial leverage	0.13	0.02	-1.50	0.88	0.07
Financial leverage ratio	0.50	0.25	-1.50	30.70	1.34
WACC	0.68	0.47	-1.50	0.75	3.51
Return on Invested Capital	0.74	0.54	-1.50	2.11	4.73

Interpretations:

From the various F values , all those values are greater than 0.05 (Significance). Hence we reject H0 which again shows that there is no positive relation between the capital determinants.

Multiple R, R square and Adjusted R value quantify the 'model quality', or the proportion of the results variance that can be explained by the model.

The Standard error between value of firm & debt equity ratio is very high this shows the poor precision in the relation which can be accounted on the factors like sample size,etc

VI. Conclusion

The value of the firm, degree of financial leverage and WACC has a positive correlation with Debt equity ratio. This shows that value of firm, degree of financial leverage and WACC are to a certain extent related to the debt equity ratio whereas the financial leverage ratio and Return on invested Capital is negatively correlated with the Debt equity ratio. WACC & Return on invested capital are negatively correlated to the value of the firm showing that the cost of capital has no relation with the value of the firm.

From the Regression Analysis table we see that debt equity ratio and value of firm have a very high standard error showing that there is very low relation among them. The F values are all greater than 0.05. All these help us to prove that there is no positive relation between the capital determinants. Hence we can reject H0.

From the above detailed analysis and limited number of companies taken into consideration, there is no strong relation found between any determinants of capital structure. This analysis is limited to the companies studied by us and there is a possibility of other determinants which might have a strong relation with the ones studied.

References

- [1]. Allen, D. E., Nilapornkul, N., & Powell, R. J. (2013). The Determinants of Capital Structure: Empirical evidence from Thai Banks. *Information Management & Business Review*, 5(8), 401-410.
- [2]. Ani, M. A., & Amri, M. A. (2015). The determinants of capital structure: an empirical study of Omani listed industrial companies. *Business: Theory And Practice*, (2),
- [3]. Ashraf, T., & Rasool, S. (2013). Determinants of Leverage of Automobile Sector Firms Listed in Karachi Stock Exchange by Testing Packing Order Theory. *Journal Of Business Studies Quarterly*, 4(3), 73-83.
- [4]. Boateng, A. (2004). Determinants of capital structure: Evidence from international joint ventures in ghana. *International Journal of Social Economics*, 31(1), 56-66
- [5]. GABA, D., & GARG, R. (2012). DETERMINANTS OF CAPITAL STRUCTURE IN AUTOMOBILE AND STEEL INDUSTRY. *Asia Pacific Journal Of Research In Business Management*, 3(11), 1.
- [6]. Kumar, R., & Bodla, B. S. (2014). A Study of the Determinants of Capital Structure Choice. *BVIMR Management Edge*, 7(2), 79-93.
- [7]. TIWARI, A. K., & KRISHNANKUTTY, R. (2014). Determinants of capital structure: comparison of empirical evidence for the use of different estimators. *Theoretical & Applied Economics*, 21(12), 63-82.
- [8]. Vicente-Lorente, J. (2001). Specificity and opacity as resource-based determinants of capital structure: Evidence for Spanish manufacturing firms. *Strategic Management Journal*, 22(2), 157-177.