International Journal of Commerce and Management Research
ISSN: 2455-1627, Impact Factor: RJIF 5.22
www.managejournal.com
Volume 3; Issue 1; January 2017; Page No. 138-142

Impact of financial leverage on cost of capital and valuation of firm with special reference to Indian automobile industry

[1] Agila M, [2] Dr. Jerinabi U

[1] Research Scholar, Department of Commerce, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, Tamil Nadu, India

[2] Professor and Dean, Faculty of Business Administration, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, Tamil Nadu, India

Abstract
A firm needs funds so run and manage its activities. The use of long-term fixed interest bearing debt and preference share capital along with equity share capital is called financial leverage. The capital structure decision can influence the value of the firm through the earnings available to the shareholders. But the leverage can largely influence the value of the firm through the cost of capital. The present study aims at providing detailed information about the impact of financial leverage on cost of capital and valuation of firm of selected Indian automobile companies listed in national stock exchange during 2004 to 2014. The analysis is fully based on secondary data collected from capitaline database, various journals and websites. One way ANOVA, Correlation and T-test has been used as a tool to analyze the data. The main objective of this study is to find out the impact of financial leverage on weighted average cost of capital and valuation of firm of sampled companies. From the study it has been found out that there is a significant correlation between financial leverage, weighted average cost of capital and valuation of firm. The study concludes that the financial leverage having an impact on weighted average cost of capital and valuation of firm.

Keywords: Financial Leverage, Weighted Average Cost of Capital, Valuation of Firm

1. Introduction

A firm needs funds so run and manage its activities. The funds are first needed to set up an enterprise and then to implement expansion, diversification and other plans. A decision has to be made regarding the composition of funds. The funds may be raised through two sources-owners called owners equity, and outsiders, called creditor's equity. When a firm issues capital these are owner's funds, when it raises, funds by raising long-term and short-term loans it is called creditors or outsiders equity. Various means used to raise funds represent the financial structure of a firm. So the financial structure is represented by the left side of the balance sheet i.e. liabilities side. Traditionally, the short-term finances are excluded from the methods of financing capital budgeting decisions. So, only long term sources are taken as a part of capital structure. The term capital structure refers to the relationship between various long-term forms of financing such as debentures, preference share capital, equity share capital, etc. Financing the firm's assets is a very crucial problem in every business and as a general rule there should be proper mix of debt and equity capital. The use of long-term fixed interest bearing debt and preference share capital along with equity share capital is called financial leverage. The long-term fixed interest bearing debt is employed by a firm to earn more from the use of these resources than their cost so as to increase the return on owner's equity. It is true that the capital structure cannot affect the total earnings of a firm but it can affect the share of earnings for equity shareholders.

The fixed cost funds are employed in such a way that the earnings available for common stockholders (equity shareholders) are increased. A fixed rate of interest is paid on such long-term debts (debentures, etc.). The interest is a liability and must be paid irrespective of revenue earnings. The preference share capital also bears a fixed rate of dividend. But, the dividend is paid only when the company has surplus profits. The equity shareholders are entitled to residual income after paying interest and preference dividend. The aim of financial leverage is to increase the revenue available for equity shareholders using the fixed cost funds. If the revenue earned by employing fixed cost funds is more than their cost (interest and/or preference dividend) then it will be to the benefit of equity shareholders to use such a capital structure. A firm is known to have a favourable leverage if its earnings are more than what debt would cost. On the contrary, if it does not earn as much as the debt costs then it will be as an unfavourable leverage. On the other words, favourable or positive leverage occurs when the firm earns more on the assets purchased with the funds, than the fixed cost of their use. Unfavourable or negative leverage occurs when the firm does not earn as much as the funds cost.

Every firm has to make its own decision regarding the quantum of funds to be borrowed. When the amount of debt is relatively large in relation to capital stock, a company is said to be trading on their equity. On the other hand if the amount of debt is comparatively low in relation to capital stock, the company is said to be trading on thick equity.

Financial leverage results from the presence of fixed financial charges in the firm's income stream. These fixed charges do not vary with the earnings before interest and taxes or operating profits. They are to be paid regardless of the amount of EBIT

available to pay them. After paying them, the operating profits (EBIT) belong to the ordinary shareholders. Financial leverage is concerned with the effects of changes in EBIT on the earnings available to equityholders. It is defined as the ability of a firm to use fixed financial charges to magnify the effects to changes in EBIT on the earnings per share.

In theory, capital structure can affect the value of a company by affecting either its expected earnings or the cost of capital, or both. While it is true that financing mix cannot affect the total operating earnings of a firm, as they are determined by the investment decisions, it can affect the share of earnings belonging to the ordinary shareholders. The capital structure decision can influence the value of the firm through the earnings available to the shareholders. But the leverage can largely influence the value of the firm through the cost of capital.

2. Objectives

This study attempt to achieve the following objectives:

1. To find out the impact of financial leverage on weighted average cost of capital of selected Indian automobile companies from 2004-2005 to 2013-2014.
2. To analyze the impact of financial leverage on valuation of firm of selected Indian automobile companies from 2004-2005 to 2013-2014.

3. Methodology

The current study on impact of financial leverage in Indian automobile industry was taken with an aim to explore the effects of weighted average cost of capital and valuation of firm. The study has been carried out by selecting eight automobile companies in India namely Ashok Leyland limited, Eicher motors limited, Hero motocorp limited, Hindustan motors limited, Mahindra and Mahindra limited, Maruti Suzuki India limited, Tata motors limited, TVS motor company limited which are the top automobile companies in India listed in National Stock Exchange. The reason behind selection of the automobile industry is that it is one of the fastest growing sectors in India. The present study is of analytical in nature and makes use of secondary data. The Capital line database are the main source for the data collection. Data from journals, articles, publications and company websites are also utilized for the study. It is a time series data the relevant data has been collected for the period from 2004-2005 to 2013-2014. One way ANOVA, Correlation and T-test has been used as a tool to analyze the data.

4. Results and Discussion

4.1 Financial Leverage

Financial leverage is the use of fixed financing costs by the firm. The use of fixed interest or dividend bearing securities such as debt and preference capital along with the owner's equity in the total capital structure of the company is described as financial leverage. The financial leverage employed by a company is intended to earn more return on the fixed charge funds than their costs. Financial leverage provides the potentials of increasing the shareholders earnings as well as creating the risks of loss to them. The Table-1, indicates the summary of the financial leverage for the period from 2004-2005 to 2013-2014 of selected eight companies based on the data collected for ten years.

Table 1: Financial Leverage

Years	Ashok Leyland Limited	Eicher Motors Limited	Hero Motocorp Limited	Hindustan Motors Limited	Mahindra and Mahindra Limited	Maruti Suzuki India Limited	Tata Motors Limited	TVS Motor Company Limited
2004-2005	1.08	1.30	1.00	1.47	1.04	1.02	1.13	1.04
2005-2006	1.08	1.08	1.00	0.76	1.02	1.01	1.14	1.12
2006-2007	1.04	1.15	1.00	2.30	1.01	1.01	1.14	1.38
2007-2008	1.11	1.20	1.00	1.43	1.06	1.02	1.16	1.32
2008-2009	1.76	1.04	1.00	0.70	1.12	1.03	1.79	3.07
2009-2010	1.18	1.02	1.00	0.66	1.05	1.00	1.44	1.98
2010-2011	1.23	1.01	1.00	-6.83	1.02	1.00	1.62	1.29
2011-2012	1.36	1.00	1.00	0.39	1.04	1.02	1.90	1.18
2012-2013	1.80	1.00	1.00	0.61	1.04	1.06	8.93	1.29
2013-2014	-3.96	1.00	1.00	-79.64	1.05	1.04	-0.30	1.07
Total	7.68	10.8	10.00	-78.15	10.45	10.21	19.95	14.74
Mean	0.76	1.08	1.00	-6.44	1.04	1.02	1.99	1.47
S.D	1.68	0.10	0.00	25.36	0.03	0.01	2.51	0.62
C.V	2.19	0.09	0.00	-3.24	0.02	0.01	1.25	0.42

***Source*:** Computed from capital line database

From the above table 1 it is clear that the mean value and the standard deviation of financial leverage of Tata Motors Limited is 1.99 and 2.51 is the highest as compared to other companies. The leverage is said to be high when the fixed interest or dividend bearing securities are more than the equity capital in the capital structure of the company. Tata Motors Limited is very high in mean value which indicates that firm is high risky in terms of financial risk. The coefficient of variation of Ashok Leyland Limited is 2.19 followed by Tata Motors Limited is 1.25. The coefficient of variation of Hindustan Motors Limited is -3.24 which is least in value when compare with other companies. This shows that Hindustan Motors Limited has consistency in the value of financial leverage over the study period.

4.2 Weighted Average Cost of Capital

The Weighted Average Cost of Capital is the expected average future cost of funds over the long run found by weighting the cost of each specific type of capital by its proportion in the firm's capital structure. It is the average interest rate a company

must pay to finance its assets. As such, it is also the minimum average rate of return it must earn on its current assets to satisfy its shareholders or owners, its investors and its creditors. Weighted Average Cost of Capital is based on the business firm's capital structure and is composed of more than one source of financing for the business firm. For example, a firm may use both debt financing and equity financing. Cost of capital is a more general concept and is simply what the firm pays to finance its operations without being specific about the composition of the capital structure (debt and equity). The combined cost of all sources of capital is called overall or Weighted Average Cost of Capital. The Table 2 shows the Weighted Average Cost of Capital for the period from 2004-2005 to 2013-2014 of selected eight automobile companies in India listed in National Stock Exchange.

Table 2: Weighted Average Cost of Capital (In Percent)

Years	Ashok Leyland Limited	Eicher Motors Limited	Hero Motocorp Limited	Hindustan Motors Limited	Mahindra and Mahindra Limited	Maruti Suzuki India Limited	Tata Motors Limited	TVS Motor Company Limited
2004-2005	7.38	0.00	1.35	2.16	3.90	2.61	4.35	0.00
2005-2006	4.71	0.41	1.02	0.00	1.44	4.68	2.38	0.00
2006-2007	4.83	3.74	1.16	0.36	0.88	4.37	3.50	0.00
2007-2008	5.62	0.80	1.16	1.40	1.23	0.67	3.48	1.44
2008-2009	10.09	0.74	0.62	0.00	1.80	0.00	4.96	1.92
2009-2010	10.00	0.00	2.00	0.00	0.47	0.00	2.61	0.62
2010-2011	2.94	0.68	1.62	0.00	0.52	0.74	2.88	0.34
2011-2012	1.26	0.00	0.86	0.00	0.50	0.67	0.35	1.08
2012-2013	1.08	0.00	1.53	0.00	0.52	0.69	0.00	1.14
2013-2014	0.00	0.00	1.10	0.00	0.53	0.68	0.00	0.39
Total	47.91	6.37	12.42	3.92	11.79	15.11	24.51	6.93
Mean	4.79	0.63	1.24	0.39	1.17	1.51	2.45	0.69
S.D	3.57	1.14	0.39	0.76	1.06	1.74	1.78	0.67
C.V	0.74	1.79	0.32	1.94	0.90	1.15	0.72	0.97

Source: Computed from capital line database

It is evident from the table 2 that the mean value and standard deviation of Ashok Leyland Limited is 4.79 percent and 3.57 percent followed by Tata Motors Limited is 2.45 percent and 1.78 percent. The mean value and standard deviation is lowest in case of Hindustan Motors Limited of 0.39 percent and 0.76 percent. The mean value of Eicher Motors Limited is 0.63 percent, Hero Motocorp Limited is 1.24 percent, Mahindra and Mahindra Limited is 1.17 percent, Maruti Suzuki India Limited is 1.51 percent and TVS Motor Company Limited is 0.69 percent. This shows the little fluctuation between the mean values of the companies. The coefficient of variation of Hero Motocorp Limited is 0.32 which is least in value when compare with other companies.

4.3 Valuation of Firm

The capital structure of a firm is represented by long term funds which can be raised either by issue of shares or debentures or long term loans and borrowings. In case a firm raises funds by the issue of equity shares, it is required to pay dividends only if there is enough profit. If a firm raises funds through debentures or long term borrowings, it is required to pay a fixed interest irrespective of the profit or loss. The sum of values of debt and equity is the firm's total value. Suppose that a firm has no debt in its capital structure, the firm is 100 percent equity financed firm. The objective of a firm should be directed towards the maximization of the firm's value. A firm valuation is a real world measure of the worth of a business on the open market. Understanding the business worth allows informed decisions at all times that ultimately offer opportunities for enhanced financial success. A firm need valuation for any of the following reasons which are to determine capital again, tax purpose, financial planning, raising capital etc. There are multiple ways to determine the value of firm. The table 3 reveals that the valuation of firm of selected automobile companies for the period from 2004-2005 to 2013-2014.

Table 3: Valuation of Firm (Rupees in Crores)

Years	Ashok Leyland Limited	Eicher Motors Limited	Hero Motocorp Limited	Hindustan Motors Limited	Mahindra and Mahindra Limited	Maruti Suzuki India Limited	Tata Motors Limited	TVS Motor Company Limited
2004-2005	3025.21	0.00	27015.66	680.00	5126.70	703.33	8246.33	0.00
2005-2006	6548.84	21688.00	48567.00	0.00	28570.00	593.88	21841.14	0.00
2006-2007	6309.84	556.90	42894.50	665.00	53419.50	1602.06	19134.60	0.00
2007-2008	5893.03	3152.50	4839.40	616.80	36779.00	1730.80	16907.66	794.25
2008-2009	1733.27	7653.00	128176.00	0.00	17350.20	0.00	6257.87	518.00
2009-2010	860.24	0.00	44636.60	0.00	208775.00	0.00	24889.77	440.50
2010-2011	9018.57	1245.50	32131.66	0.00	266210.00	2288.60	22647.75	19458.00
2011-2012	18866.00	0.00	118906.50	0.00	287889.00	1635.26	124223.00	8302.33
2012-2013	21685.50	0.00	70605.33	0.00	335282.00	2392.10	0.00	3867.33

2013-2014	0.00	0.00	105454.00	0.00	375835.00	2783.00	0.00	26163.00
Total	73940.50	45505.49	666781.27	1961.80	1615236.00	13729.03	244148.10	63503.41
Mean	7394.05	4550.54	66678.12	196.18	161523.60	1372.90	24414.81	6350.34
S.D	7387.12	6856.59	41911.52	316.26	147366.50	996.66	36269.28	9390.02
C.V	0.99	1.99	0.67	1.61	0.91	0.72	1.48	1.57

Source: Calculated from capital line database

As we can see in table 3 among all the companies Mahindra and Mahindra Limited, Hero Motocorp Limited and Tata Motors Limited shows the high mean value of Rs. 161523.60, Rs. 66678.12 and Rs. 24414.81 and the standard deviation of Rs. 147366.50, Rs. 41911.52 and Rs. 36269.28. The coefficient of variation of Hero Motocorp Limited is 0.67 which is least in value when compare with other companies.

4.4 Analysis of Variance

The technique of analysis of variance is an extension of F test used to test the homogeneity of several mean. In this section the analysis of variance (ANOVA) is carried out to test whether there exists significant different between among the position of selected companies. The results are presented for financial leverage, weighted average cost of capital, price earnings ratio and valuation of firm with suitable hypothesis and relevant interpretations.

1. Financial Leverage

The financial leverage of sample companies has been compared using one way ANOVA and is tested by the following hypothesis. The results are shown in Table 4.

Hypothesis Testing

Ho: The financial leverage position of automobile companies does not differ significantly.

Ha: The financial leverage position of automobile companies differs significantly.

Table 4: Analysis of Variance – Financial Leverage

Source of variation	Sum of square	Degree of freedom	Mean square	F-ratio	Critical value F (at 5%) (from the F table)
Between sample	720.77252	7	102.96750	1.2617	2.0868
Within sample	5875.826	72	81.60869		
Total	6596.599	79			

Note: One way ANOVA has been calculated

The table 4 describes the calculated value of F at 5 percent level of significance is 1.2617 which is less than the table value of F 2.0868. So the null hypothesis is accepted which means that the financial leverage position of automobile companies does not differ significantly.

2. Weighted Average Cost of Capital

The Weighted Average Cost of Capital of sample companies has been compared using one way ANOVA and is tested by the following hypothesis. The results are shown in table 5.

Hypothesis Testing

Ho: The Weighted Average Cost of Capital of automobile companies does not differ significantly.

Ha: The Weighted Average Cost of Capital of automobile companies differs significantly.

Table 5: Analysis of Variance – Weighted Average Cost of Capital

Source of variation	Sum of square	Degree of freedom	Mean square	F-ratio	Critical value F(at 5%) (from the F table)
Between sample	144.2814	7	20.61167	7.275717	2.0868
Within sample	203.9717	72	2.83294		
Total	348.2534	79			

Note: One way ANOVA has been calculated

From the above table 5 the calculated value of F at 5 percent level of significance is 7.2757 which is more than the table value of F 2.0868 which indicates that the null hypothesis is rejected. Hence alternative hypothesis is accepted. Therefore is concluded that the weighted average cost of capital of automobile companies differs significantly.

3. Valuation of Firm

The valuation of firm of sample companies has been compared using one way ANOVA and is tested by the following hypothesis. The results are shown in the table 6.

Hypothesis Testing

Ho: The valuation of firm of automobile companies does not differ significantly.

Ha: The valuation of firm of automobile companies differs significantly.

Table 6: Analysis of Variance – Valuation of Firm

Source of variation	Sum of square	Degree of freedom	Mean square	F-ratio	Critical value F (at 5%) (from the F table)
Between sample	45715400	7	6530760	16.0122	2.0868
Within sample	29365963	72	4078606		
Total		79			

Note: One way ANOVA has been calculated

The table 6 states that the calculated value of F is 16.0122 are much more than the table value of F is 2.0868 at 5 percent level of significance which indicates that the null hypothesis is rejected and there is a difference between the valuation of firm of automobile companies.

4.3 Correlation Analysis of Financial Leverage and Weighted Average Cost of Capital of Automobile Industry

Hypothesis 1: There is a significant correlation between financial leverage and weighted average cost of capital of the sampled companies in Automobile Industry

Table 7: Correlation and T Test Results for Financial Leverage and Weighted Average Cost of Capital

Details	Coefficient of Correlation	Degree of Freedom	Computed value	Table Value	Result
All sampled companies	0.31	7	3.16	2.36	Significant

Note: Correlation and T test has been calculated

It can be seen from table 7 that there is a positive correlation between the financial leverage and weighted average cost of capital of automobile companies. The result supports, the Net Income Approach. The value of Karl Pearson correlation(r) is found to be +0.31. The calculated value of t is 3.16 more than the table value of t 2.36 and it may be concluded that the hypothesis is accepted. These results were statistically significant at 5 percent level.

4.4 Correlation Analysis of Financial Leverage and Valuation of Firm of Automobile Industry

Hypothesis 2: There is a significant correlation between financial leverage and weighted average cost of capital of the sampled companies in Automobile Industry

Table 8: Correlation and T Test Results for Financial Leverage and Valuation of Firm

Details	Coefficient of Correlation	Degree of Freedom	Computed Value	Table Value	Result
All Sampled Companies	0.22	7	2.72	2.36	Significant

Note: Correlation and T test has been calculated

It can be seen from table 8 that there is a positive correlation between the financial leverage and valuation of firm of automobile companies. The result supports, the Net Income Approach. The value of Karl Pearson correlation(r) is found to be +0.22. The calculated value of t is 2.72 more than the table value of t 2.36 and it may be concluded that the hypothesis is accepted. These results were statistically significant at 5 percent level.

5. Conclusion

In this study on the impact of financial leverage on cost of capital and valuation of firm of selected automobile companies in India, a sample of eight automobile companies for the period from 2004-2005 to 2013-2014 was taken. Financial leverage is caused due to fixed financial costs (interest). The standard deviation of financial leverage of Ashok Leyland Limited is very low which indicates that the firm is less risky in terms of financial risk. There is no market value of debt of Eicher Motors Limited, Hero Motocorp Limited, Hindustan Motors Limited, Mahindra and Mahindra Limited, Tata Motors Limited and TVS Motor Company Limited. These companies are suggested to go for a right proportion of debt and equity financing. Optimum capital structure is the capital structure at which the weighted average cost of capital is minimum and thereby maximum value of the firm. Capital structure of Mahindra and Mahindra Limited is considered as optimum capital structure because the weighted average cost of capital is minimum and maximum value of the firm. It can be observed from the above analysis that there is a significant correlation between financial leverage, weighted average cost of capital and valuation of firm. The study concludes that financial leverage having an impact on weighted average cost of capital and valuation of firm. The financial leverage is an important variable to the capital structure of a firm.

6. References

1. Pandey IM. Financial Management, Vikas Publishing House Private Limited, New Delhi. 2013.
2. Chandrabose D. Financial Management, Prentice Hall of India Private Limited, New Delhi. 2011.
3. Khan MY, Jain PK. Financial Management, Tata Mcgraw Hill Education Private Limited, New Delhi. 2011.
4. Prasanna Chandra. Financial Management, Tata Mcgraw Hill Education Private Limited, New Delhi. 2010.
5. Chandrakumaramangalam, Govindasamy. The impact of leverage on the profitability of selected cement companies in India, International Center for Business Research. 2010-2013, 2.
6. Shashank Jain, Shivangi Gupta, Hamendra Kumar Porwal. Financial Leverage and its Impact on Cost of Capital and Capital Structure, International Journal of Research in Commerce, IT and Management. 2012, 2(11).
7. Jagdish, Raiyani. The Impact of Financial Risk on Capital Structure Decisions in Selected Indian Industries: A Descriptive Analysis, Advances in Management. 2011, 4(11).
8. Poornima S, Manokaran G. Capital Structure Analysis of Asset Financing Services Industry in India, Journal of Applied Management & Computer Science. 2011-2012, 1:174.
9. Jothi K. Significant Level of Financial Risk on Capital Structure Indian Journal of Finance. 2010, 4.
10. www.moneycontrol.com
11. www.info.shine.com
12. www.economictimes.com
13. www.ibef.org.