

Impact of Operating Leverage on Profitability: A Study on Indian Automobile Industry

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The term 'profitability ratio' is a class of financial metric that is used to assess a business's ability to generate earnings as compared to its expenses and other relevant costs incurred during a specific period of time. The study is an attempt to analyze the impact of operating leverage on profitability of Indian Automobile Industry. The study has chosen 20 sample firms from Automobile industry in India, which are listed in National Stock Exchange. The study used descriptive statistics, correlation and regression for analysis. The study proves that there is a significant impact of operating leverage on profitability. The analysis of data reveals that the operating leverage has impact, of course positively, on profitability of firms of automobile industry as a whole in India.

Key words: Profitability, Operating Leverage, Automobile Industry

INTRODUCTION

Leverage is a technique that amplifies investor profits or losses. It's most commonly used to describe the use of borrowed money to magnify profit potential (financial leverage), but it can also describe the use of fixed assets to achieve the same goal (operating leverage). A profitability ratio is a measure of profitability, which is a way to measure a firm's performance. Profitability is simply the capacity to make profit, and it is what is left over from income earned after one has deducted all costs and expenses related to earnings.

LITERATURE REVIEW

Titman and Wessels (1988), in a study titled 'the determinants of capital structure choice' found that highly profitable firms have lower level of leverage than that of the less profitable firms because they first use their earnings before looking for external capital.

Wald (1999) stated that profitability, which is the most important determinant of firm's financial leverage, negatively affected the debt to asset ratio in the heteroskedastic Tobit regression model. Varsha and Virani (2010), in the study "Impact of leverage on profitability of Pantaloon Retail India Ltd" stated that finance decision was concerned with selection of correct mix of debt and equity in its capital structure.

Chandra Kumaramangalam and Govindasamy (2010), in a study titled 'Leverage – An analysis and its impact of profitability with reference to selected Cement firms in India' examined the impact of leverage on the profitability of selected cement firms in India. They explained the relationship between debt equity ratio and earnings per share and how effectively the firm used debt financing. The study suggested that leverage, profitability and growth are positively related and leverage had impact on profitability of firms.

Sabir and Malik (2012) found that there were four factors that significantly affecting the leverage in Oil and Gas sector of Pakistan and concluded that size, tangibility and liquidity have positive and significant relationship with leverage while profitability has significant and negative relationship with it.

Khushbakht and Tayyaba (2013), in a study concluded that there was positive correlation between return on assets (ROA) and degree of financial leverage (DFL) while there was negative correlation between ROA and degree of operating leverage (DOL). The DFL and return on

investment (ROI) have inverse relationship and similarly the DOL and the ROI also have inverse relationship. There was a positive correlation between DFL and earnings per share (EPS) while there was negative correlation between DOL and EPS.

Srivastava and Namita (2014) studied about the variables determining the leverage and risk of cement firms operating in India. The study concluded that profitability, size and liquidity were negatively correlated with leverage whereas; tangibility had positive impact on leverage or capital structure of the firm. The results revealed that growth played very insignificant role in defining capital structure of the firm.

OBJECTIVES OF THE STUDY

1. To study the relationship between operating leverage and profitability of firms of Automobile Industry in India.
2. To study the impact of operating leverage on profitability of Automobile Industry in India.

HYPOTHESES DEVELOPED FOR THE STUDY

H₀₁: There is no significant relationship between Operating Leverage (OL) and Profitability.

H₀₂: There is no significant impact of Operating Leverage (OL) on Profitability.

RESEARCH METHODOLOGY

This study is based on the secondary data. The five year secondary data ranging from 2010 to 2014 of selected companies of Indian Automobile industry were collected from the Bombay Stock Exchange (BSE) and National Stock Exchange (NSE). The present study has chosen 20 sample firms from Automobile industry in India. The reason for choosing these firms from the listing of NSE is due to the fact that the NSE has the largest number of quoted domestic firms on any stock exchanges in the world.

Table 1 shows the Automobile firms which are selected for the study. The study has selected only 20 firms based on the availability of data. The study used descriptive statistics, correlation and regression for analysis of data.

Table1 List of Firms Selected for the Study

Sl. No.	Firm Name	Sl. No.	Firm Name
1	Ashok Leyland	11	LML
2	Atul Auto	12	M & M
3	Bajaj Auto	13	Mah. Scooters
4	Eicher Motors	14	Majestic Auto
5	Escorts	15	Maruti Suzuki
6	Force Motors	16	Scooters India
7	Hero Motocorp	17	SML ISUZU
8	Hind.Motors	18	Tata Motors
9	HMT	19	TVS Motor Co.
10	Kinetic Engg.	20	VST Till. Tract.

Source: www.nse.com

(a) Profitability Ratio

A class of financial metrics that are used to assess a business's ability to generate earnings when compared to its expenses and other relevant costs incurred during a specific period of time. For most of these ratios, a higher value relative to a competitor's ratio or the same ratio from the previous period is found to be indicative that the firm is doing well.

$$\text{Profitability} = \frac{\text{Net Income}}{\text{Sales}}$$

(b) Correlation Analysis

Correlation is computed between operating leverage and profitability to find out the relationship between them and to enable to study the impact of operating leverage on profitability.

(c) Regression Analysis

Linear Regression: $Y = a + bX + u$

$P = a + b(OL) + u$

$Y = P$ (Profitability);

$X = OL$ (Operating Leverage);

a = Regression constant

b1 = Regression Coefficient

u = Error Term

(d) *Operating Leverage*

A high operating leverage indicates a larger proportion of fixed cost causing low net profit and the EBIT will tend to vary more with sales. Therefore, the operating leverage may be defined as the firm's ability to use fixed operating cost (FOC) to magnify the effects of changes in sales on its EBIT. The leverage associated with investment activities is called operating leverage. It is caused due to fixed operating expenses (FOE) in the firm.

$$OL = \frac{\text{Contribution}}{\text{EBIT}}$$

Operating leverage is present anytime when a firm has fixed operating costs-regardless of volume. In the long run, of course, all costs are variable. Consequently, the analysis necessarily involves the short-run too. A firm incurs fixed operating cost in the hope that sales volume will produce revenues more than sufficient to cover all fixed and variable costs. One of the more dramatic examples of an effect of operating leverage is the airline industry, where a large proportion of total operating cost (TOC) is fixed. Beyond a certain break-even load factor, each additional passenger essentially represents straight operating profit (earnings before interest and taxes, or EBIT) to the airline.

DATA ANALYSIS

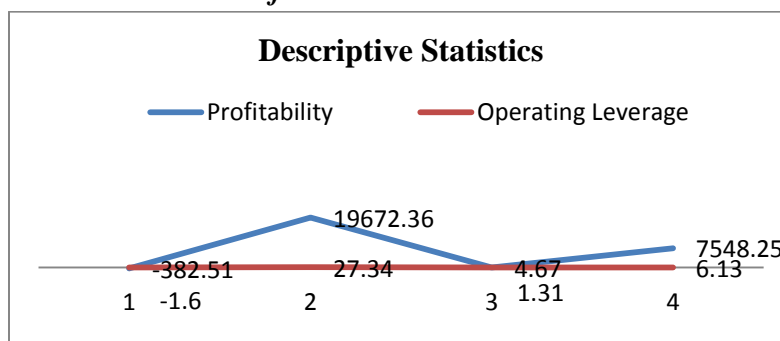
(a) *Descriptive Analysis*

Table 2 Descriptive Statistics of Profitability and Operating Leverage of Automobile Industry in India from 2010 to 2014

Variables	N	Minimum	Maximum	Mean(\bar{X})	Std. Deviation(σ)
<i>Profitability</i>	20	-382.51	19672.36	4.67	7548.25
<i>OL</i>	20	-1.60	27.34	1.31	6.13

Source: Collected data from National Stock Exchange.

Fig. 1 - Descriptive Statistics of Profitability and Operating Leverage of Automobile Industry in India from 2010 to 2014



Source: Collected data from National Stock Exchange.

The descriptive statistics of profitability and operating leverage of Automobile industry in India is shown in *table 2* and *Figure A*. The profitability has the minimum value as -382.51 and maximum value as 19,672.36, while the mean (\bar{X}) is 4.67 and standard deviation (σ) is 7,548.25. The Operating Leverage has the minimum value as -1.60 and the maximum value as 27.34, while the mean (\bar{X}) is 1.31 and standard deviation (σ) is 6.13.

(b) Correlation Analysis

The correlation analysis is used to study the relationship between predictor variables and response variable, and the relationship between profitability and OL (0.472) is highly significant positively at 5% level (*vide table 3*). Hence, H_0^1 : “there is no significant relationship between Operating Leverage (OL) and Profitability” of firms of Automobile Industry in India is rejected at 5% level.

Table 3 Results of Correlation Analysis for Operating Leverage and Profitability of Automobile Firms in India from 2010 to 2014 (₹ in crore)

Variables		Profitability	OL
Profitability	Pearson Correlation		.472*
	Sig. (2-tailed)		.036
	N		20
OL	Pearson Correlation	.472*	
	Sig. (2-tailed)	.036	
	N	20	

Source: Collected data from National Stock Exchange.

*. Correlation is significant at 0.05 level (2-tailed).

(c) Regression Analysis

Table 4 shows that the OL has significant positive co-efficient (579.83) on profitability in Automobile industry in India. The value of F statistics is 5.14, which shows a good fit of regression and is significant at 5% level with R^2 0.22 (Adjusted R^2 0.17). Hence, H_0^2 : “there is no significant impact of Operating Leverage (OL) on Profitability” of firms of Automobile Industry in India is rejected at 5% level.

Table 4 Regression Results of Operating Leverage on Profitability of Automobile Industry in India from 2010 to 2014

Variables	Un-standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	β		
<i>Profitability</i>	3914.66	1565.52		2.50	.000
<i>OL</i>	579.83	255.56	.472	2.26	.036
R					0.47
R²					0.22
Adjusted R²					0.17
F					5.14(0.036)

Source: Computed results based on collected data from NSE.

CONCLUSION

The results of the correlation and regression show that there is a significant relationship between operating leverage and profitability; there is a significant impact of operating leverage on profitability. Hence, it may be concluded that the operating leverage plays a significant role in determining the profitability of Automobile industry in India during 2010-14.

SUGGESTIONS

The profitability of the firms is comparatively higher. The *operating risk* of the firms is comparatively lesser when compared with the profitability, hence it is suggested that the firms of Automobile Industry should try to minimize the operating risk, so that profitability can be maximized.

LIMITATIONS OF THE STUDY

Determinants of leverage in Automobile industry could be better observed if more number of firms of Automobile industry is considered as sample. The present study is limited to 20 firms of Automobile industry listed in NSE only for want of full-fledged data over the study period. Originally, it was decided to carry out the study on all the firms listed in NSE, covering a period of 5 years (2010 to 2014).

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