The Impact of Corporate Leverage on Profitability: A Study of Select Manufacture Industry in India

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Abstract: The profitability of any business entity for a particular time period can be conceptualized as the final outcome of its investing and operating activities. The study is an attempt to analyze the impact of corporate leverage on profitability: a study of select manufacture industry in India. The present paper is based on secondary data collected from Money Control during the period from 2006 to 2010 using Statistical Package for the Social Science (SPSS) based on a sample of five firms of select Manufacture industry in India. The statistical methods used are mean, standard deviation, Correlation and regression. The study used correlation and regression analysis to find the relationship and the impact of corporate leverage on profitability. The study proves that there is a significant impact of operating Leverage and Combined Leverage on Earnings per Share. Hence, based on the results, the study rejects **Ho**^{4} and **Ho**^{5}, revealing that the Operating Leverage and Combined Leverage have impact of select Manufacture industry in India. However, the impact o Financial Leverage on Earnings per Share is not significant due to Positive impact of Operating Leverage, Combined Leverage on Earnings per Share

Key Words: Operating, Financial and Combined Leverage, Profitability.

JEL: G30, G32, L6

1. INTRODUCTION:

The theory of capital structure is one of the most important financial themes in corporate finance and various studies use this theory of highlight the significance of debt financing. Capital structure of a firm is defined by its leverage; that is mix of debt equity financing which is subject to different financial difficulties. Financial leverage represents the total debt reported to the equity of a firm, reflecting the capacity of the firms to attract external financial resources in order to improve the efficiency of the equity. Leverage has been conceived also as a modality by which a firm can increase its growth opportunity.

2. REVIEW OF LITERATURE:

Kasseeach (2004) showed that some firm characteristics, such as *profitability* and *size* affected the leverage decision of the firm, while other characteristics such as *collateral* and *growth opportunities* did not do additionally; no important differences in the financing of listed firms across eastern, central and western regions. **Raheman *et al.*** (2007), in a research paper titled "*Capital structure and profitability*" examined the effect of CS on the profitability of firms listed on Islamabad stock exchange and selected a sample of 94 non-financial firms for a period of six years from 1999 to 2004. Pooled ordinary least square model of regression was used in the estimation of a function relating to the net operating profitability with the predictor variables viz. *debt ratio, long-term debt to liabilities, equity to liabilities and size of the firm* measured in terms of natural logarithm of sales. The results showed that the CS of the non-financial firms listed on *Islamabad stock exchange* has a significant effect on the profitability of the firms.

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. **Afza** and **Hussain** (2011) showed that debt was considered as a way to highlight investors' trust on the firm. If a firm issues debt, it provides a signal to the market that the firm is expecting positive cash flows in the future.

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.

3. OBJECTIVES OF THE STUDY:

1. To study the relationship between the leverage and profitability of firms of selected manufacture industry in India.
2. To examine the impact of leverage on profitability and earnings per share.
3. To understand and evaluate the leverage of the selected manufacture industry in India.

4. HYPOTHESES DEVELOPED FOR THE STUDY:

The following hypotheses are developed to study the impact of the selected financial variables on leverage.

$\mathbf{H_0^1}$: There is no significant relationship between *Operating Leverage* and *Financial Leverage*
$\mathbf{H_0^2}$: There is no significant relationship between *Operating Leverage* and *Combined Leverage*
$\mathbf{H_0^3}$: There is no significant relationship between *Financial Leverage* and *Combined Leverage*
$\mathbf{H_0^4}$: There is no significant impact of *Operating Leverage on* earnings per share *(EPS)*
$\mathbf{H_0^5}$: There is no significant impact of *Combined Leverage on* earnings per share *(EPS)*

5. RESEARCH METHODOLOGY:

The study is based on the secondary data, which are collected from the Money Control and are supplemented with other published sources in the form of journals and magazines.

Sampling Design

In order to test the stated hypotheses and to address the objectives of the study, the present study has chosen five sample firms from selected manufacture sector in India, which are listed in National Stock Exchange (NSE).

Research Methods

The study used descriptive statistics, viz mean, standard deviation, correlation and regression for analysis of data.

Selected variables

The four variables are considered in the study to analyse the effect of leverage on the profitability. The one variable is used as dependent variable and three variables are used as independent variables.

a. Dependent variable

1. Earnings Per Share

b. Independent variable

1. Operating leverage
2. Financial leverage
3. Combined leverage

Operating Leverage

Operating measurement is a measurement of the degree to which a firm or project incurs combination of fixed and variable costs.

1. A business that makes few sales, with each sale providing a very high gross margin to be highly leveraged. Further, that makes many sales, with each sale contributing a very slight margin to be less leveraged. As the volume of sales in a business increases, each new sale contributes less to fixed costs and more to profitability.

2. A business that has a higher proportion of fixed costs and a lower proportion of variable cost to have used more operating leverage. That business with lower fixed cost and higher variable cost is to employ less operating leverage.

$$\text{Operating leverage} = \frac{\text{EBIT}}{\text{Total Sales}}$$

The firm commits itself to high levels of fixed operating costs as compared with the levels of variable costs. Further, the firm with high operating leverage has high breakeven points but they show a greater increase in sales revenue in comparison with firms with low operating leverage. Also called operating gearing, it is one of the major components of operating risk.

Financial Leverage

Financial leverage can be aptly described as the extent to which a business or investor is using the borrowed money. Business companies with high leverage are considered to be at risk of bankruptcy if, in case, they are not able to repay the debts, it might lead to difficulties in getting new lenders in future. It is not that financial leverage is always bad. However, it can lead to an increased shareholders` return on investment. Also, very often, there are tax advantages related with borrowing, also known as leverage.

$$\text{Financial leverage} = \frac{\text{EBT}}{\text{EBIT}}$$

Combined Leverage

Combined leverage shows the total effect of the operating and financial leverage. In other words, combined leverage shows the total risks associated with the firm. It is the product of both the leverages.

$$\text{Combined leverage} = \text{OL*FL}$$

Regression

The linear regression uses one predictor variable to explain and / or predict the outcome of Y, while regression uses two or more predictor variables to predict the outcome. The general form of each type of regression is:

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

Multiple regressions: $Y = a + b_1X_1 + b_2X_2 + b_3X_3 \ldots\ldots\ldots + b_tX_t + u$

"b" is called the slope
"a" is called the intercept
"X" is the predictor variable
"Y" is the criterion variable
Y = EPS (earnings per share)
X_1= OL (Operating Leverage) b1 = Regression Coefficient
X_2= FL (Financial Leverage) u = Error Term
X_2= CL (Combined Leverage)
a = Regression Constant

Profitability

Profitability is a relative measure of the financial efficiency of the business. For the purpose of the study profitability is taken as the return on equity (ROE) which is measured as earnings before interest and taxes (EBIT) divided by total equity of the insurance firms and used it as a dependent variable in the panel regression analysis to investigate the relationship of the other variables in the study.

6. INDUSTRY ANALYSIS AND DISCUSSION:

The selected sample of five firms of manufacture industry in India is presented in table 1.

Table1 , List of Firms Selected for the Study

Sl. No.	Firm Name
1	Apollo Tyres
2	Asian Paints
3	BPL Group
4	Jindal steel
5	Larsen & Toubro

Source: *Money Control*

Empirical Results

Table 2

Descriptive Statistics of Earning Per Share, Operating, Financial and Combined Leverage of Manufacture Industry in India from 2006 to 2010

Variables	N	Minimum	Maximum	Mean($\bar{X}$)	Std. Deviation(σ)
EPS	5	-117.65	609.95	1.84	2.68
OL	5	-0.70	0.38	0.02	0.42
FL	5	0.60	1.41	0.88	0.31
CL	5	-0.99	0.27	-0.07	0.51

Source: *Computed results based on collected data from Money Control.*

The descriptive statistics of ***Earning per Share, Operating, Financial and Combined Leverage of Manufacture Industry in India*** is presented in *table 2*. It is inferred that variable, EPS has the minimum value as -117.65 and maximum value as 609.95, while the $\bar{X}$ is 1.84 and σ is 2.68. It is inferred that variable, OL has the minimum value as -0.70 and the maximum value as 0.38, while the $\bar{X}$ is 0.02 and σ is 0.42. It is inferred that variable, FL has the minimum value as 0.60 and maximum value as 1.41, while the $\bar{X}$ is 0.88 and σ is 0.31. It is found that the variable, CL has minimum value as -0.99 and maximum value as 0.27, while $\bar{X}$ is -0.07 and σ is 0.51.

Correlation analysis

Pearson's correlation analysis is used to study the relationship between predictor variables and response variable, and the relationship between OL and FL (-0.916) is significant negatively at 5% level; whereas the relationship between OL and CL (.993) is highly significant positively at 1% level. Further, the relationship between FL and CL (-0.918) is significant negatively at 5% level *(vide table 3)*.

Table 3

Results of Correlation Analysis for Selected Variables of Manufacture firms in India from 2006 to 2010 (₹ in crore)

Variables		EPS	OL	FL	CL
EPS	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	5			
OL	Pearson Correlation	.796	1		
	Sig. (2-tailed)	.107			
	N	5	5		
FL	Pearson Correlation	-.596	**-.916***	1	
	Sig. (2-tailed)	.289	**.029**		
	N	5	**5**	5	
CL	Pearson Correlation	.725	**.993****	**-.918***	1
	Sig. (2-tailed)	.166	**.001**	**.028**	
	N	5	**5**	**5**	5

Source: *Computed results based on collected data from NSE.*

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

** Correlation is significant at the 0.01 level (2-tailed).

Table 4

Multiple Regression Results of selected Financial Variables of Earning per Share, Operating, Financial and Combined Leverage of Manufacture Industry in India from 2006 to 2010

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	β	Std. Error	*β*		
EPS	-518.481	64.415		-8.049	.000
OL	3656.411	182.437	5.738	20.042	.032*
FL	-2308.002	151.028	-4.449	-15.282	.093**
CL	491.723	72.154	.573	6.815	.042*
R					.999
R^2					.999
F					303.041(0.042)

Source: *Computed results based on collected data from NSE.*

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

**Correlation is significant at 0.01 level (2-tailed)

Table 4 shows that OL has significant positive co-efficient (0.032) on EPS in *Manufacture Industry* firms in India. Hence, H_0^2: There is no significant impact of Operating Leverage on earnings per share (EPS) is rejected at 5% level; the CL has significant positive co-efficient (0.042) on EPS of *Manufacture Industry* firms in India. Hence, H_0^3: "there is no significant impact of CL on EPS" is rejected at 5% level. However, the FL has insignificant positive co-efficient (.093) on EPS. The value of *F statistics* is 0.042, which shows a good fit of regression and is significant at 5% level with R^2 0.99.

7. CONCLUSION:

As far as the corporate leverage (OL, FL and CL*)* is concerned, the study concludes that there is a significant impact of OL and CL on EPS. Hence, based on the results, the study rejects ***Ho*[4]** and ***Ho*[5]**, revealing that the OL and CL have impact of Manufacture Industry in India. However, the impact of FL on EPS is not significant due to the Positive impact of OL, CL on EPS.

8. LIMITATIONS AND SCOPE FOR FURTHER STUDIES:

In the present study, a sample of five firms of select Manufacture Industry has been considered for analysis. In future, researchers can consider inclusion of more number of firms by referring to the other data sources like *CMIE*, *capital plus* and *Bloomberg* etc to take up a study with sample units to explore further results. In the present study, ***descriptive statistics, correlation and regressions*** are only used for analysis.

REFERENCES:

1. Afza, T., and A. Hussain. : Determinants of capital structure: A case study of automobile sector of Pakistan. *Interdisciplinary Journal of Contemporary Research in Business* 2(10): 219-30. 2011.
2. Kasseeach, H: What determines the leverage decisions of Chinese firms? *The Journal of Asia Pacific Economy* 13(9): 245-90. 2004.
3. Raheman, A., B. Zulfiqar and M. Mustafa. : Capital structure and profitability: A case of Islamabad Stock Exchange. *International Review of Business Research Papers* 3(5): 347-61. 2007.
4. Sabir, M., and Q. A. Malik. : Determinants of capital structure: A study of Oil and Gas Sector of Pakistan. *Interdisciplinary Journal of Contemporary Research in Business* 3(10): 395-400. 2012.
5. Varsha, V. : Impact of leverage on profitability of Pantaloon Retail India Ltd. *Advances in Management* 3(8): 52-9. 2010.