

Impact of Firms' Financial Leverage on Financial Performance: A Study on Select Indian Cement Companies

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Abstract

After China, India is the largest cement manufacturing nation in the world. Huge amount is invested in this particular industry considering the further growth in near future. Hence, it is important to judge the financial position in respect to the capital structure. The basic concept of financial leverage is to magnify the shareholders' wealth with effect to debt component of capital structure, particularly interest on debentures and loans. The key purpose of this paper is to study the relationship between degree of financial leverage (DFL), as the independent variable, and Return on Capital Employed (ROCE), which is the indicator of financial performance as dependent variable. After analysing the results, considering five companies (based on the market capitalisation) for the period of five years, it is observed that a statistically significant negative association exists between the two variables.

Keywords: *Return on Capital Employed, Leverage, Financial Ratios*

JEL Classification: *G31, G32*

1. Introduction

Financial management decisions can be differentiated into three further decisions: Investing Decision, Financing Decision and Dividend Decision. While considering the financing decision the finance manager must be very careful on the selection of proper composition of debt capital and equity capital. Though the term 'Optimum Capital Structure' exists theoretically, but in real sense it is very difficult to estimate an optimum capital structure. In general,

leverage defines the effect of one particular object on another one. In finance, leverage indicates that the effect of input variable on response variable. Financial leverage defines the magnitude of change in earning per share due to the change in the earning before interest and tax. Whenever the debt component of the capital structure varies, the fixed financial charges i.e. the interest component will also change. This change will affect the financial performance of the company. It is very clear that no financial

leverage will exist if any company does not have any debt capital in its capital structure. Financial leverage is mainly influenced by the interest payable to the debenture-holders and dividend on preference shares. On the other hand, to measure firm's profitability, return on capital employed can be identified one of the strongest ratio. ROCE can extract the financial position of the firm in terms of profitability considering the capital structure. Therefore, a relationship can be assumed between financial leverage and ROCE. In this paper the main objective is to find out the association between financial leverage and ROCE for some select companies of Cement manufacturing industries in India. Here, DFL is calculated on the basis of the formula $PBIT/PBT$, as there is no preference share in the capital structure the select cement companies.

This study is based on five cement manufacturing companies in India selected on the basis of highest Market Capitalisation. The reason for selecting cement industry is that India is world's second largest cement manufacturer, just after China. According to global installed capacity, India acquires 7% of the total capacity. In India, almost 98% of the total cement is manufactured by the private sector and the remaining by the public sector. It is expected that there will be a sharp increase in the production and consumption of cement. Production is to be expected to increase at a CAGR by 5.65% from 2016 to 2022. Consumption during that period is to be expected to increase by 5.68%. According to the Union Budget 2022-23, the budget for infrastructure was increased resulting in an increase in demand for cement.

2. Literature Review

Kothari (2022) examined how financial leverage effecting the profitability for some select cement companies in India. Three cement companies were considered for the period of five years as sample in this study. Few profitability ratios like net profit, gross profit and operating profit margins were taken as dependent variables which represented profitability of the companies. The debt-equity ratio was taken as the independent variable to represent financial leverage. After conducting ANOVA test, the study concluded that debt- equity ratio has the influence on profitability of the companies.

Kansara et al. (2021) attempted to discover the connection between financial leverage and the capital structure of selected textile companies in Gujarat. The working capital turnover ratio and financial leverage were taken as variables in this study. ANOVA test was conducted using those variables. From the result it can be said that a significant relationship is present between financial leverage and working capital.

Paswan (2021) conducted an analysis of leverage and its effect of profitability of Indian Cement Industry taking 21 Indian cement companies for 10 years. In this study Return on Equity was used as the indicator of profitability which is a dependent variable and all the three leverages i.e. operating, financial and combined leverage as independent variables. From the result it is observed that significant relationship does not exist between profitability and leverages.

Ivo et al. (2019) inspected the link between financial leverage and corporate performance considering 4 Nigerian

manufacturing firms for the period of 2006-2017. In this study ROA was considered as the dependent variable which indicated the corporate performance and financial leverage was expressed in terms of debt-equity, debt, coverage ratios. After conducting OLS method of simple and multiple regression, it is observed that debt-equity and debt ratios have negative influence on the ROA whereas interest coverage ratio has some positive impact on ROA.

Kothari et al. (2018) tried to discover the impact of leverage and liquidity on the profitability of Indian pharmaceutical companies. Liquidity ratios like quick ratio, current ratio and leverage ratios like debt-asset ratio, debt-equity ratio were the independent variables. The dependents variables were explained in terms of ROA and ROI. After conducting correlation analysis, it was observed that the liquidity ratios are impacting positively on the profitability but leverage ratios are negatively impacting the profitability.

Mochi and Dani (2018) examined the effect of leverage on the financial performance considering 10 Indian cement companies for the period of 10 years. Debt-Equity Ratio was considered as input variable and Net Profit (NP), Earning per share (EPS), Return on Equity (ROE), Return on Asset (ROA) and Sales Growth as response variables. Correlation analysis revealed that there is a negative impact of DE Ratio on EPS apart from ACL and ACC. The negative relationship also exists in case of DE Ratio and Net Profit ratio. But Debt-Equity ratio impacted positively on ROA and ROE for most of the companies.

Ashraf et al. (2017) evaluated the influence of capital structure on the profitability of

the firm after taking 22 Pakistani cement manufacturing companies, listed with Karachi Stock Exchange, during the span of ten years. ROA and ROE were considered as dependent variables and short term debt ratio, debt ratio, debt-equity ratio, interest coverage ratio, long term debt ratios were considered as independent variables. After examining correlation and panel data regression analyses it was found that long term debt has affected the profitability negatively whereas short term debt has affected positively.

Jose (2017) studied the influence of financial leverage on the financial performance of some selected Indian cement companies. Return on Assets was considered as dependent variable and Debt Equity, Debt and Interest Coverage Ratios were taken as independent variables. Multiple regression analysis was done through Ordinary Least Square Method. The result revealed that the financial leverage was negatively associated with the financial performance of those cement companies.

Ahmed et al. (2015) evaluated the influence of financial leverage on the profitability of the firm from the cement industries in Pakistan. Eighteen cement manufacturing company's data were collected for 6 years to conduct the study. Here, ROA was expressed as the measure of profitability which is a dependent variable and financial leverage was represented by debt to asset ratio. After conducting linear regression through ordinary least square method financial leverage was found to have negative impact on the profitability of the firm at 99% significance level.

Bhayani (2009) examined the connection of financial leverage with cost of capital and

firm value considering 9 cement companies in India for 8 years. Financial leverage was taken as independent variable; whereas price earning ratio, cost of capital and firms' value as dependent variables. Pearson's correlation coefficient was estimated and t- test was run for the analysis. From the results it was concluded that their financial leverage is not influential on cost of capital, value of the firm and price earning ratio.

3. Objectives of the study

The central objective of the study is to find out a relationship between financial leverage and financial performance of select cement manufacturing companies in India. The selection of the companies was done on the basis of their market capitalization.

- To examine the degree of association between degree of financial leverage and return on capital employed.
- To evaluate the influence of financial leverage on return on capital employed of the select cement manufacturing companies in India.

4. Research Methodology

This study is purely based on Cement Industry. Globally India is the second largest cement manufacturer. It grabs almost 7% of the global installed capacity. It is one of the growing industries in Indian

5. Data Analysis and Interpretation

Table 1: Descriptive Statistics

Variables	Observations	Mean	Standard Deviation	Minimum	Maximum
ROCE	25	11.361	5.956	0.590	18.890
DFL	25	1.133	0.133	1.016	1.472

Source: Calculated by authors using Stata 14.0

scenario. The study is based upon top five Cement Companies in India. The basis of selection is authenticated in terms of market capitalization. The secondary data were taken from 2016-17 to 2020-21. The selected companies are Ultratech, Ambuja Cement, ACC, Shree Cement and Bharat Dalmia. The data were collected from Capitaline software. Degree of Financial Leverage was computed using the formula $PBIT/PBT$, as none of the companies are using Preference Share Capital in their capital structure. Degree of Financial Leverage (DFL) is used as the independent variable, whereas Return on Capital Employed (ROCE) as the dependent variable. Descriptive statistics are calculated in form of Mean, Standard Deviation, Maximum and Minimum values. Correlation matrix was prepared for evaluating degree of association between DFL and ROCE. Variants of panel data regression model were conducted for finding out the impact. For selection of appropriate model, for drawing inference, different statistical tests were also applied. The entire statistical analyses were done on Stata software.

The following hypothesis is tested in this study.

H_0 : Financial leverage does not have any impact on the financial performance.

H_A : Financial leverage has an impact on the financial performance.

Table 1 displays the descriptive statistics obtained from the variables in this study. The average ROCE of the five companies for five years is 11.36%. The minimum ROCE of the five companies for the five years is 0.59%; whereas the maximum ROCE is 18.89%. The average DFL of the said companies for the same five years is 1.13%. The minimum DFL is obtained by the statistics is 1.107% and maximum is obtained as 1.47%.

Tables 2 signifies the association between the independent (DFL) and

dependent (ROCE) variables.

Table 2: Correlation Matrix

Variables	ROCE	DFL
ROCE	1.0000	-
DFL	-0.2027 (0.33)	1.0000

Source: Calculated by authors using Stata 14.0

From the above result it can be interpreted that there is a negative correlation between ROCE and DFL; which indicates that the variables move in the opposite direction. But this correlation is not statistically significant.

Table 3: Regression Analysis (Dependent Variable: ROCE)

Models/ Variables	Fixed Effects Model Coefficients (p-value)	Random Effects Model Coefficients (p-value)
DFL	-9.298* (0.029)	-9.292* (0.015)
Constant	21.898* (0.000)	21.891* (0.000)
F/ Chi ²	5.57* (0.029)	5.89* (0.015)
R ²	22.68	22.68
*Significant at 5% Level		

Source: Calculated by authors using Stata 14.0

Table 3 determines the estimated relationship between the regressor and regressand i.e. DFL and ROCE respectively, using both Fixed and Random effect model. For both the models DFL has a statistically negative impact on ROCE. Both these models are significant

at 5% level as probability of F/Chi² value is coming less than 0.05 for both Fixed and Random effect models. It implies the goodness of fit of both the models. Analysing the value of R² it is observed that DFL can explain 22.68% variability of ROCE under both the models.

Table 4: Hausman Test

Variable	Coefficients			
	Fixed Effects	Random Effects	Difference	S.E.
DFL	-9.298795	-9.2929	-0.0058946	0.9284154
Chi ² (p-value)	0.00 (0.994)			

Source: Calculated by authors using Stata 14.0

Table 5: Breusch and Pagan Lagrangian Multiplier Test

	Variance	S.D
ROCE	35.48032	5.956536
E	3.381245	1.838816
U	49.47624	7.033935
Chi ² (p-value)	40.65* (0.000)	
*Significant at 5% Level		

Source: Calculated by authors using Stata 14.0

Table 4 indicates the selection test between Random effects and Fixed effects models. After conducting the Hausman Test it is observed that p-value of Chi² (0.00) is coming as 0.994 which is greater than significance level of 0.05. Hence, Random effects model is preferred over Fixed effects model.

Table 5 signifies the relevance of panel data analysis in this study. Lagrangian Multiplier Test was conducted to check whether panel data analysis is applicable in this study or not. After analysing the result, it is established that the panel effect is existing in the model as the p- value of Chi² is coming 0.0000 which is less than the significance level of 0.05.

From the above observations it can be finally interpreted that the Random effect model is ultimately selected. Therefore, analysing the results obtained from the model it can be observed that DFL has a statistically significant negative impact (-9.298) on ROCE. It implies that for one-unit positive movement in DFL, ROCE is negatively changing by 9% and vice-versa.

Hence, from all the above observations, it can be concluded that the null hypothesis, i.e., financial leverage does not have any impact on the financial

performance, is rejected and the alternate hypothesis, i.e. financial leverage has an impact on the financial performance, is accepted.

6. Conclusion

The key objective of this study is to observe the linkage between financial leverage and financial performance of some select companies. From the result, a relationship is observed in terms of degree of financial leverage and return on capital employed. It can be concluded that a negative relationship exists between them. Correlation analysis describes the negative association of the variables. After conducting the regression analysis, it is found that a significant negative relationship is present between DFL and ROCE. Moreover, it also indicates that if DFL increases the ROCE will decrease significantly and vice-versa.

7. Scope of further study

In this study secondary data was considered for 5 companies from cement industry and for 5 years. Further study can also be conducted considering more companies under the same industry, with an increased study period. Moreover, study can also be carried out by considering companies from some other industries.

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