

# **Influence of Capital Structure on Firm Profitability: A Study of SENSEX 30 Companies**

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## **Abstract:**

*One of the most puzzling issues faced by finance managers is to know about the effect of capital structure on the profitability of firm. The present study seeks to investigate the influence of capital structure on firm's profitability of selected 30 companies of BSE broad based index i.e. SENSEX. As a proxy for capital structure, debt-equity ratio is used whereas three measures of firm's profitability namely, return on total assets (ROTA), return on net worth (RONW) and return on capital employed (ROCE) are considered for the study. The study used correlation analysis and panel data regression technique to analyse the influence of capital structure on firm profitability. The findings of the study revealed that debt-equity ratio is significantly and negatively correlated with all the three measures of firm profitability. Regression results suggest that debt equity is negatively influencing the selected profitability ratios but found to be insignificant in respect of RONW.*

**Keywords:** *Capital structure, return on total assets, return on net worth, return on capital employed, panel data regression.*

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## **I. Introduction**

In order to run and manage the business, funds are needed. There are different sources to get long term funds. The major sources are proprietors' funds and borrowed funds. These sources differ from each other in terms of risk and their cost. Capital structure refers to the proportion between the various long term sources of finance in the total capital of the firm. Financial manager while deciding the capital structure must ensure that risk and cost should be minimum. Linkage between capital structure and firm profitability is an important subject matter in the literature of corporate finance. Various studies in this respect have already been conducted in different nation, this study attempts to reinvestigate it by taking latest data of eleven years spanning from 2009-10 to 2019-20 and panel data regression model is used to assess the impact of capital structure on firm profitability.

The main objective of the present study is to examine the influence of capital structure on firm profitability of selected 30 companies of BSE broad based index i.e. SENSEX.

The paper proceeds along the following lines. Section 2 describes the literature review, section 3 discusses research methodology, section 4 deals with the data analysis and interpretation and last section concludes the study.

## **II. Review of Literature**

The present section of the study deals with the review of literature on how capital structure and firm profitability are linked. Eriotis et al (2000) investigated the relationship between debt-equity ratio and firm's profitability. It was observed through the study that the financial structure plays an important role in a firm's profitability. Madan (2007) investigated the relationship between the capital structure and the overall profitability of Indian firms and the findings revealed that both lower and higher gearing ratios are not enviable for the firms.

Ibrahim (2009) examined the relation between leverage and firms' performance in Egypt using multiple regression analysis. The study concluded that capital structure had no effect on firms' performance in financial perspective.

Serrasqueiro and Marcia (2009) conducted a study on Portuguese companies and found a negative and statistically significant relationship between the profitability of listed Portuguese companies and their level of debt. The study conducted by Yegon et al. (2014) also examined the relationship between capital structure and

the firm's profitability. The results of research indicate that the link among the long-term debt and profitability are adverse while the link among the short-term debt and profitability is positive.

Agha, (2015) conducted a study on the listed firms of cement industry in Pakistan in which it is found that profitability is statistically important and negatively related with debt ratio. Migiro & Abata (2016) also found significantly negative relation between debt/equity mix and ROE) in Nigeria.

Siddik et al. (2017) empirically examined the influence of capital structure on the performance of banks assessed by ROE, ROAs and earnings per share in Bangladesh. The results of the pooled ordinary least square analysis showed that capital structure inversely affects bank performance.

### III. Research Methodology

**Sample:**

Companies constituting BSE broad based index i.e. SENSEX as on March 2021 is used for the study. Thus, a sample of thirty firms belonging to different sectors is selected.

**Variables:**

**Table 1: Description of Variables**

Variables	Acronym	Construction of Variables	Data Source
<b>Capital structure</b>	DE	Debt-equity ratio	} Prowess
	ROTA	Return on total assets	
<b>Financial Profitability</b>	RONW	Return on net worth	
	ROCE	Return on capital employed	

As described in Table 1, debt-equity ratio is used as a proxy for capital structure, whereas three measures of firm profitability namely, return on total assets (ROTA), return on net worth (RONW) and return on capital employed (ROCE) are considered for the study.

**Source of data Collection:**

The data have been sourced from Prowess database provided by Centre of Monitoring Indian Economy (CMIE).

**Timeframe of the Study:**

The timeframe of the study is of eleven years ranging from April 2009 to March 2020.

**Statistical Softwares:**

Statistical Package for the Social Sciences (SPSS) and Econometrics Views (E-Views 9) have been used for the analysis.

**Statistical Tools applied:**

Firstly, descriptive statistics namely mean, maximum value, minimum value and standard deviation of the debt-equity ratio and the selected measure of firm profitability have been computed. Then, correlation analysis has been done to examine the correlation between the variables. Finally, panel data regression has been applied for investigating the influence of capital structure on firm profitability.

### IV. Data Analysis and Interpretation

**Table 2: Descriptive Statistics**

	DE	ROCE	RONW	ROTA
<b>Mean</b>	0.87	18.07	22.44	10.26
<b>Median</b>	0.29	10.10	17.45	6.95
<b>Maximum</b>	7.38	125.26	125.43	37.53
<b>Minimum</b>	0.00	-13.12	-24.07	-8.84
<b>Std. Dev.</b>	1.43	20.29	19.80	9.35
<b>Observations</b>	330	330	330	330

Source: Result output of E-Views 9

Descriptive statistics are calculated to know about the basic properties of the selected variables. Total observations considered in the study are 330 representing data of 30 companies for eleven years. The result depict that mean value of Debt-equity is 0.87 whereas maximum debt-equity is 7.38 of Housing Development Finance Corpn. Ltd. in 2012, whereas minimum debt-equity is 0.00. Mean value of selected profitability ratios i.e. ROCE, RONW and ROTA is 18.07 percent, 22.44 percent and 10.26 percent respectively. Minimum value of ROCE, RONW and ROTA is -13.12 percent, -24.07 percent and -8.84 percent respectively which represents negative earnings belong to Bharti Airtel Ltd. The value of S.D. is highest for ROCE which represents highest variations.

**Table 3: Correlation Analysis**

Variables	DE	ROCE	RONW	ROTA
DE	1			
ROCE	-0.40	1		
RONW	-0.21	0.96	1	
ROTA	-0.48	0.85	0.79	1

Source: Result output of E-Views 9

Correlation results presented in Table 3 demonstrate negative correlation between debt-equity and all the three measures of firm profitability viz. ROCE, RONW and ROTA.

**Table 4: Panel Data Regression Analysis to Assess Influence of Capital Structure on ROTA**

Dependent Variable: ROTA				
Model	Fixed Effect Model		Random Effect Model	
Variable	Coefficient	Std. Error	Coefficient	Std. Error
C	11.42***	0.59	11.88***	1.50
DE	-1.34**	0.64	-1.86***	0.54
<b>F-statistic</b>	73.51***		11.77***	
<b>Hausman Specification Test</b>				
Chi-Sq.-Statistics			2.39 (0.12)	

Note: \*\*\*, \*\*, \* indicate significance at 1, 5 and 10 per cent level respectively

Source: Result output of E-Views 9

Table 4 presents the results of panel data regression model used to assess the influence of debt-equity ratio on ROTA. Both FEM and REM are estimated, and then Hausman specification test is used to compare both the models and it is found to be insignificant suggesting the preference of random effect model. The results of REM suggest that DE is significantly influencing ROTA negatively and its coefficient is -1.34. F statistics is also significant suggesting the fitness of the model.

**Table 5: Panel Data Regression Analysis to Assess Influence of Capital Structure on RONW**

Dependent Variable: RONW				
Model	Fixed Effect Model		Random Effect Model	
Variable	Coefficient	Std. Error	Coefficient	Std. Error
C	22.79***	1.63	23.64***	3.46
DE	-0.40	1.78	-1.37	1.41
<b>F-statistic</b>	38.58***		34.32***	
<b>Hausman Specification Test</b>				
Chi-Sq.-Statistics			0.80 (0.37)	

Note: \*\*\*, \*\*, \* indicate significance at 1, 5 and 10 per cent level respectively

Source: Result output of E-Views 9

Table 5 presents the results of panel data regression model used to assess the influence of debt-equity ratio on RONW. Both FEM and REM are estimated, Chi-sq statistics of Hausman specification test is 0.80 which is found to be insignificant suggesting the preference of random effect model. The results of REM suggest that DE is influencing RONW negatively and its coefficient is -0.40 but not found to be significant. F statistics is significant suggesting the fitness of the model.

**Table 6: Panel Data Regression Analysis to Assess Influence of Capital Structure on ROCE**

Dependent Variable: ROCE				
Model	Fixed Effect Model		Random Effect Model	
Variable	Coefficient	Std. Error	Coefficient	Std. Error
C	21.07***	1.47	21.73***	3.36

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<b>DE</b>	-3.44***	1.60	-4.19***	-3.21
<b>F-statistic</b>	52.91***		10.32***	
<b>Hausman Specification Test</b>				
Chi-Sq.-Statistics		0.66 (0.41)		

Note: \*\*\*, \*\*, \* indicate significance at 1, 5 and 10 per cent level respectively

Source: Result output of E-Views 9

Table 6 depicts the results of panel data regression model used to assess the influence of debt-equity ratio on ROCE. Both FEM and REM are estimated, and then Hausman specification test is used to compare both the models and Chi-sq statistics is 0.66 which is found to be insignificant suggesting the preference of random effect model. The results of REM suggest that DE is significantly influencing ROCE negatively and its coefficient is -3.44. F statistics is also significant suggesting the fitness of the model.

### **V. Conclusion**

Deciding an optimum capital structure is an important decision to be made by every business. So it is must to know how capital structure influences the firm's profitability. The objective of the present study was to investigate the influence of capital structure on firm profitability of selected 30 companies of BSE broad based index i.e. SENSEX. As a proxy for capital structure, debt-equity ratio is used whereas three measures of firm profitability namely, return on total assets (ROTA), return on net worth (RONW) and return on capital employed (ROCE) are considered for the study. To analyze, firstly descriptive statistics were calculated to demonstrate the basic properties of the data then correlation analysis and panel data regression technique were used to analyze the influence of capital structure on firm profitability. The findings of the study revealed that debt-equity ratio is significantly and negatively correlated with all the three measures of firm profitability. Regression results suggest that debt equity is negatively influencing the selected profitability ratios but found to be insignificant in respect of RONW. The outcomes of this study will be useful for investors, lenders, as well as businesses. It will also help the financial managers to identify their optimal capital structure in order to maximize the value of the firm. The future study can focus on a larger group of companies or it can be industry-specific.

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