

---

## INFLUENCE OF CAPITAL STRUCTURE ON FINANCIAL PERFORMANCE

**Chandrika Prasad Das**

Lecturer, Department of Commerce, B.B. Mahavidyalaya, Jajpur, Odisha  
chandrika.das9@gmail.com

**Rabindra Kumar Swain,**

Assistant Professor, P.G. Dept. of Commerce Utkal University, Bhubaneswar  
rabindraswain2@gmail.com

---

DOI: 10.23862/kiit-parikalpana/2018/v14/i1/173256

---

### ABSTRACT

*Financing decision is one of the important areas in financial management to increase shareholders' wealth. Firms can use either debt or equity capital to finance their assets. The purpose of the study is to find out the determinants of capital structure and its impact on financial performance. We have used secondary data and taken 50 top manufacturing companies for our study. Regression model has been used to study the relationship and impact of capital structure on profitability. The study concludes that there is a significant relationship between capital structure and profitability and capital structure has significant impact on financial performance of sample companies.*

**Keywords:** Financial Management, Shareholder's Wealth, Equity Capital, Debt, Capital Structure, Financial Performance

### INTRODUCTION

The basic aim of starting a business is earning profit for which the proprietor has to sacrifice or invest some amount of money in the business. Money invested helps in acquiring resources i.e. assets. The assets of the business are used in process of production, distribution and in the operation of the business. The funds to be invested are procured from various sources. The source can be promoter himself or outsiders to the business. Those funds are the input to business which will provide the expected output. This input is

termed as capital/financial capital. The source of financial capital can be of two types- owned capital and borrowed capital. Owned capital is raised from owners (promoters/shareholders) also known as owner's equity and borrowed capital is raised from lenders or investors known as debt fund or outsider's equity. The capital can be of various types on the basis of time such as long term capital, medium term capital & short term capital. Long term capital is basically obtained by issuing share capital, debenture capital,

venture capital mortgage, retained earnings etc. The term loan, leasing, Bank overdraft, trade credit, factoring etc. are the sources of Medium and short term capital. All these mix of sources of funds is known as financial structure. The portion of finance structure consisting of long term capital can be said as capital structure.

The capital structure is the combination of equity capital and debt capital. The proportion of debt and equity in capital structure varies from firm to firm and time to time. A firm can adopt a capital mix of either 100% equity and zero debt or 100% debt with zero equity or any combination of both. Equity financing is less risky in the sense of cash flow commitments, but results in a dilution of ownership and earnings where as debt capital creates an obligation or liability with low-cost and high risk. It is a very important component of corporate finance. Long before 50 years financial management has not got that much importance and deals with only procurement of funds but at present it has taken the basics of any business including procurement, utilization and control of finance. So it directly affects the performance of business organization. That's why finance manager should take a decision of optimal capital mix which will increase the financial Performance.

## REVIEW OF LITERATURE

**Goyal**, (2013) made a study entitled "Impact of Capital Structure on Performance of listed Public Sector Banks

in India" with the purpose to measure the impact of capital structure on banking performance. He has taken 19 PSU banks listed on NSE as the sample for the study. It is concluded that the profitability measured by return on equity (ROE) reveals an average of 17.98 percent with median of 18.19 percent. This picture may suggest a good performance during the period under the study. The average value of TDC variable is 18.66 with median of 17. This position reveals that the banks are financially leveraged with a large percentage of total debt being short-term. The average growth is 21.29 and the average firm size is measured by logarithm of assets.

**Mohamed & InunJariya**, (2015) studied the "Effect of Capital structure on profitability of Food and Beverage sectors in Sri Lanka" by taking 14 companies of the Beverage, Food & Tobacco industry and 24 companies from the Manufacturing industry. They conducted the study to find out the relationship between profitability of the listed Beverage, Food and Tobacco industry in Sri Lanka and capital structure and to recognize the impact of capital Structure on the profitability of the Food and Tobacco industry and listed Beverage, in Sri Lanka. The study revealed that total debt to asset (TDA) has a negative impact on return on equity (ROE) and return on capital employed (ROCE) and is significant at 0.05 significance level whereas leverage, measured by total debt to equity (TDE) shows a negative relationship but not significant. TDA is also

found out a negative impact on profitability measured by ROCE after controlling for LNS at 0.01 significant levels. It is clear that both the measures of leverage (TDA & TDE) have negative impact on both the measures of profitability (ROE & ROCE). The value is less than 0.01 for all the cases. Therefore, it could be concluded that at 1% significance level, leverage/debt capital has a negative impact on the profitability of beverage, food and tobacco sector firms listed on Sri Lanka.

**Babalola**, (2012) in their research on “The Effects of Optimal Capital Structure on Firm’s Performances in Nigeria” examined an optimal capital structure to maximize the performance of selected firms under the same systematic risk. They found a strong curvilinear relation between ROE and the debt-to-assets ratio. The theory predicts that the value of firms will first increase, then decrease, as debt ratio increases. Most existing papers on capital structure require firm’s performance or firm’s value to bear the linear relation with debt ratio, but the empirical evidence does not support this. In contrast, there is an evidence that the quadratic relations are significant, yet these have not received much attention in the finance literature

**Kumar**, (2015) made a study entitled “Capital Structure and its Impact on Profitability”. The study has made with the objectives of identifying the relationship between profitability and capital structure of SME, finding an optimal capital

structure that would be associated with the best performance, finding an optimal capital structure that would be associated with the best performance and finding out the impact of capital structure on the profitability. Data collected from some secondary sources studied from 2008 to 2013 and it is concluded that the debt/equity composition varies substantially among the SME and there is significant relationship between Debt to total funds and ROE. There is no relation or there is insignificance between debt to total funds and ROCE.

Habib et al, (2016) made a study entitled “Impact of debt on profitability of firms; evidence from non-financial sector of Pakistan”. This study focuses on expanding the existing empirical knowledge on the impact of debt on profitability of companies by taking 340 firms listed on the KSE. The study analyzed the financial statements of all the sample companies to find out the influence of debt on the profitability of concerned firms. It is concluded that there is a significant but negative relationship between debt and profitability, thus, the higher the debt, the lower the profitability.

Movalia, (2015) conducted a study on “ Capital structure analysis and profitability of Indian Tyres Industry” with the objective to know the Debt-Equity ratio of listed Tyre Companies, to measure profitability of Tyre industry, to measure the impact of debt-equity ratio on profitability of listed companies in the

Tyre industry. The study was based on descriptive and analytical research design which found out that debt-equity ratio of the company is having significant impact on profitability of Tyre companies in India. MRF, Apollo Tyres, Dunlop India and Modi Rubber having Ideal capital structure, so respectively they are having good profitability.

### RESEARH GAP

Many studies have been conducted on the impact of management & control, Costing technique, marketing strategy, employee performance on profitability but very few researches have been made on impact of capital structure on profitability in India. Those studies made on this topic are basically on different industries like SME, Food & beverages industry, IT industries,

Tyre industries etc but a few studies have been taken on manufacturing sector or service sector in common.

### STATEMENT OF THE PROBLEM

In India, a few studies have been undertaken to establish the relationship between optimum capital structure and performance variables like ROE, ROA, and ROCE etc. So, the study is an attempt to analyze the relationship between capital structure and performance variables to understand and evaluate the impact of capital structure on various performance variables.

### IMPORTANCE OF THE STUDY

The present study mainly analyses how far the capital structure affects the profitability of corporate firms in India.

**Table 1: STATIONERITY TEST RESULTS**

Variables	ADF Statistics	P Value	Order of Integration
ROA	8.54	0.0000	I(0)
ROE	8.35	0.0000	I(0)
ROCE	7.89	0.0000	I(0)
EPS	20.63	0.0000	I(0)
CURRENT RATIO	22.06	0.0000	I(0)
DEBT EQUITY RATIO	20.78	0.0000	I(0)
LD – TA	9.30	0.0000	I(0)
TD - TA	9.15	0.0000	I(0)

Source: Author Computation from Computer output

**Table 2: DESCRIPTIVE STATISTICS**

	ROA	ROE	ROCE	EPS	CR	D/E	LD-TA	TD-TA
Mean	9.46	22.63	15.59	54.27	1.88	0.75	13.56	27.80
Std. dev	7.35	16.96	14.51	238.53	5.73	2.00	13.12	24.61

Source: Author Computation from Computer output

Asset size and business revenue would appear to be the important factors in determining the profitability of corporate firms. This is a benchmark of performance by seeing which investors and lenders invest in business. In India, a few studies have analyzed the relationship between asset size and business revenues on the impact of capital structure and Profitability. Though many research studies have been undertaken in the field of capital structure, only a very few studies have been undertaken to analyze the association between capital structure and Profitability.

Therefore, this study is a maiden attempt to analyze the

- Profitability of the firms.
- Significant relationship among different sized firms in terms of capital structure and Profitability.

The study constitutes an attempt to provide an empirical support to the hypothesized relationship between capital structure and Profitability. Is there any significant difference in the impact of capital structure on Profitability of manufacturing firms in India? How far does the capital structure affect the business revenue of firms, and what is the inter-relationship between capital structure and Profitability.

**OBJECTIVES OF THE STUDY**

- To identify the determinants of capital structure.
- To measure the impact of capital structure on financial performance.

**RESEARCH METHODOLOGY**

**Sources of Data**

Secondary data have been used for the study. The required data have been collected from money control website. The

**Table 3:** Multicollinearity Test

<b>Independent Variables</b>	<b>Variance Inflation Factor</b>
Debt Equity Ratio	1.0557
Current Ratio	1.0023
Longterm Debt _ Total Asset	1.4398
Total Debt _ Total Asset	1.4510

Source: Author Computation from Computer output

**Table 4:** Regression Result

<b>Independent</b>	<b>Multiple R</b>	<b>R Square</b>	<b>Adjusted R</b>	<b>P Value</b>
<b>ROA</b>	0.507441323	0.257496696	0.25149667	6.44e-31 < 0.05
<b>ROE</b>	0.31239629	0.09759144	0.09029925	2.31e-10 < 0.05
<b>ROCE</b>	0.461304	0.212801	0.20644	1.02e-24 < 0.05
<b>EPS</b>	0.072391	0.00524	-0.0028	0.625743

Source: Author Computation from Computer output

data have been taken from the financial reports of the sample companies.

### Sample Design

Considering the availability of data, a study period of 10 years has been taken. 20 firms selected out of 100 listed firms on the basis of market capitalization, 20 firms out of top 100 firms on the basis of total assets employed and 10 firms from list of top 100 firms on the basis of revenue & growth have been selected. So, in total we have taken 50 manufacturing companies for our study.

### Variables

**Dependent variables** (Financial Performance variables)

ROA- Return on Asset

ROE- Return on equity

ROCE – Return on Capital employed

EPS- Earning per Share

**Independent variables** (Capital Structure)

CR - Current ratio

LD \_ TA - Long term debt to Total assets

TD \_ TA - Total debt to Total assets

DER - Debt equity ratio

### Econometric Model

$$Y_e = \hat{\alpha}_0 + \hat{\alpha}_1 DER + \hat{\alpha}_2 CR + \hat{\alpha}_3 LD\_TA + \hat{\alpha}_4 TD\_TA + \hat{\alpha}$$

Where,

$Y_e$  = Profitability Variables (ROA, ROE, ROCE, EPS)

$\hat{\alpha}_0$  = constant or the value of Y when all

values of X are zero

$\hat{\alpha}_1, \hat{\alpha}_2, \dots$  = Slope of the independent variables

**DER** = Debt – Equity Ratio

**CR** = Current ratio

**LD\_TA** = Long Term Debt to Total Asset

**TD\_TA** = Total Debt to Total Asset

$\hat{\alpha}$  = The error term

### Statistical Measures

- Multicollinearity test- To study the inter-dependence among independent variables
- Stationery Test – To find out whether the data has a unit root or not.
- Descriptive Statistics - Descriptive statistics are used to describe the basic features of the data in a study. SPSS test has been used to calculate descriptive statistics.
- Multiple regression technique- for analysis of degree of impact of capital structure on profitability.

### Software used for Data Processing

- **SPSS** - SPSS helps to determine regression analysis, Multicollinearity Test and Descriptive Statistics.
- **Eviews9.5** - It helps to determine the unit root test.

### HYPOTHESIS

$H^1_0$  There is no relationship between ROA and capital structure variables.

$H^2_0$  There is no relationship between

- ROE and capital structure variables.
- H<sup>3</sup><sub>0</sub> There is no relationship between ROCE and capital structure variables.
- H<sup>4</sup><sub>0</sub> There is no relationship between EPS and capital structure variables.

## **DETERMINANTS OF CAPITAL STRUCTURE**

**Financial Leverage:** It means the use of borrowed capital to increase the sales and earnings. The use of more debt component in the business magnifies the earning of shareholders. The more and more debt a company uses, the higher its financial leverage but at the same time the risk of high interest payment arises which negatively affect the company.

**Growth & Stability of Sales:** The growth and stability in sales is a measure factor for capital structure of firms. If a company is having fair sales then it can raise a high level of debt and vice versa.

**Cost of Capital:** It means minimum rate of return that one investor should expect on his investment. It should provide minimum cost of capital.

**Cash Flow:** The firm which can generate stable cash inflows, they have more opportunity to employ more debt in its capital structure as compared to the one which has unstable and lesser ability to generate cash inflow.

**Nature and Size of a Firm:** Nature and size of a firm influence the capital structure. Public sector firms may employ more debt as comparison to private sector firms

because of stability and regularity of their earnings.

**Flexibility:** It means the firm's ability to adopt the capital structure according to the changing conditions. The capital structure is flexible if it has no difficulty in changing its sources of funds.

**Requirement of Investors:** The requirement of investors influences the capital structure of a firm. It is necessary to meet the requirements of both institutional as well as private investors when debt financing is used.

**Capital Market Conditions:** Capital Market Conditions affects the firm's capital structure. The conditions are different as it is dependent on market and pessimistic business conditions.

**Inflation:** Inflation is a major factor that should be considered at the time of financing decision. During the high inflation period if one company is using more debt financing then they have to repay the debt with rupees more than what they have taken.

## **DATA ANALYSIS**

### **Stationery Test**

This paper has used Augmented Dickey – Fuller test to find out the stationery of data.

H<sub>0</sub>: Data has unit root.

H<sub>1</sub>: Data has no unit root.

We have found all the data are stationery at level because the test statistics is lower than the critical values. So, we will reject

null hypothesis  $H_0$ . So, we can conclude that the above paper has no unit root. Therefore, we can run regression.

### Descriptive Test

Table no 2 gives the summary of the descriptive statistics of the data used in this study. The above table shows that the mean and standard deviation of EPS is 54.27 and 238.53. It shows there is no consistency in EPS. The TD-TA is not consistent to some extent as the standard deviation is more with comparison to mean value. Current ratio, Debt Equity ratio, LD-TA, ROA, ROCE, ROE shows consistency as their standard deviation is satisfactory.

### Multicollinearity Test

In the study four independent variables have been taken. We first run regression equation to find out if there is any Multicollinearity among the independent variables.

From table no 1 it is observed that VIF value of independent variables is less than the rule of thumb 10. Hence there is no Multicollinearity between independent variables and all the variables are eligible for running regression equation.

### Regression Results

From the regression table as given above it is found that there is a positive relationship between ROA and all independent variables (D/E, CR, LD-TA, TD-TA) as evident from  $R^2$  i.e. 0.257496696. This indicates around 25

% (approx) of ROA is contributed by independent variables. It can be said that a unit change in capital structure leads to a change of 25% in ROA which is very significant. Here p value is 6.44E-31 i.e.  $p < 0.05$ . It implies that there is a significant relationship between ROA and all independent variables collectively. Hypothesis 1 predicts that "There is no relationship between ROA and CS variables". The above results confirm that this hypothesis is rejected and alternative hypothesis is accepted i.e. there is a significant relationship between ROA and CS variables.

The above table propounds that there is a positive relationship between ROE and all independent variables i.e. 0.09759144. It means around 10% (approx) of ROE is contributed by independent variables. So it can be said that change in a unit of capital structure will lead to 10% change in ROE. Return on equity is the basic indicator of profitability, but only 10% is affected by these variables. The remaining 90% change may be due to other variables like competition from the market, state of economy, promotion of the company which influences volume of sales, cost of raw materials, labour etc., and the impact of which is not considered in this study. Here p value is 2.31E-10 i.e.  $p < 0.05$ . It concludes that there is a significant relationship between ROE and all independent variables. Hence  $H_0$  'There is no relationship between ROE and CS variables' is rejected and alternative

hypothesis is accepted i.e. There is a significant relationship between ROE and independent variables.

We find that there is a positive relationship between ROCE and all independent variables from the regression table i.e.  $R^2$  0.212801 i.e. this shows around 21% (approx) of ROCE is contributed by independent variables. It also signifies the level of significance between ROCE and all independent variables is  $1.02E-24$  i.e.  $p < 0.05$ . It denotes that there is a significant relationship between ROCE and all independent variables. The above result concludes that the null hypothesis  $H^3_0$  is rejected. So, alternative hypothesis is accepted i.e. there is significant relationship between ROCE and independent variables.

There is a positive relationship between EPS and all independent variables as evident from adjusted  $R^2$  0.00524 i.e. this indicates around 1% (approx) of EPS is contributed by independent variables which is very negligible. Here we can see the effect of these variables on EPS is very insignificant. A change in capital mix does not incur much change in EPS. There may

be some other variables like dividend decision, state of economy etc. which we have not considered here in our study. The p value is 0.625743 i.e.  $p > 0.05$ . It signifies that there is no significant relationship between EPS and all independent variables collectively. Thus, we conclude that the null hypothesis is accepted.

**ANOVA**

$$ROA = 14.02 + 0.01 CR - 0.31 D/E - 0.15 LDTA - 0.08 TDTA$$

Here C is the estimated constant of the regression and the value of C is 14.02. The current ratio shows positive contribution towards return on asset. The current ratio co-efficient is 0.01, it means 1 unit change in current ratio leads to 0.01 unit change in ROA.. D/E, LDTA, TDTA contributes negatively towards ROA.

$$ROE = 28.90 - 0.05 CR - 0.34 D/E - 0.32 LDTA - 0.05 TDTA$$

The constant intercept is 28.90. All the independent variables contributes negatively towards return on equity. Here Debt Equity co-efficient is -0.34. It means 1% change in D/E leads to -0.34% change in ROE. The CR, LDTA, TDTA co-

Table 5: ROA

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	14.02340	0.466418	30.06616	0.0000
CR	0.013170	0.049679	0.265097	0.7910
DEBTEQUITY	-0.317046	0.145861	-2.173615	0.0302
LDTA	-0.153603	0.026042	-5.898260	0.0000
TDTA	-0.081199	0.013941	-5.824443	0.0000

efficient is -0.05, -0.32, -0.05.

$$\text{ROCE} = 23.94 - 0.07 \text{ CR} - 0.53 \text{ D/E} - 0.29 \text{ LDTA} - 0.13 \text{ TDTA}$$

The intercept value is 23.94. The CR, D/E, LDTA, TDTA co-efficient value is -0.07, -0.53, -0.29, -0.13. Debt equity ratio impacted negatively towards ROCE most. 1 unit change in D/E brings -0.53 unit change in ROCE.

$$\text{EPS} = 73.13 - 0.60 \text{ CR} + 4.16 \text{ D/E} - 0.61 \text{ LDTA} - 0.45 \text{ TDTA}$$

The constant co-efficient value is 73.13. Debt Equity ratio contributes positively towards Earning per share. The Debt Equity co-efficient is 4.16. It means 4.16 unit changes in EPS due to 1 % change in D/E ratio. All other independent variables affected negatively towards EPS.

Table 6: ROE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	28.90886	1.186455	24.36574	0.0000
CR	-0.051306	0.126373	-0.405990	0.6849
DEBTEQUITY	-0.348407	0.371036	-0.939013	0.3482
LDTA	-0.324043	0.066245	-4.891606	0.0000
TDTA	-0.054548	0.035463	-1.538162	0.1246

Table 7: ROCE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	23.94425	0.947749	25.26433	0.0000
CR	-0.073647	0.100947	-0.729560	0.4660
DEBTEQUITY	-0.539850	0.296386	-1.821441	0.0691
LDTA	-0.298611	0.052917	-5.643022	0.0000
TDTA	-0.134862	0.028328	-4.760717	0.0000

Table 8: EPS

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	73.13923	17.50997	4.177004	0.0000
CR	-0.607986	1.865036	-0.325991	0.7446
DEBTEQUITY	4.160480	5.475829	0.759790	0.4477
LDTA	-0.611410	0.977655	-0.625384	0.5320
TDTA	-0.451779	0.523369	-0.863212	0.3884

Source: Author Computation from Computer output