

# An Empirical Evidence of Capital Structure and Performance of Manufacturing Industries in Various Sectors in India

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## Abstract

Capital structure refers to sources of funds such as debentures, long term debt, preference share capital and equity share capital including retained earnings. The optimum capital structure of the organization differs from one approach to another due to the assumption which are underlying with reference to many factors of influence. The success of the firm normally depends upon the rate at which the financial resources are raised which differs from one organization to another depending upon the needs. The cost of capital has greater influence on the EBIT level of the firm, which has direct effect on the amount of earnings available to the investors, this finally reflects on the value of the firm. The study focuses on the role of capital structure in industry valuation and it focus on the role of other market and economic variables like taxation is assessed. The data is collected from financial markets. The effectiveness of the capital budgeting results from the cash flow of the projects and the cost of capital. If proper knowledge about the prevailing capital structure of industry is not known, it would not be appropriate for the firm to estimate the external cost of capital, debt or equity. From this background the study is conducted on analyzing the capital structure and its impact on performance of industry. The aim of the study is to investigate relationship between capital structure and manufacturing industrial performance listed in 13 sectors of Indian economy during the period 2019-2020. Hence according to research the Industrial performance is taken as dependent variables and it is measured by Return on Assets (ROA), Return on Equity (ROE) and Return on Investment (ROI). The independent variable is Total Debt (TD) and Debt-equity ratio (DER). The descriptive analysis for the dependent variable and independent variables are examined. The correlation matrix for the variables is examined to analyze the correlation that exists among variables. The measurement of capital structure is taken as Independent Variable. Hence Debt-equity ratio and Total Debt is employed as independent variable.

**Keywords:** Capital Structure, ROA, ROE, ROI, Debt-equity ratio, Cost of capital.

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## I. Introduction

The capital structure theories facilitate the business fleeces to identify the optimum capital structure. The optimum capital structure of the organization differs from one approach to another due to the assumption which are underlying with reference to many factors of influence. The success of the firm is normally depends upon the rate at which the financial resources are raised. The cost of capital has greater influence on the EBIT level of the firm, which has a direct effect on the amount of earnings available to the investors, this finally reflects on the value of the firm. The more earnings available at the end will lead to greater return on investment holdings of the investors, that would enhance the value of shares due to greater demand. There are two sets of approaches with reference to capital structure, the one which normally influences the value of the firm through the cost of overall capital ( $K_0$ ) called as relevance approach and the other which does not have any influence on the value of the firm known as irrelevance approach. The debt finance in the capital structure facilitates the firm to enhance the value of EPS on one side on the other side it is subject to the financial leverage with reference to trading on equity. The application of leverage in the capital structure enhances the value of the firm through the cost of capital. Myers (2002) states that, capital structure is the combination between debt and equity used to finance for the investments of the firm. Dreyer (2009) states that capital structure is concerned on the right side of the balance sheet and those items on the right side of the balance sheet excluding current liabilities are sources of capital employed to finance the real assets required to conduct the business of the firm. The capital structure theories are (i) Net income approach, (ii) Net operating income approach, (iii) Modigliani and Miller approach and (iv) Traditional approach.

## II. Assumption of the Capital Structure Theories

- There are only two resources in the capital structure viz Debt and Equity share capital.
- The dividend payout ratio 100% which means that there is no scope for the retained earnings.

- The life of the firm is perpetual.
- The total assets of the firm do not change.
- The total financing remains constant through balancing taking place between the debt and share capital.
- No corporate taxes.

### **III. Theories on Capital Structure**

- **Net Income Approach**

Net Income approach was developed by Durand, in this he has portrayed the influence of the leverage on the value of the firm, which means that the value of the firm is subject to the application of debt i.e., leverage. In this approach the cost of debt is identified as cheaper source of financing than equity share capital. Increase in the application of debt in the capital structure brings down the overall cost of capital, more particularly 100% application of debt finance leads to resemble the overall cost of capital as cost of debt. The weighted average cost of capital will come down due to more application of leverage in the capital structure.

$$K_o = K_e(S/V) + K_i(B/V)$$

The value of the firm is more in the case of lesser overall cost of capital due to more application of leverage in the capital structure. The optimum capital structure is that at when the value of the firm is highest and the overall cost of capital is lowest.

$$V = B + S$$

$$V = EBIT/K_o$$

This approach highlights that the application of leverage influences the overall cost of capital and that affects the value of the firm.

- **Net Operating Income Approach**

This is another development by Durand, which has underlying principle that the application of leverage does not have any influence on the value of the firm through the overall cost of capital. The more application of leverage leads to bring down the explicit cost of capital on one side and on the other side implicit cost of debt is expected to go up. The more application of debt leads to increase the financial risk among the investors that warranted the equity share holders to bear additional financial risk of the firm. Due to additional financial risk the shareholders desire that the firm pays additional dividends over the existing. The increase in the expectations of the shareholders with reference to dividends hikes the cost of equity. Under this approach no capital structure is found to be a optimum capital structure. The major reason is that the debt-equity ratio does not influence the cost of overall capital, which always remains constant. It is finally concluded that this approach highlights that application of leverage never makes an attempt to enhance the value of the firm, in other words which is known as unaffected by the application of leverage.

- **Modigliani-Miller Approach**

This approach attempts to explain that the application of leverage does not have any influence on the value of the firm through the behavioral pattern of the investors. The behavioral pattern of the investors is taken into consideration for explaining the value of the firm which is unaffected by the application of debt/leverage in the capital structure through arbitrage process. The MM approach has three different propositions:

- The overall capital structure of the firm is unaffected by the cost of capital and degree of leverage.
- The cost of equity goes up and offset the increase of leverage in the capital structure.
- The cut off rate for the investment purposes is totally independent.

For discussion the proposition is only considered for the study of the usage of leverage in the capital structure, which does not have any impact in the value of the firm.

### **IV. Purpose of study**

The study focuses on the role of capital structure in industry valuation and role of other market factors. The data is collected from financial markets. The purpose of the study is a link between a Industry's capital structure and its value has been debated in many cases and in famous Miller and Modigliani propositions in 1950's claims that value of firm is dependent of its capital structure. The relationship between capital structure and value of manufacturing industry has been extensively examined.

### **V. Statement of Problem**

The value of the industry depends on value adding projects, therefore it is important to prepare a effective capital budgeting. The effectiveness of the capital budgeting is resulted from the cash flow of the projects and the cost of capital. If proper information about the capital structure prevailing in the market is not known, then it would not be appropriate to estimate the external cost of capital, debt or equity. From this

background the study is conducted on analyzing the capital structure and its impact on performance of Manufacturing Industry.

### **VI. Objectives of the study**

The objective of the study is to examine the relationship between capital structure and performance of 13 listed industrial sectors in manufacturing industry in India.

### **VII. Data Collection**

The data has been collected from secondary sources of information viz., [www.readyratios.com](http://www.readyratios.com), [www.csimarket.com](http://www.csimarket.com) RBI bulletin, Google Scholar, Google Books. In addition to these sources the publications and research from International institutions were used.

### **VIII. Tools of the Study**

The study population consists of listed manufacturing Industries in 13 listed sectors in the Indian economy and their activities upto the year 2019. The aim of the study is to investigate relationship between capital structure and Manufacturing Industrial performance listed in 13 sectors of Indian economy during the period 2019-2020. Hence according to research the Manufacturing Industrial performance is taken as dependent variable and it is measured by Return on Assets (ROA), Return on Equity (ROE) and Return on Investment (ROI). The independent variable is Total Debt (TD) and Debt-equity ratio (DER). The descriptive analysis for the dependent variable and independent variables are examined. The correlation matrix for the variables is examined to analyze the correlation that exists among variables. The measurement of capital structure is taken as Independent Variable. Hence Debt-equity ratio and Total Debt is employed as independent variable. The following are the Listed 13 Indian sectors taken for the study:

- Basic Material Sector
- Capital Goods Sector
- Conglomerates Sector
- Consumer Discretionary Sector
- Consumer Non Cyclical Sector
- Energy Sector
- Financial Sector
- Health Sector
- Services Sector
- Technology Sector
- Transportation Sector
- Utilities Sector
- Retail Sector

**Table: 1 Comparing Industrial sectors by using Debt equity ratio**

Sector	No. of Industries	Debt-equity Ratio
Basic Material Sector	12	0.07
Capital Goods Sector	9	0.07
Conglomerates Sector	6	0.17
Consumer Discretionary	9	0.24
Consumer Non Cyclical	10	0.15
Energy	10	0.05
Financial	17	0.2
Health Care	7	0.11
Services	21	0.08
Technology	12	0.05
Transportation	5	0.09
Utilities	3	0.12
Retail	10	0.06

The debt-equity ratio indicates how much debt and how much equity a company uses to finance its operations. A high debt-equity ratio means that the company has relatively high debt and has a negative impact on the firm. For instance a ratio of 0.2 is considered positive while a ratio of 0.5 is a negative sign for share investors because the cost of servicing high debt levels can pressurize the industries earnings and make them more volatile.

**Table 2 Descriptive Statistics**

Variable	N	Mean	Std. Deviation	Minimum	Maximum
ROA	13	3.945	2.055	1.41	9.22
ROE	13	12.651	5.099	4.51	21.67
ROI	13	7.108	3.812	2.63	16.32
TD	13	2.454	1.755	0.75	6.95
DER	13	0.112	0.061	0.05	0.24

The table summarizes the descriptive statistics for dependent and independent variable. The average ROA for the sample reveals 3.95% which means that each investment in assets generates around 3.95 units in earnings. While the average ROE is high at 12.65% and the average ROI is lower for the given sample which is 7.11%. The standard deviation examines the level of variation of the variables from their mean value that reveals the most stable variable is the Debt-equity ratio with SD of 0.061 followed by total debt of 1.755.

### Correlation for the Industrial Sector

**Table 3: Spearman's Correlation for the Various Industrial Sector**

Variable	ROA	ROE	ROI	TD	DER
ROA	1.00				
ROE	0.83	1.00			
ROI	0.98	0.90	1.00		
TD	0.63	0.79	0.70	1.00	
DER	-0.42	-0.19	-0.38	-0.53	1.00

The correlation shows that there is negative correlation between Debt-equity ratio independent variable and dependent variable ROA, ROE and ROI which is -0.42, -0.19 and -0.38 respectively. The dependent variable ROA, ROE and ROI are positively correlated with independent variable total debt which is 0.63, 0.79 and 0.70 respectively. This is because the increase in the size of the industries gives it an opportunity to grant collateral, to borrow and make investment.

### IX. Conclusion

The study investigates the impact of capital structure and performance of 13 industrial sectors of manufacturing industry in India. Three accounting based measures are used for financial performance (ROA, ROE, ROI). The empirical analysis results that capital structure (DER) impacts negatively the industrial performance by ROA, ROE and ROI. The debt-equity ratio is the key metric used to examine a company's overall financial performance. The major reason why debt-equity ratio varies from one industry to another and even companies within industry is due to different capital intensity levels between industries. The result of the study reveals that TD has positive impact on the industrial performance of listed industrial sectors in India.

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