Relationship between Capital Structure and Financial Performance of Manufacturing Companies in India.

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Abstract
Capital is an important and critical resource for all companies. Under the capital structure, a company has to determine the proportion in which capital should be raised from different securities. A capital structure or a combination of owned capital and debt which enables to maximize the value of the firm is called optimum capital structure. The main objective of this paper is to find out present practices of capital structure adopted by manufacturing companies in India and to find out the relationship between capital structure and financial performance of manufacturing companies taken as sample during the study period. For achieving the objective of the study data has been collected from Prowess software from 2005-2017 and 444 manufacturing companies has been taken. For analysis purpose, data is processed through SPSS software by using multiple regression models. Different capital structure and financial performance variables has been used i.e. Long term Debt to capital, Short term debt to capital, Total debt to total capital, Total debt to equity, Return on Equity, Return on assets, Earnings per share, Tobin's Q, Firm Size and Assets Growth. The findings of the study reveal that most of the companies were using the Debt in their capital structure as per ideal standard and also all variables of capital structure have a significant relationship with financial performance ratio.

Index Terms- Capital Structure, Financial Performance, Tobin's Q

I.INTRODUCTION

In finance, capital structure refers to a way by which a corporation finances its assets through some combination of equity, debt or hybrid securities. A firm's capital structure is the composition or structure of its liabilities. There is the mix of equities used to finance the operation of a firm. Literature on capital structure suggests that a firm's capital structure play an important role in determining its futures growth, sustainability and financial performance. The financial decision set by management is very important in determining the optimal capital structure. The management of the firm itself has to set their capital structure in a way to maximize their firm value and this decision is really important. However, firms have a different level of leverage and managers try to achieve the best set to attain an optimal capital structure. In reality, capital structure may be highly complex and include dozens of sources. Many studies have been done on this subject in the past but most of them were in the developed economics and limited literature is available from the developing countries, especially India. So, we cannot generalize the results of the developed economics on the developing economics without any research. Capital market in these emerging market countries is incomplete or not efficient compared to the developed market because of the information asymmetry problems (Eldomiaty, 2007). This creates an environment where financing decision are attached with a significant level of irregularities for the firms. It is very essential to evaluate the validity of financial leverage levels and its relationship with the performance of the firms in India: a developing market economy. The lack of a consensus about what would qualify as optimal capital structure in the firms has motivated to conduct this research. A better understanding of the issue requires looking at concept of capital structure and its impact on financial performance of firm.

II.REVIEW OF LITERATURE

In order to understand the impact of capital structure on financial performance various studies have been carried out all over the world. As per variables in present conceptual framework, related studies have been taken up for review.

Jude Leon, S.A (2013) studied the relation between capital structure and financial performance of 30 listed manufacturing firms in Sri Lanka. Financial performance was measured in terms of accounting profitability by return on equity (ROE) and return on assets (ROA). The findings revealed that there was a significant negative relationship between leverage and return on equity and there was no significance relationship between leverage and return on assets.

Alawwad Suleiman (2013) studied the relation between capital structure and firm's performance of 67 companies from 13 different sectors listed in Saudi companies. The study analyze the relationship between capital structure proxies that include short-term debt, long-term debt and total debt with operating performance measured by earning per share (EPS), net profit

margin, return on assets (ROA) and return on equity (ROE). The findings revealed that only long-term debt and total debt have significant impact on return on equity while return on assets has a statistically significant impact relati
onship with each level of debt. Both earning per share and net profit margin are found to have positive relations with short-term debt whereas they have inverse relations with long-term debt and total debt.

Wajid khan *et.al* (2013) studied the relation between capital structure and financial performance on stock returns of 69 listed companies from Pakistan. In the study stock returns has been taken as dependent variable and debt to equity, return on equity ratio, cash flow ratio, earning per share and time interest earned ratios has been used as independent variables. The findings revealed that debt to equity ratio, return on equity, cash flow ratio, earning per share and time interest earned ratio positively affect stock return. Based on the empirical findings it has been concluded that variation in capital structure and financial performance does affect the stock returns.

Raheel mumtaz *et.al* (2013) studied the relationship between capital structure and financial performance of 83 listed companies on Karachi Stock Exchange. In this study Debt/ Equity ratio is commonly used as a measure in this study and earnings per share, price/earnings ratio, operating profit margin, return on asset and return on equity are used as proxies for firm performance. Findings of the study suggested that financial performance of firms is significantly affected by their capital structure and there is negative in nature.

A.M Goyal (2013) studied the impact of capital structure on performance of public sector banks in India listed on national stock exchange during 2008 to 2012. Long-term debt, short-term debt, total debt and control variables consist of firm size; asset growth and return on equity, return on assets and earnings per share are taken as variables of the study. The findings reveal positive relationship of short term debt with profitability as measured by ROE, ROA & EPS.

Al-Taani Khalaf (2013) studied the relationship between capital structures and firm performance of 45 manufacturing companies listed on Amman Stock Exchange. In this study Return on assets (ROA) and profit margin used as dependent variable and long term debt to assets and short term debt to assets is used as independent variables. The findings shows that there is a negative and insignificant relationship between STDTA and LTDTA, while TDE is positively related with ROA and negatively related with PM. STDTA is significant using ROA while LTDTA is significant using PM.

Salim Mahfuzah, Yadav Raj (2012) studied the relationship between capital structure and firm's performance of 237 Malaysian listed companies on the Bursa Malaysia Stock exchange during 1995-2011. The study uses four performance measures (including return on equity, return on asset, Tobin's Q and earning per share) as dependent variables. The five capital structure measure (including long-term debt, short-term debt, total debt and growth) as independent variables. Size is used as control variable. The result indicate that firm performance, which is measured by return on assets (ROA), return on equity (ROE) and earnings per share (EPS) have negative relationship with short-term debt (STD), long-term debt (LTD), total debt (TD), as independent variable and there is a positive relationship between growth and performance for all the sectors. Tobin's Q reports that there are significantly positive relation between short-term debt (STD) and long-term debt (LTD) and total debt has significant negative relationship with the performance of the firm.

Aman Srivastava (2011) studied the relationship between ownership structure and corporate performance of 98 Indian companies listed on Bombay Stock Exchange. The findings revealed that ownership structure have positive relation with accounting performance (i.e. return on assets and return on equity) but not stock market indicators (i.e. P/E and P/BV ratios), which indicate that there might be other factors (economic, political, contextual) affecting firms performance other than ownership structure.

Heydar Mohammadzadeh salteh, *et.al* (2010) studied the impact of capital structure on firm performance of 28 Iranian companies listed in Tehran Stock Exchange. The study use performance measures (including return on equity, return on assets, earning per share, market value of equity to the book value of equity and Tobin's Q) as dependent variable and four capital structure measures (including short-term debt, long-term debt, total debt to total assets and total debt to total equity) as independent variable. The results indicate that firm performance, which is measured by (ROE, MBVR & Tobin's Q) is significantly and positively associated with capital structure, while report a negative relation between capital structure and (ROA, EPS).

Objectives of the study: to bridge the gaps of earlier theories and empirical studies following objectives are taken:

1. To study present practices of capital structure of selected companies in India;
2. To examine the Relationship between capital structure and financial performance of manufacturing companies in India.

III. RESEARCH METHODOLOGY

The following section of the shows the research methodology which was using to attain the objectives.

Sample size and data collection- in this paper total 444 companies have been taken from manufacturing industry listed on Bombay Stock Exchange of India. The data was collected through Prowess software from 2005 up to 2017 (13 years).

Statistical tools and techniques

In this study, different methods of statistical processing have been applied. SPSS software programmer exclusively applicable to statistical processing is used for processing the data. Results are based on the data processing by MS Excel and multiple regressions.

Variables of the research:

Dependent variables-

- **Return on equity = net profit attributed to shareholders/total shareholders' equity.**
- **Return on assets=operating income/total assets.**
- **Earnings per share=net earnings/number of shares.**
- **Tobin's Q=Market value of equity+ book value of debt / book value of assets.**

Independent variables-

- **Long term debt to capital = Long term debt/capital**
- **Short term debt to capital = Short term debt/capital**
- **Total debt to capital = Total debt/ capital**
- **Total debt to total equity= total debt/total equity.**

Control variables-A number of studies from the literature have shown the importance of firm size and assets growth in influencing the performance. So, in this study firm size and assets growth is going to be use as control variables.
Firm size- to measure the firm size different methods are used by scholars. In this study book value of total assets will be used to calculate the firm size.
Firm size= Log (book value of assets)

Assets growth- assets growth is used by many scholars in their studies and for the purpose of research, it is calculated by following formula.
Assets growth= (assets of current year-assets of previous year)/assets of current year.

Research model specification:

Multiple regression models will be used to find out the relationship between capital structure and financial performance of manufacturing and IT companies listed in India. Four regression models will be used to find out the relationship between capital structure and financial performance of manufacturing and IT companies listed in India. The base models will be taking the following form:

$Yit = \alpha + \beta Xit + \mu it$

Where: Yit is the dependent variable.
β0 is the intercept.
Xit is the independent variable.
μit are the error terms.
i is the number of firms and
t is the number of time periods.
Return on asset:

$ROAit = \beta 0it + \beta 1LTDTCit + \beta 2STDTCit + \beta 3TDCit + \beta 4TDTEit + \beta 5SIZEit + \beta 6AGit + \mu it$

Return on equity:

$ROEit = \beta 0it + \beta 1LTDTCit + \beta 2STDTCit + \beta 3TDCit + \beta 4TDTEit + \beta 5SIZEit + \beta 6AGit + \mu it$

Earnings per share

$EPS = \beta 0it + \beta 1LTDTCit + \beta 2STDTCit + \beta 3TDCit + \beta 4TDTEit + \beta 5SIZEit + \beta 6AGit + \mu it$

Tobin's Q

$Tobin = \beta 0it + \beta 1LTDTCit + \beta 2STDTCit + \beta 3TDCit + \beta 4TDTEit + \beta 5SIZEit + \beta 6AGit + \mu it$

IV.Analysis & Interpretation-

For analysis purpose the data has been processed through Microsoft Excel and Multiple regressions by using SPSS software. The following section provides the analysis and interpretation objective wise.

First objective- To study present practices of capital structure of selected companies in India;

For the fulfillment of first objective data of 444 manufacturing companies have been processed through MS Excel and capital structure ratio of different companies has been divided into different ranges. The practices of capital structure shows that in which proportion the companies were using Debt in comparison to Equity.

Table 1: Capital Structure (Total Debts to Total Assets) Practices of 444 companies from Manufacturing Industry

Capital structure (%)	Year												Avg.
	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	

0-50	33.56	36.03	36.26	34.7	34.01	36.01	27.25	26.57	30.18	27.70	29.05	34.22	36.05	32.44
50-100	51.35	48.65	49.01	50.9	53.15	51.58	50	50	47.31	47.75	47.32	45.72	44.14	48.99
100-150	5.63	5.41	5.18	5.18	3.15	3.60	12.18	12.84	11.26	13.74	13.06	9.91	9.46	8.51
150-200	1.80	2.25	2.02	2.02	2.70	2.06	1.80	2.48	2.70	2.93	2.93	2.48	2.93	2.39
200-250	1.35	2.02	2.02	1.58	0.9	0.67	1.80	1.13	0.67	1.58	1.35	1.59	1.80	1.42
250-300	0.67	0.9	1.13	0.9	1.13	1.13	0.67	1.35	1.80	0.9	1.80	1.59	0.9	1.14
300-350	1.13	0	0.1	0	0.45	0.45	0.67	0.45	1.13	1.13	0.67	0.45	0.45	0.54
350-400	1.13	1.35	0.45	0.67	0.45	0.23	0.45	0.9	0.9	0.67	0.67	0.67	0.67	0.71
400-450	0.23	1.13	0	0.45	0.23	0.67	0.45	0.45	0	1.13	0.45	0.67	0.67	0.50
450-500	0.45	0.23	0.23	0	0	0	0.45	0.45	0.45	0.67	0.45	0.45	0.23	0.31
More than 500	2.70	2.03	3.60	3.60	3.83	3.60	4.28	3.38	3.60	1.80	2.25	2.25	2.70	3.05
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table 1 demonstrates the percentage distribution of 444 companies from manufacturing industry having Total Debts to Total Assets in different ranges during the study period

Table 1 demonstrates the usage of total debts to finance its assets. Maximum number of companies who was using Total Debts to finance its assets has been found 48.99 per cent 50-100 per cent range followed by 32.44 per cent in 0-50 per cent range. The analysis showed that only 18.57 per cent companies were using Total Debt to finance its assets. The analysis reveals that most of companies from manufacturing industry adopting modern approach to finance its assets by using more long term debt to finance its assets.

Table 2: Capital Structure (Total Debts to Equity) Practices of 444 companies from Manufacturing Industry

Capital structure (%)	Year													Avg.
	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	
0-50	8.58	9.68	8.58	10.14	11.71	13.51	9.91	9.68	11.03	9.24	13.51	16.69	18.69	11.65
50-100	17.34	17.34	18.67	18.24	15.99	15.1	13.06	13.06	13.06	15.09	15.09	14.64	17.12	15.68
100-150	17.34	19.37	15.09	17.79	16.67	22.52	15.09	13.73	14.19	14.41	15.55	18.69	17.8	16.79
150-200	11.49	11.94	12.61	13.74	14.64	12.16	14.64	15.32	15.32	13.28	10.81	10.13	8.56	12.66
200-250	9.91	9.68	10.81	8.56	8.78	7.88	10.81	9.46	7.88	9.01	7.20	9.46	9.46	9.15
250-300	8.76	6.31	6.53	7.43	6.76	5.41	7.88	6.76	6.53	5.18	8.56	6.53	6.98	6.89
300-350	6.31	6.08	8.56	5.63	4.28	4.05	4.28	5.86	5.63	7.21	6.31	3.60	2.93	5.44
350-400	2.70	2.93	4.05	4.28	4.05	4.28	2.70	4.95	4.73	4.73	3.15	3.38	3.15	3.76
400-450	3.15	2.93	3.38	2.70	4.28	1.8	3.38	3.83	2.93	3.38	2.48	3.15	1.35	2.98
450-500	1.58	2.25	1.58	2.48	3.15	1.80	2.48	1.58	2.93	2.25	2.48	0.67	0.67	1.99
More than 500	12.84	11.49	10.14	9.01	10.14	11.49	15.77	15.77	15.77	16.22	14.86	13.06	12.61	13.01

	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table 2 demonstrates the percentage distribution of 444 companies from manufacturing industry having Total Debts to Equity in different ranges during the study period.
Table 2 shows the usage of total debts in comparison to equity. Total debts are the combination of short term debt as well as long term debt. The analysis reveals that maximum use of total debts in comparison to equity has been found 16.79 per cent in 100-150 per cent range. The overall analysis reveals that only 27.33 per cent companies were following Total debt to equity ratio standard i.e. 1:1. Remaining 72.67 per cent companies were using more than 100 per cent total debt in comparison to equity.

Table 3: Capital Structure (Debt- Equity Ratio) Practices of 444 companies from Manufacturing Industry

Capital structure (%)	Year													Avg.
	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	
0-25	21.17	20.27	19.14	20.04	22.07	22.97	21.41	20.72	23.87	26.80	28.60	32.21	34.01	24.1
25-50	11.49	12.16	11.04	13.06	11.26	14.64	13.96	12.84	12.61	11.94	12.37	16.22	14.86	12.96
50-100	20.28	21.39	22.53	21.4	23.20	23.65	24.77	23.87	23.20	18.04	20.50	17.79	23.65	21.87
100-150	17.79	17.79	16.22	17.12	14.41	16.67	18.47	19.37	16.88	17.34	15.77	14.86	9.91	16.35
150-200	12.16	10.14	9.91	11.71	9.46	6.53	8.33	8.33	8.12	9.68	8.56	6.08	4.73	8.75
200-250	4.95	6.98	8.33	5.18	7.88	4.73	3.60	5.41	5.41	5.18	3.83	3.83	4.05	5.33
250-300	4.05	3.60	4.28	4.05	2.93	2.25	1.80	3.15	2.70	3.15	2.25	1.35	1.35	2.84
300-350	1.13	2.48	3.15	1.58	2.48	2.70	2.48	1.58	2.70	2.01	1.13	1.13	1.58	2.01
350-400	1.35	1.13	0.9	1.58	1.13	2.03	2.25	0.9	0.68	1.58	1.13	1.13	0.68	1.27
400-450	0.68	1.35	1.80	1.35	1.58	0.9	0.45	0.9	0.23	0	1.35	0.9	0.9	0.95
450-500	1.35	0.68	0.45	0.68	0.45	0.9	0.45	0.9	0.9	0.45	0.68	0.45	0	0.64
Above 500	3.60	2.03	2.25	2.25	3.15	2.03	2.03	2.03	2.70	3.83	3.83	4.05	4.28	2.93
	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table 3 demonstrates the percentage distribution of 444 companies from manufacturing industry having Debt to Equity in different ranges during the study period.
Table 3 demonstrates the usage of long term debt in companies in comparison to equity. The table shows that maximum 24.1 per cent companies was using long term debt up to 25 per cent. The broader analysis reveals that 83.98 per cent companies were following the standard ratio for Debt-Equity i.e. 2:1. Remaining 16.02 per cent companies were using long term debt in comparison to Equity more than ideal ratio.

Second objective - To examine the Relationship between capital structure and financial performance of manufacturing companies in India.

For attaining the second objective four multiple regressions models have been used. The following section presents the results according to model individually.

Model 1- Model 1 represents the relationship between Return on Assets (Dependent variable) and all other Independent and control variables.

$ROA_{it} = \beta 0_{it} + \beta 1 LTDTC_{it} + \beta 2 STDTC_{it} + \beta 3 TDC_{it} + \beta 4 TDTE_{it} + \beta 5 SIZE_{it} + \beta 6 AG_{it} + \mu_{it}$

Table 4: Model Summary

R	R^2	Adj. R^2	F	P value

0.763	**0.582**	**0.581**	**615.68**	**0.00**

******* Level of significance at 5%

It is observed from table 4 (Model 1) that, independent variables collectively explain 76.3 % variation in dependent variable (Return on Assets) along with the adjusted R^2 at 58.2%. Hence both R and R^2 show that a significant variation in dependent variable is explained by selected independent variables. So, finally the model is found statistically highly significant (F=615.68, p<0.00).

Model 2- Model 2 represents the relationship between Return on Equity (Dependent variable) and all other Independent and control variables.

ROEit = β0it + β1LTDTCit + β2STDTCit + β3TDCit + β4TDTEit + β5SIZEit + β6AGit + μit

Table 5 Model summary

R	R^2	Adj. R^2	F	P value
0.94	**0.898**	**0.898**	**3904.028**	**0.00**

******* Level of significance at 5%

It is observed from table 5 (Model 2) that, independent variables collectively explain 94 % variation in dependent variable (Return on Equity) along with the adjusted R^2 at 89.8%. Hence both R and R^2 show that a significant variation in dependent variable is explained by selected independent variables. So, finally the model is found statistically highly significant (F=3904.028, p<0.00).

Model 3- Model 3 represents the relationship between Earnings per share (Dependent variable) and all other Independent and control variables.

EPS = β0it + β1LTDTCit + β2STDTCit + β3TDCit + β4TDTEit + β5SIZEit + β6AGit + μit

Table 6- Model summary

R	R^2	Adj. R^2	F	P value
0.96	**0.009**	**0.007**	**4.153**	**0.042**

******* Level of significance at 5%

It is observed from table 6 (Model 3) that, independent variables collectively explain 96 % variation in dependent variable (Earnings per share) along with the adjusted R^2 at 0.9%. Hence both R and R^2 show that a significant variation in dependent variable is explained by selected independent variables. So, finally the model is found statistically highly significant (F=4.153, p<0.00).

Model 4- Model represents the relationship between Tobin's Q (Dependent variable) and all other Independent and control variables.

Table 7- Model summary

R	R^2	Adj. R^2	F	P value
0.39	**0.154**	**0.152**	**80.376**	**0.00**

******* Level of significance at 5%

It is observed from table 7 (Model 4) that, independent variables collectively explain 39 % variation in dependent variable (Tobin's Q) along with the adjusted R^2 at 15.4%. Hence both R and R^2 show that a significant variation in dependent variable is explained by selected independent variables. So, finally the model is found statistically highly significant (F=80.376, p<0.00).

V.Conclusion-

Statistical investigation of the ongoing research verifies a positive significant relation between capital structure and financial performance of manufacturing companies. Capital is very critical resource. The main aim to form a optimum capital structure is to reduce overall cost of capital and to increase the worth of the company. The analysis reveals that companies taken as sample was using an optimum mix of Debt and Equity as per ideal standard.

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