



CAPITAL STRUCTURE ANALYSIS AND ITS IMPACT ON EPS: A STUDY ON TOP TEN IT COMPANIES IN INDIA

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ABSTRACT

The main objective of this paper has been to analyse and understand the impact of capital structure practices on profitability of top ten Information Technology (IT) companies in India. This paper investigates the relationship between Capital Structure Ratios (Equity Ratio, Long Term Debt Ratio, and Leverage Ratio) and Profitability Measures (Earning Per Share, Return on Equity) for a period from 2011 to 2015. Descriptive Statistics have been used to throw light on the basic features of the data in Sample. From Descriptive Statistics it is found that IT industry in India is Equity Oriented. Correlation and Regression analysis have been performed to show the relationship between Response (Dependent) variables and Independent Variables. The results of both Correlation and Regression analysis have supported Equity Orientation of IT industry by showing positive association between Equity Ratio and EPS.

KEY WORDS: Capital Structure, Leverage, Profitability, Earning Per Share, Return on Equity.

I. INTRODUCTION

The corporate finance pattern is of vital importance for financial well-being of companies (Mishra, 2011). The Finance Manager of a company is to find solution of three major decision problems of financial operations of a firm, viz. Financing Decision, Investment Decision and Dividend Decisions. Of these three decisions the foremost decision is the choice of appropriate Debt-Equity mix with due concern for financial risk factor for capital structure Decision (i.e. Financing Decision).

Capital structure refers to composition of capitalization i.e. the proportion between debt and equity which makes up firms' capitalization. Pattern of Capital Structure can be consist of:

- Capital Structure with equity shares only.
- Capital Structure with equity and preference.
- Capital Structure with equity and debentures.
- Capital Structure with equity, preference shares and debentures.

These financing pattern decision of Capital Structure is not a static one rather it is a continuous process.

In India, capital structure patterns are peculiar to specific industries. They vary from industry to industry but follows a homogenous pattern in the same Industry. For example, Utilities, transportation companies and capital-intensive manufacturing firms have high debt- equity ratios as compared to service firms, mining companies and technology – based manufacturing firms which employ very little long-term debt. (Kapil, 2011).

The modern theory of capital structure began with the introduction of irrelevance theory of Modigliani and Miller (1958), which argues that Debt-Equity mix do not affect Firms' value, and optimum Capital Structure do not exist. The three conflicting theories of capital structure, such as Agency Cost Theory (Jensen and Meckling, 1976), Trade-off Theory (Bradley et al., 1984), and Pecking Order Theory (Myers and Majluf, 1984) have been developed after the establishment of Modigliani and Miller's theory. The basic underlying concept of these three theories differ from that of Modigliani-Miller theory, where they argue Capital structure affects Cost of capital, Net profit, Earning per Share, Dividend pay-out Ratio, and liquidity position of the firm. All of these in turn affect market value of the firm and these variables coupled with a number of other factors determine the value of the firm. Therefore, capital Structure Decision is a very important to the value of the firm and Optimum Capital Structure do exist.

In this study attempts have been made to study the capital structure and its impact on the EPS of Top 10 Information Technology companies for a period of five years from 2011 to 2015.

II. LITERATURE REVIEW

The Risk-Return trade-off theory argues that firms trade off the costs of debt & equity financing and benefits received by employing those funds in profitable investment projects and reach to an optimal capital structure even with the market imperfections such as taxes, bankruptcy costs and agency costs. Profitable firms can borrow more up to a certain level,

because after that the profitability and the value of the firm will decrease due to interaction of bankruptcy costs and agency costs.

Myers and Majluf (1984): In contrast to trade-off theory, they introduced the Pecking order theory which states that optimal capital structure does not exist. They argued that to minimize the problem of asymmetric information between firms' managers and outside investors, financial pecking order; i.e. a hierarchy of financing that begins with retained earnings, which is followed by debt, and finally new stock issues takes place as "last resort".

Kaur, Jatinder (2007): Following 'Pecking Order Theory', she, in her study focused on the preferred hierarchy among debt and equity by the corporates and differences in capital structure practices followed by private sector undertakings. She studied the Magnitudes of short term debt, long term debt and major changes in capital structure practices of private corporate companies in view of economic LPG Scenario in India using data of top 25 companies. It was found from the study that since the early 1990s significant structural changes in Indian capital market, in particular in equity market have accelerated Indian firms' flexibility in choosing their capital structure optimally

A.M. Goya 2013: This paper attempts to study the impact of capital structure on profitability of public sector banks in India listed on National Stock Exchange during 2008 to 2012. For the Analysis of capital structure-profitability association Regression Analysis has been used for establishing relationship between Return on Equity, Return on Assets & EPS with capital structure. Results reveal positive relationship of short term debt with profitability as measured by ROE, ROA & EPS.

Margaritis and Psillaki (2010): They observed a significant positive correlation between leverage and firms' performance. They took a sample of both low and high growth French firms for the period 2003-2005. The result showed that leverage have positive effect on firms' efficiency over the entire sample period.

Samuel (2013): He used panel data consisting of 257 South African firms for a period ranging from 1998 to 2009, and investigated the association between capital structure and firm performance. To test the relationship, he used GMM regression approach and found a positive and significant relation between financial leverage and firm's performance.

Aliakbar, Seyed and Pejman (2013): They also found a significant positive association between capital structure and firm performance in the Tehran Stock Exchange.

Rajan and Zingales (1995): In contrast, a rigorous study was performed by them to investigate the capital structure-profitability association of 48 firms from the U.S. during the period 1981–1990. Result revealed that there is a negative association between debt-level and profitability, and this relationship would be more visible if firm size gets bigger.

Fama and French (2002): A negative relation between capital structure and firm's performance was also witnessed by them. They observed that firms with high profitability and lower risk of financial distress are actually less levered which contradicts with the trade-off theory.

III. Research Objective

In this study attempts have been made:

- To identify and analyse the Capital Structure of IT Industry in India.
- To analyse and interpret the impact of Capital Structure on EPS of IT Industry in India.

IV. RESEARCH METHODOLOGY

To investigate the capital structure and its impact on EPS of IT sector companies in India, the study adopted the methodology used in earlier research work on the issue. Analysis of data in this research is proposed to be done through Descriptive Statistics, Correlation matrix and Regression models.

4.1 Data and Sample: This research is essentially a quantitative research in which in which published / secondary data is used. The data for the research is collected mainly from Summary Financial Statements available in moneycontrol and ndtv and various other reliable sources.

All those IT companies operating in India are the population of the study. Sample of the study include top 10 Indian IT companies based on their market capitalisation. And the study period for the present research is selected to be from 2011 to 2015.

4.2 Variables:

Capital Structure (Independent Variables)	Equity Ratio (ER)
	Long Term Debt Ratio (LTDR)
	Leverage ratio (LR)
Profitability Measures (Dependent Variables)	Earnings Per Share (EPS)
	Return on Equity (RoE)

4.2.1 Equity Ratio: The equity ratio is an investment leverage or solvency ratio that measures the amount of assets that are financed by owners' investment and is calculated as follows –

$$ER = \text{Net Worth} / \text{Total Assets}$$

4.2.2 Long Term Debt Ratio: LTDR measures the percentage of a corporation's assets that are financed with loans and financial obligations lasting more than one year and is calculated as follows-

$$LTDR = \text{Long Term Debt} / \text{Total Assets}$$

4.2.3 Leverage Ratio: Companies rely on a mixture of owners' equity and debt to finance their operations. LR can be computed in various ways. In this research LR is calculated as follows-

$$LR = \text{Long Term Debt} / \text{Net Worth}$$

4.2.4 Earnings per Share: EPS is the portion of a company's profit allocated to each outstanding shares of common stock. EPS serves as an indicator of a company's profitability and is calculated as follow-

$$EPS = \text{Earnings Available to Equity Shareholders} / \text{No. of outstanding Equity Shares}$$

4.2.5 Return on Equity: RoE is the amount of net income returned as a percentage of shareholders equity. It measures corporations' profitability by revealing how much profit a company generates with the money shareholders have invested. It is expressed as a percentage and is calculated as follows-

$$RoE = \text{Net Income} / \text{Shareholders Equity}$$

4.3 Research Hypothesis: The following hypothesis are developed to know the relationship between Capital structure characteristics and profitability measures:

H_0 : There is no linear relationship between capital structure characteristics and EPS.

H_1 : There is linear relationship between capital structure characteristics and EPS.

4.4 Model Specification: Two simple regression model one between ER and EPS, one between LTDR and EPS and one multiple regression model among ER, LTDR and EPS is used to find out association between Capital structure characteristics and EPS of IT companies in India. The base model is as follows –

$$Y_{it} = a + bX_{it} + e_{it}$$

Where: Y_{it} is the dependent variable of i^{th} company at period t

a is intercept

b is regression coefficient

X_{it} is the independent variable of i^{th} company at period t

e_{it} is error term

4.4.1 Simple Regression Models:

$$EPS_{it} = a + bER_{it} + e_{it}$$

$$EPS_{it} = a + bLTDR + e_{it}$$

4.4.2 Multiple Regression Model:

$$EPS_{it} = a + b_1ER_{it} + b_2LTDR + e_{it}$$

4.5 Case Analysis: ER and LTDR Data of TCS has been taken to validate the results of Statistical Analysis, as performed using Descriptive Statistics, Correlation and Regression Analysis.

V. RESULT AND ANALYSIS

5.1 Descriptive Statistics: This study conducted Descriptive statistics (**Table 1**) to describe the basic features of the data in sample. The value of mean, standard deviation, maximum and minimum values of independent variables (ER, LTDR, LR); dependent variables (EPS, RoE) of sample of Top 10 Information Technology (IT) companies are calculated from 2011 to 2015.

The profitability as measured by Return on Equity (RoE) & Earning per Share (EPS) reveals an average of 27.09 percent and Rs. 58.30 respectively, which suggest good performance during the period under study. Their respective standard deviations, which indicates how large the spread of distribution is around the central value (mean) are 10.88 & 47.11.

Long Term Debt Ratio (LTDR) indicate the extent of company's assets financed by Long Term Debt. The mean of LTDR is 0.0166 with standard deviation and minimum value being 0.0367 & 0 respectively. This indicate that the industry is less dependent on borrowed capital.

As Equity Ratio (ER) shows the extent of company's assets financed by Equity Capital. The average of ER is 0.6894 and standard deviation is 0.1092. The minimum & maximum values of ER are 0.3701 & 0.856, which clearly indicates that the IT industry in India is more of Equity Oriented.

5.2 Correlation Analysis: Table 2 shows the Correlation Matrix which tells us relationship amongst variables in this Study. Correlation can also be defined as dependence of one variable upon other(s).

RoE has negative correlation with all the three independent variables (ER, LTDR, and LR).

EPS has a positive correlation with Equity Ratio and their magnitude is moderate (0.3588), but EPS has negative correlation with both LTDR and LR. This implies that an increase in long term debt is associated with a decrease in Earning per Share. This is explained by the fact that debts are relatively more expensive than equity and therefore employing higher proportion of debt could lead to lower profitability in terms of EPS. This result contradicts the theoretical foundation of Leverage Theory (Which says more the debt more will be the EPS upto a certain level). Again this result suggest that profitable firms of IT industry in India depends more on equity as their main financing option. So by the fact, it is well justified the Equity Orientation of IT industry in India.

5.3 Regression Analysis: Table 3 represent Simple Regression result between Earning per Share (EPS) and Equity Ratio (ER), where R Square (0.1287) indicates that 12.87% of variation in EPS can be explained by ER, remaining 87.13% variance in EPS is related to other variables. And the fitted line is $EPS = - 45.4097 + 154.7835ER$, Positive beta coefficient of ER shows that with an increase in ER will cause EPS to increase. And this result is statistically significant at 5% level of significance.

Here calculated F value (7.0914) > critical F value (4.0426) at 5% level of significance. Here Alternative hypothesis is accepted with 95% confidence level. So there exist a linear relationship between EPS and ER.

Table 4 represent Simple Regression result between Earning per Share (EPS) and Long Term Debt Ratio (LTDR), where R Square (0.00948) indicates that 0.948% of variation in EPS can be explained by LTDR only, remaining 99.052% variation in EPS is related to other variables. And the fitted regression line is **EPS = 60.3860 – 124.6538LTDR**, Here a negative beta coefficient of LTDR is observed that indicate a negative association between EPS & LTDR and which once again supported Equity Orientation of IT industry in India, as an increase in Debt would cause decrease in EPS is supported by the regression line.

Here calculated F value (0.4594) < critical F value (4.0426) at 5% level of significance. Hence there do not exist a linear relationship between EPS & LTDR.

Table 5 presents Multiple Regression result among EPS and ER & LTDR. And the fitted regression line is **EPS = - 53.5656 + 161.0389ER + 50.6122LTDR** The positive coefficient of ER with a high magnitude, once again explained that an increase in Equity will bring an increase in EPS and the result is statistically significant at 5% level of significance [Since, $P_{cal} (0.0140) < 0.05$].

It also shows when an optimum amount of debt is mixed with equity then coefficient of LTDR becomes positive, which indicate an increase in LTDR is associated with an increase in EPS. Though this result is not statistically significant either at 1% level of significance or even at 5% level of significance.

CASE ANALYSIS: Equity Ratio and Long Term Debt Ratio of TCS is taken for 2011 and 2015 and the data are fitted in all the three industry regression equation to verify the conformity of results.

2011: ER = 0.7533. LTDR= 0.0053

(1) Putting ER= 0.7533 in Regression Equation: $EPS = - 48.4097 + 154.7835ER$,
 $EPS = -48.4097 + 154.7835 * .7533 = 68.1887$

(2) Putting LTDR = 0.0053 in Regression Equation: $EPS = 60.3860 - 124.6538LTDR$,
 $EPS = 60.3680 - 124.6538 * 0.0053 = 59.7073$

(3) Putting both ER= 0.7533 and LTDR= 0.0053 in Multiple Regression Equation:

$$\text{EPS} = - 53.5656 + 161.0389\text{ER} + 50.6122\text{LTDR},$$

$$\text{EPS} = -53.5656 + 161.0389 * 0.7533 + 50.6122 * 0.0053 = 71.0132$$

2015: ER =0.7236. LTDR = 0.0115

(1) Putting ER = 0.7236 in Regression Equation: $\text{EPS} = - 48.4097 + 154.7836\text{ER}$,

$$\text{EPS} = -48.4097 + 154.7835 * 0.7236 = 63.5916$$

(2) Putting LTDR = 0.0115 in Regression Equation: $\text{EPS} = 60.3680 -$

$$124.6538\text{LTDR},$$

$$\text{EPS} = 60.3680 - 124.6538 * 0.0115 = 58.9344$$

(3) Putting both ER = 0.7236 and LTDR = 0.0115 in Multiple Regression

$$\text{Equation: } \text{EPS} = -53.5656 + 161.0389 * 0.7236 + 50.6122 * 0.0115 = 63.5441$$

So from the above analysis it is clear that over the research period 2011-2015 TCS has increased its Debt content in the Capital Structure substantially , as a result its EPS could have been fall by Rs. 7.4732, had other variables remains same. So increase in Debt has a negative impact on Earnings of the company.

VI. CONCLUSION

The endeavour was given throughout the study to give an empirical evidence reflecting Capital Structure composition and its impact on profitability (in terms of EPS and RoE) of Information Technology industry in India. In this study Descriptive Statistics, Correlation Analysis and Regression Analysis were used. The test results clearly shows that IT industry in India is Equity Oriented, that is they depends more on Equity than Debt to finance their projects, though this contradict 'Pecking Order Theory' of preferring Debt first to Equity. However, it is found that there exist a positive correlation between EPS and ER, which justifies their preference for Equity Financing over Debt financing. Finally a Case Analysis have been performed to validate the results. The Case Analysis also shows a negative association among EPS and LTDR. Which means for them increasing debt would cause EPS to fall, which is strictly not desirable from "Wealth Maximisation" point of view.

The possible reason for negative association between EPS and Leverage Ratio of and subsequently not capable of using cheap source fund i.e. debt by IT industry in India, can be either-

- Explained by the fact that in this industry debts are relatively more expensive than that of equity and therefore high proportions of them could lead to low profitability.
- Or,
- As firms tries to minimise the overall risk , which is the product of Business Risk (risk associated with Cost Structure) and Financial Risk (risk associated with Capital Structure) ; so in order to keep overall risk at a minimum acceptable level , the firms with high business risk tends towards less financial risk. So instead of debt financing they opt for equity financing.

❖ Appendices

Table 1: Descriptive Statistics

Variables	ER	LTDR	LR	EPS	ROE
Mean	0.689476	0.016656	0.030802	58.3098	27.0904
Standard Deviation	0.1092	0.0367992	0.067967	47.11126	10.88797
Minimum	0.3701	0	0	6.74	5.91
Maximum	0.856	0.1648	0.2994	178.22	49.62
Count	50	50	50	50	50

Table 2: Correlation Matrix

	ER	LTDR	LR
EPS	0.35887	-0.11843	-0.0851
ROE	-0.0305	-0.04715	0.02555

Table 3: Simple Regression between EPS & ER

<i>Regression Statistics</i>					
Multiple R	0.358776105				
R Square	0.128720294				
Adjusted R Square	0.110568633				
Standard Error	44.43047443				
Observations	50				
ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	13998.8565	13998.8565	7.09137842	0.010510346
Residual	48	94755.2188	1974.06706		
Total	49	108754.075			

	<i>Coefficients</i>	<i>P-Values</i>	<i>Result*</i>	<i>Statistical Significant</i>
Intercept	48.40977224	-		
X Variable 1	154.7835925	0.0105	Reject	Significant

Table 4: Simple Regression between EPS & LTDR

<i>Regression Statistics</i>	
Multiple R	0.097368712
R Square	0.009480666
Adjusted R Square	-0.01115515
Standard Error	47.37329905
Observations	50

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	1031.06107	1031.06107	0.45942765	0.501145971
Residual	48	107723.014	2244.22946		
Total	49	108754.075			

	<i>Coefficients</i>	<i>P-Values</i>	<i>Result*</i>	<i>Statistical Significant</i>
Intercept	60.3860351			Not Significant
X Variable 1	-124.653884	0.5011	Accept	Significant

Table 5: Multiple Regression Analysis

<i>Regression Statistics</i>	
Multiple R	0.36065633
R Square	0.130072988
Adjusted R Square	0.093054817
Standard Error	44.86578276
Observations	50

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	14145.9675	7072.98377	3.51376055	0.037830857
Residual	47	94608.1078	2012.93846		
Total	49	108754.075			

	<i>Coefficients</i>	<i>P-Values</i>	Result *	Statistical Significant
Intercept	-53.56569882			
X Variable 1	161.0389638	0.0140	Reject	Significant
X Variable 2	50.6122833	0.7880	Accept	Not Significant

Note: * = At 5% Lever of Significance.

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