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DETERMINANTS OF CORPORATE CAPITAL STRUCTURE: AN EMPIRICAL ANALYSIS
(A Case Study of Indian Beer and Alcohol Industry)

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Abstract

This article empirically investigates the factors determining capital structure of Beer and Alcohol industry in Indian context. The data was taken from secondary data source named as "Industry; financial aggregates and ratios" (PROWS) of center for monitoring Indian economy (CMIE) covering the period from 1997-98 to 2013-14 (17 years). The empirical results show that Profitability, size, growth rate and risk are statistically significant determinants of capital structure while, tangibility, non-debt tax shield and liquidity are statistically insignificant determinants of capital structure. The results indicate that most of the determinants of capital structure suggested by capital structure theories appear to be relevant for Indian firms.

Keywords: Beer and Alcohol industry, Capital Structure, Pecking Order Theory.

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1. Introduction:

An ongoing debate in corporate finance concerns the question of a firm's optimal capital structure. Capital structure decision involves choosing the proportionate mix of debt and equity to finance capital expenditures. It is a significant decision as it influences the risk and return of shareholders. Consequently, value of the firm or wealth of the shareholders may be affected by the capital structure decision. So the financial managers can benefit from this to make an optimal mix of debt and to maximize wealth of shareholders.

Many theories have been developed to show the relationship between capital structure and value of a firm. There are different views on how capital structure influences value of a firm. Some authors argue that there is no relationship between capital structure and value of a firm, whereas others hold that financial leverage has a positive effect on value of firm. The modern theory of capital structure began with the landmark paper of Modigliani and Miller published in 1958. They argued the irrelevance of capital structure to the value of firm under certain restrictive assumptions – no transaction costs, the equality of lending and borrowing rates, no bankruptcy costs, and absence of corporate taxes.

The theoretical and empirical literature developed over a period of time suggests that, once the restrictive assumptions are relaxed, firms are able to change their value by altering their leverage or debt-equity ratio. The research in the capital structure field is dominated by two principal theories (1) the trade-off theory and (2) pecking order theory. The Trade-off theory of capital structure is established around the concept of target capital structure that balances between the benefit of debt-tax shields and cost of debt financing. In contrast, the pecking order theory developed by Myers and Mujluf (1984), suggests that the cheapest for a firm to use from the least to the most expensive source of finance in the following order: internal financing, bank debt, bond market debt, convertible bonds, preference capital, and common equity.

Rather, the theories of capital structure still remain one of the most controversial issues in modern corporate finance. Not only there is any universal theory of capital structure, but also the assumptions of several conditional theories contradict with one another. This is not end of the story. As a result, the study of capital structure determinants bears significant importance. This study attempts to test the influence of various independent factors on the capital structure of firms in Indian beer and alcohol firms and the conformity of these factors with the predictions drawn by capital structure theories.

The remainder of this paper is organized as follows: section 2 briefly discusses the research methodology, next, section 3 presents empirical analysis of the regression results, and finally section 4 concludes the analysis of the study.

2. Research Methodology

The sample of study contains 56 Indian companies in the Beer and Alcohol industry listed on the Bombay Stock Exchange (BSE) and make mainly from secondary source named as "Industry; Financial Aggregates and Ratios" (PROWS) of Center for Monitoring Indian Economy (CMIE) and covering the period from 1997-98 to 2013-14 (17 years).

Further variables considered in the analysis include; debt equity ratio (the ratio of long term debt and equity) as a dependent variable and profitability (EBDITA/Total Assets), firm size (Log of total assets), tangibility (Net Fixed Assets / Total Assets), growth (Change in total sales/ Total sales), risk (Absolute variation in profitability), non debt tax shield (Annual Depreciation / Total assets), and liquidity (current assets / current liabilities) as independent variables. An evaluation of factors determining capital structure of Indian Beer and Alcohol industry based on the following statistical

tools was used: multiple regressions Analysis, "t" test, "f" test and Analysis of variance (ANOVA) and SSPS-20 software is used for the analysis.

3. Empirical Analysis of Regression Results

The overall regression analysis shown in table [I] and [II], indicated by Prob > F = 0.002 which means that the 1 percent significance of the relationship between dependent variable and all the independent variables of firms in Beer and Alcohol industry.

Table I: Model Summary of Regression Analysis of Beer and Alcohol Industry

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.973	0.946	0.884	0.20364

Data Source: Compiled from the Centre for Monitoring India Economy (January2005 and June 2012)

The R^2indicate that 94.6 per cent variation in leverage is explained by profitability, size, tangibility, growth, risk, non-debt tax shield and liquidity, while the remaining 5.4 percent is explained by unobserved factors. The adjusted-R^2 is 6.2 percent lower than the $R^2$and is indicated as 88.4 percent.

Table II: ANOVA for the Debt Ratios of Firms in Beer and Alcohol industry

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4.387	7	0.627	15.114	0.002
	Residual	0.249	6	0.041		
	Total	4.636	13			

Source: Compiled from the CMIE Prowess Database

Table III: Regression Results of Constant Coefficient Model (OLS) for Determinants of Capital Structure of Beer and Alcohol Industry

Model		Un-standardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	10.993	4.081		2.694	0.036	1.007	20.980
	PRO	-18.634	3.662	-0.683	-5.088	0.002	-27.596	-9.673
	SIZ	-1.754	0.464	-0.872	-3.781	0.009	-2.889	-0.619
	TANG	0.881	6.625	0.026	0.133	0.899	-15.331	17.092
	GRO	0.943	0.431	0.361	2.186	0.071	-0.113	1.999
	RISK	17.119	5.969	0.565	2.868	0.029	2.513	31.724
	NDTS	-15.395	42.126	-0.067	-0.365	0.727	-118.474	87.685
	LIQ	-0.979	1.268	-0.289	-0.772	0.469	-4.082	2.124

Source: Compiled from the CMIE Prowess Database

By analyzing the regression results of beer and alcohol sector shown in table [III], *Profitability* is significantly negatively correlated with leverage and consistent with pecking order theory which states that there is a significant impact on leverage. This relation indicates that more profitable firms

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in Beer and Alcohol industry uses less amount of leverage and prefer to use internal source of financing like retained earnings, surpluses etc. This finding is also consistent with the same findings by Prabhakaran Nair (2013), Sarbapriya Ray (2013), Mahmmad Ali and Sobia Qayyum (2013), and Tanveer Ashraf and Saffdar Rasool (2013).

Size of the firm is again significantly negatively correlated with leverage which coefficient value as -0.872. This negative relationship between both variables accepts and also consistent with pecking order theory. It indicates that the firms with large size use less leverage in their capital structure. It is also consistent with the similar finding of the following researchers; Mahmmad Ali and Sobia Qayyum (2013), and Tanveer Ashraf and Saffdar Rasool (2013).

Tangibility has positively insignificant correlated with leverage and contradicts with Trade-off theory. Thus, it is expected that firms with greater amounts of fixed assets would issue more debt, than firms with less amount of fixed assets. It is consistent with the same findings by Prabhakaran Nair (2013), Sarbapriya Ray (2013), Samra Kiran (2013), Mahmmad Ali and Sobia Qayyum (2013), Tanveer Ashraf and Saffdar Rasool (2013), and some others.

Growth of the firm is significant positively correlated with leverage. It accepts the relation as well as consistent with pecking order theory. The reason of this relationship might be that growing firms in Beer and Alcohol industry of India uses more amount of long-term debt than internal source of financing. This relationship between both variables is consistent with the following researcher; Samra Kiran (2013).

Risk (volatility) has significant positive impact on leverage with coefficient value as 0.565. These results show that firms are more likely to use external source of financing rather than internal source, because of the future economic and financial performance of the firms. This positive relationship between both variables accepts but is not consistent with pecking order theory. The above relationship is consistent with the similar findings by Prabhakaran Nair (2013), Tanveer Ashraf and Saffdar Rasool (2013), and some others.

Non-debt Tax shields is negatively but insignificantly correlated with leverage and consistent with pecking order theory which explains that firms in Beer and Alcohol industry sector with low level tax shield can be deducted from the taxable income tend to use low debt than use internal source of financing. This finding is also consistent with the following researchers; Prabhakaran Nair (2013), Tanveer Ashraf and Saffdar Rasool (2013).

Liquidity has negatively but insignificantly impact on the leverage and is consistent with pecking order theory. It indicates that firms in Beer and Alcohol industry sector, uses less debt than internal source finance, when decreasing liquidity also decreases the long-term debt ratio. This finding is also consistent with the following researcher; Tanveer Ashraf and Saffdar Rasool (2013).

4. Conclusion:

By analyzing the regression results of Beer and Alcohol industry sector, In all these seven variables, profitability, size, growth, non-debt tax shield, and liquidity are consistent with Pecking Order Theory and should preferably use internal funds for financing needs. After the analysis out of seven variables only four factors are significant and it implies that leverage of the firms is affected by profitability, size, growth and risk. An ANOVA result shows that strong relationship between leverage and all the explanatory variables of Beer and Alcohol sector i.e., one percent significant. The results of the present study have delivered some insights into the financing behavior of Indian beer and alcohol firms. Nevertheless, this study covers only the determinants of long term debt-to assets of sample beer and alcohol companies. Future research may investigate the determinants of short term debt ratio and total debt ratio.

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