Determinants Of Capital Structure In Indian Public Ltd. Companies: An Experience Of Pre And Post Liberalization

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INTRODUCTION

The term *'Capital structure'* is generally used to refer to the proportion of debt and equity deployed by a company to finance its assets. The mix of debt and equity in a company is likely to have an impact on the value of the company. Companies prefer to choose that financing mix which can enhance or maximize their value. Alternative theories have been developed on optimal capital structure, although none of the theories have been conclusively established by empirical evidence. It is, therefore, preferable to know whether the relative proportions of debt and equity have changed over the years or are relatively stable in order to assess stability, if not optimality, of capital structure. In the Indian context, a number of reforms in the financial sector took place after liberalization. Privatization followed liberalization, and foreign investment was also made less restrictive. An assessment of the patterns of capital structure prior to and following liberalization is likely to throw further light on the subject of capital structure.

Damodaran (2004) analyzed the patterns of financing for G7 countries, Rajan and Zingales (1995), Boyle and Eckhold (1997) worked on the capital structure of developed countries like US, UK, New Zealand, etc. Research conducted for developing countries have mostly found the results contrasting to the developed ones. This can be seen from the works of Bhole and Mahakud (2004) and Sahoo & Omkarnath (2005). The reason may be attributed to less-developed capital markets in developing countries like India. The theories of capital structure verified in the context of developed countries need an empirical testing for assessment of their applicability in the Indian context.

THEORIES

Modigliani and Miller's (1958) epoch making study on capital structure evoked great interest in researchers all over the world that led to the emergence of two broad theories viz trade off theory and pecking order theory.

❁**Trade-off Theory:** This theory says that there is a trade- off between interest tax shields and financial distress cost. This trade-off gives a target debt ratio for each firm.

Value of The Levered Firm = Value If All Equity Financed + PV of Interest Tax shield – PV of Financial Distress Cost

❁**Pecking Order Theory:** Myers and Majluf (1984) have given this theory. It is mainly based on the information asymmetry. It says that the managers (insiders) have more information than investors (outsiders) about their company's future prospects and value. The companies use this information as an indicator to signal the outsiders about a company's future prospects. For e.g. , a company may increase its dividend from that of the previous year. This indicates that the company has good future prospects. It has an impact on the selection of sources of financing the business. On the basis of preference for sources of financing, this theory suggests an order followed by companies, which is as under :

❁**Internal Sources:** Companies' first preference is to have financing through internal sources because it can be accessed easily.

❁**Debt Financing:** Companies go for debt as it helps them to retain control in their hands. Further, it is usually not mis-priced.

❁**Hybrid Securities:** This includes convertible debentures, convertible preference shares etc.

❁**New Issue of Equity Shares:** This is considered to be the least preferred source of financing by the companies. The

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reason is that it dilutes the control, and the cost involved is also high. Mis pricing (under-pricing/over-pricing) is also a common problem with new issue of equity. According to this theory, firms which are more profitable, and therefore generate high earnings, are expected to use less debt capital than those that do not generate high earnings. This theory says that there is no optimal debt equity ratio (in the conventional sense of the term), because the first and the last positions are occupied only by equity - one internal and the other external.

LITERATURE REVIEW

Ghosh, Cai and Le (2000) studied the determinants of capital structure in US for 362 firms divided into 19 manufacturing industries using both the data sets of Compustat and Fortune 500. For cross-sectional studies, two years 1982 and 1992 had been taken and for panel data, the period of 1982-1992 had been taken. Regression analysis had been done by having long-term debt to total assets as the dependent variable and asset size, growth of assets, non debt tax shield, fixed asset to total asset ratio, net profit margin, research and development expenditure, advertising expenditure, selling expenses and business risk as explanatory variables. The results show that advertising expenditure, growth of assets, fixed assets to total assets and R & D expenditure had been found to be important variables, and the relationship between leverage and business risk is quadratic. Ogden, Jen and Connor (2003) analyzed the financial characteristics of publicly traded U. S. non financial firms for the period of 1980-2000. They had taken assets and liabilities for the analysis and found that in these firms, throughout the period of study, net fixed assets constituted the largest single variable of total assets. However, percentage wise decline came in use of this component as it ranged from 55.7% in 1980 to 32.5% in 2000. Similarly, inventories decreased from 14.3% in 1980 to 7.2 % in 2000. However, the aggregate of fixed assets increased significantly from 8.3% in 1980 to 34.2% in 2000. For financing these business activities, the sources considered by these firms were common stock, debt and other noncurrent liabilities. Out of all these alternatives, the most preferred ones were common stock and debt. Common stock first declined from 41.7% in 1980 to 28.4% in 1993 and again rose to 33.5% in 2000, while debt and other non-current liabilities from 26.8% in 1980 increased to 32.3% in 2000. This again confirms that firms in US rely heavily on debt borrowing.

Damodaran (2004) presented an analysis of patterns of financing in G7 countries by taking the data from Organization for Economic Cooperation and Development for a period from 1984-91. The study had taken net equity (difference between new equity issue and share buyback), internal financing and net debt as the sources of financing. The analysis found that US firms depend heavily on debt (by issuing bonds) than equity for external financing. The reason behind this is that the US firms are mostly in the maturity stage of their life cycle, which is in contrast to the emerging markets. So, they have easy access to the corporate bond market. The firms in Japan, Germany and Europe mostly finance through bank borrowings. However, this places some constraints on the use of new debt. So, firms in these companies also started accessing more of the bonds market. The study on Indian firms done by Singh and Hamid (1992) said that Indian firms rely heavily on external financing than internal financing because the capital markets in India are not yet fully developed, so they fail to raise equity. These results are just opposite to the results of the developed countries. Singh (1995) after comparing the pattern and structure of corporate finance of developing countries with those of developed countries, said that the cost of debt and cost of equity financing are very high for developing countries.

Kakani (1999) worked on the determinants of capital structure. The objectives of the study were to analyze the debt structure of large private manufacturing firms in India, to identify the variables affecting the corporate debt maturities for the short term and the long-term debt and to compare the determinants of capital structure between the pre and post liberalization periods. The sample in the study consisted of 100 firms out of the top 400 (by sales) firms listed on the BSE in the year 1985,existing till the year 1995. The Pre liberalization period was taken from 1985-1989, and the post liberalization period was taken from 1992-95.The independent variables considered for the study were collateral value of assets, capital intensity, non debt tax shield, growth, uniqueness, firm size, earnings risk, net exports, regulation, corporate strategy and profitability. The dependent variables were long-term and short-term debt divided by book values of equity and also the ratio of total debt to total assets. Correlation analysis followed by multiple regression showed that profitability, non debt tax shield and capital intensity were significant determinants of capital structure during the pre liberalization period, whereas net exports were found to be significant in the post liberalization period and the trade off theory seems to be more applicable.

Bhole and Mahakud (2004) had done a study on the trends and determinants of corporate capital structure in India by studying the trends in respect to Public Limited Companies and Private Limited companies by using panel data of

balance sheets. To see the trend in the capital structure of the corporates, they took four ratios i.e. long term borrowing to equity, total borrowings to equity, total borrowings to total liabilities, and long term borrowings to short term borrowings. The data had been taken from various issues of RBI bulletin. The trend analysis gave the result that there was a significant increase in the dependency on borrowed capital vis a vis equity capital by all types of companies. Debt to equity and total borrowings to equity ratios had also increased. Total borrowings to total liabilities had increased, but in comparison to other ratios, there was less change. The study had used five years annual averages of thirteen industries for a period of 1966 to 2000 for Private Ltd. and Public Ltd. companies. The results revealed that the leverage ratios (debt to equity ratio) generally increased during 1966-2000 for both types of companies. Public limited companies depended more on debt than the private limited companies. The huge difference can be seen in the long term borrowing to short-term borrowing over the period of 1971-1999 in public and private limited companies.

They had given the model for determinants by breaking up the study period into three segments namely1984-99, 1984-1991, and 1992-99. The analysis showed that except profitability and growth rate, all other variables were significant at 1%, which suggested their importance in the financing decision of any company. Sahoo and Omkarnath (2005) in their study on the capital structure analyzed the financing pattern of Indian private corporate sector and checked whether any shift has occurred due to liberalization. They also tested the pecking order theory of capital structure in the Indian context. The annual data on sources and uses of funds from various issues of RBI bulletin and Report on Currency and Finance had been taken for analysis for a period of 1980-81 to 2003-04. The results of the study suggested that non debt tax shield, asset structure and profitability are the major determinants of long term capital structure. The averages showed that large public limited companies depend more on external, rather than on internal sources. They reason may be liberalization in early 1991 due to which the dependence on external sources of financing increased, but in the later years, it declined. It means there is a change in the composition of external sources of financing due to liberalization. The internal sources of financing increased due to provisions. They had given ranking to various sources of financing on the basis of proportionate percentage of each source to the total sources, and the results obtained were completely against the pecking order theory.

Verma and Chandel (2007) in their article on Significant Determinants of Profitability of Banking Sector in India revealed that the secret of successful banking in modern times hinges on reconciling between risk and return, which move in opposite direction. Hence, the profitability of a banking business in the era of deregulation and competition largely depended on its ability to efficiently manage the various risks, to which they are exposed to in the changed scenario. Profits, in banking terms refer to the excess of interest spread over burden, whereas profitability is a ratio of net earnings to the total funds used. Profitability in the banking parlance denotes the efficiency with which a bank deploys its total resources to optimize its net profits and thus, serves as an index to the degree of asset utilization and managerial effectiveness.

Deo and Jackline (2009) worked on the determinants of debt ownership structure. The article stated that if optimal debt structures do exist and that these structures maximize firms' value, obtaining an understanding of the determinants of debt structure is important in obtaining an understanding of the way firms maximize the value. Decisions about debt structure may have important implications as regards to shareholder wealth effects. Therefore, understanding of the determinants of debt structure is of interest to academics, politicians, shareholders and financers. Their paper presented an empirical investigation of the factors determining debt structure of Indian Companies.

Kaur and Rao (2009) studied the determinants of capital structure in the Indian cotton textile industry. The objectives of the study were to identify the important variables that affect the debt -equity choice of these companies and to test for their (determinants) significance through regression analysis. The second objective of the study was to test for the applicability of the pecking order theory or trade-off theory on the basis of the signs of regression coefficients. They had taken a sample of 78 profit making cotton textile companies for a period of 2003-04 to 2007-08 from the CMIE database. The result of the study suggested that profitability and growth opportunity, liquidity and business risk are the most important determinants of debt-equity choice in the Indian cotton textile industry at 1% level and uniqueness at 7.2%. The results also showed that trade-off theory seems to be more applicable on the basis of the signs of coefficients in the regression equation.

Sundaram and Sudalaimuthu (2009) studied the profitability and financial position of information technology companies in India during the post liberalization period. The paper stated that the reason for an increase in direct financing is the value of the firm that can be increased or a judicious mix of debt and equity capital can reduce the cost of capital. So, the way in which the overall cost of capital reacts to changes in capital structure and solvency are

required to be measured to know the shareholders' value. To obtain a better understanding of the firm's position and performance of information technology companies, the ratio analysis had been used as a tool for analysis of return on invested capital, profitability, liquidity, asset utilization and efficiency, capital structure and solvency, etc., rather than as an end in itself. The financial statements provided information about the financial positions of an enterprise that are useful for a wide range of users in making economic decisions. The result from this research ensured the perspicuous comparative study of these information technology companies by pursuing the research in two categories - by ratio analysis and basic descriptive statistics respectively. Such studies enable the shareholders to spot trends in a business and to compare its performance and condition with the average performance of similar businesses in the same industry. This research used a selection of ratios to examine a firm's financial strength and weakness and to provide the essential foundation for financial decision-making and planning.

Amsaveni (2009) studied the impact of leverage on profitability of primary aluminum Industry in India. The leverage was used as a tool in the study to analyze the profitable proceedings of the primary aluminum industry in India. The results suggested that the investment decision relates to the selection of assets in which funds will be invested by a firm. The finance decision is concerned with the selection of the right mix of debt and equity in its capital structure. The third decision is related to the distribution of surpluses i.e. the dividend policy of the firm. Needless to say, the dividend decision is based on the success of the first two decisions, i.e. the investment and financing decisions.

RESEARCH OBJECTIVES AND METHODOLOGY

❁ **Objectives :** The present study has following objectives:

❁ To identify the determinants of the Capital Structure of Indian Public Ltd. companies during the pre and post liberalization period, as also the total period extended over the years 1977-78 to 2006-07.

❁ To verify for the applicability of the Pecking order theory and trade-off theory.

❁ **Methodology:** The sources of financing have been classified as internal sources and external sources. Six independent variables were taken from the literature. Pair wise correlations had been done with a view to identifying important variables closely related to the dependent variable. A logarithmic transformation of the dependent variable and many of the independent variables was contemplated in case the problem of multicollinearity crops up due to significant correlation among the independent variables. The study has been divided into the pre and post liberalization periods, and regression analysis was carried out to see more precisely, which variables are significant in the two time periods as well as in the total time period. After regression analysis, Jarque-Bera (JB) test was done to see if ordinary least square (OLS) model is efficient. In this study, the null hypothesis of the JB test is that residuals follow a normal distribution. Further, Chow test was used to see if any structural change had occurred in two time periods, after testing for equality of variances for the two time periods.

❁ **Time Period of the Study:** The period of study is from 1977-78 to 2006-07. It is divided into two equal parts as pre and post liberalization periods consisting of the years 1977-78 to 1991-91 and 1992-93 to 2006-07 respectively.

❁ **Sample And Sources of Data:** The data for this analysis was drawn from various issues of the RBI bulletin and RBI data warehouse for the period of 1977-78 to 2006-07. The balance sheet data was used to devise the statement of sources and uses of the fund. The tax rates to calculate the non-debt tax shield was taken from Sucharita (1994) up to 1991 and after that, it was taken from the tax ready reckoner (2000).

CHOICE OF VARIABLES, THEIR OPERATIONAL DEFINITIONS AND FORMULATION OF HYPOTHESES

❁ **Capital Structure:** In the present study, capital structure has been treated as a dependent variable. It has been measured in two forms by taking the natural logarithm of **(i)** Total Debt To Total Assets and **(ii)** Long Term Debt To Total Assets.

❁ **Asset Structure:** In the present study, asset structure has been measured as gross fixed assets to total assets. Companies having more tangible assets can afford large amount of debt as tangible assets can provide better collateral. Thus, a positive relationship is expected between debt ratios and asset structure according to the trade-off theory, but

pecking order theory suggests no particular relationship.

❁ **Profitability:** A profitable firm can afford to have more debt in its capital structure as it has the potential to absorb a large sum of interest and gain a tax shield arising out of a high debt ratio. This means that there is a positive relationship between profitability and debt ratios according to the trade-off theory. However, the pecking order theory says that a profitable firm has more retained earnings, given dividend policy, which is mostly sticky, and therefore, places less reliance on borrowings to finance its projects. Consequently, a negative relationship is expected between profitability and debt. In the present study, it has been measured as a natural logarithm of PBIT/ (D+E) i.e. return on capital employed (ROCE).

❁ **Growth Opportunities:** According to Myers(1977), a firm with more growth opportunities may not rely on debt for financing, as high risk is involved in new investments (growth opportunities) . It means that if the investment doesn't give the desired results, it will be difficult for the company to service its debt. So, according to the trade off theory, there exists a negative relationship between debt and growth opportunities. On the other hand, the pecking order theory says that firms with more growth opportunities need more funds for investments. So, a positive relationship is expected between debt and growth opportunity as per the pecking order theory. Growth has been measured as the natural logarithm of compounded annual average growth rate of sales.

❁ **Firm Size:** Firm's debt taking capacity is influenced by its size. Titman and Wessels (1988) argued that larger firms have diversified business, so the chances of their bankruptcy are less. Large firms can afford to have more debt in their capital structure, as they can earn profits from any of the business lines it will have in its portfolio. It means there is a positive relationship between firm size and debt according to the trade off theory. However, the pecking order theory says that information asymmetry is less in larger firms, so they can take the benefit of external equity. So, according to this theory, there is a negative relationship between debt and size of the firm. Firm size has been measured as the ratio of total assets to the number of companies in the particular year in the present study.

❁ **Non Debt Tax Shield (NDTS):** Interest expenses associated with debt can be charged to the profit and loss account as one can obtain the tax shield. There are also items other than interest that serves the same purpose. These are depreciation, depletion, research and development expenditure, preliminary and preoperative expenses that are written off (De Angelo and Masulis, 1980). When a firm has a large number of items that provide non debt tax shield, it will tend to have less motivation to derive tax benefits arising out of interest cost and hence, will tend to have low debt in its capital structure for financing the assets. It means there is a negative relationship between NDTS and debt under the trade off theory. The Pecking order theory does not suggest any particular relationship between debt and NDTS[1]. It has been also taken as the natural logarithm form.

❁ **Liquidity:** According to the pecking order theory, firms with high liquidity are not likely to have high debt ratios as they have sufficient cash with them. So as per this theory, there is a negative relationship between debt and liquidity. But the trade off theory suggests that a firm with high liquidity can meet its debt obligation easily, so these firms should have high debt in the capital structure. It means that as per the trade off theory, there is a positive relationship between debt and liquidity. The measure of liquidity in the present study is the natural logarithm of the ratio of cash and cash equivalent to the current liabilities and provisions.

DATA ANALYSIS

Firstly, the trend has been shown for all the variables of sources of financing.

Table 1 : Three Yearly Average Ratios Of Sources Of Financing

Years / Ratios	1978-80	81-83	84-86	87-89	90-92	93-95	96-98	99-2001	02-04	05-07
TD/TS	0.3368	0.4121	0.3845	0.5075	0.4407	0.2613	0.4696	0.3398	0.1942	0.3107
LTD/TS	0.1558	0.3027	0.2548	0.5890	0.7359	-.1078	0.3615	0.2795	0.0246	0.2016
Int.sources /TS	0.2114	0.1908	0.3336	0.1427	0.3006	0.5583	0.3238	0.2212	0.4072	0.4352
Ext.sources/TS	0.7886	0.8080	0.6647	0.8572	0.7000	0.4387	0.6758	0.7740	0.6031	0.5648

[1] NDTS=PBDIT – I- T/ average tax rate {PBDIT = operating profit; I= Interest paid; T= amount of tax paid}

Table 2 : Correlation Matrix								
	Ln cash	**Ln NDTS**	**Ln Prof**	**AS**	**LnGO**	**Ln TD**	**Ln LTD**	**FS**
Lncash	1	**.601** (.000)**	-.002 (.990)	-.189 (.318)	**.415* (.023)**	**-.612** (.000)**	-.118 (.535)	**.616** (.000)**
Ln NDTS		1	**.448* (.013)**	**-.540** (.002)**	**.447* (.013)**	**-.523** (.003)**	-.045 (.812)	**.649** (.000)**
Ln Prof.			1	**-.487** (.006)**	.357 (.053)	**-.413* (.023)**	**-.585** (.001)**	.103 (.588)
Asset structure				1	-.324 (.081)	.234 (.214)	-.069 (.715)	**-.484** (.007)**
LnGO					1	**-.542** (.002)**	-.246 (.189)	**.627** (.000)**
Ln TD						1	**.734** (.000)**	**-.544** (.002)**
Ln LTD							1	.013 (.944)
FS								1
P-values are indicated in brackets.**Significant at 1% & *Significant at 5% level.								

❁ **Multiple Regression Analysis:** The regression models used in the study are:

$$\textbf{Ln (TD/ TA)} = \beta 0 + \beta_1 FS + \beta_2 AS + \beta_3 \ln NDTS + \beta_4 \ln Cash + \beta_5 \ln GO + \beta_6 \ln Prof + u$$

$$\textbf{Ln (LTD/ TA)} = \beta 0 + \beta_1 FS + \beta_2 AS + \beta_3 \ln NDTS + \beta_4 \ln Cash + \beta_5 \ln GO + \beta_6 \ln Prof + u$$

Ln (TD/ TA) = Natural logarithm of total debt to total assets;
Ln (LTD/TA) = Natural logarithm of Long term debt to total assets;
FS= Firm size ;
AS= Asset Structure;
Ln NDTS = Natural logarithm of non debt tax shield;
Ln cash= Natural logarithm of cash ratio;
Ln GO= Natural logarithm of growth opportunity;
Ln Prof=Profitability

Table 3 : Total Time Period				
Variables	**Expected Relationship**		**Actual Relationship and β Coefficients**	
	Trade-off Theory	**Pecking Order Theory**	**Total Debt**	**Long term debt**
Asset structure	Positive	No relationship is specified.	-.635 (0.211)	**-3.122** (0.012)**
Profitability	Positive	Negative	**-.161*** (0.009)**	**-.781 ***(0.000)**
Growth Opportunity	Negative	Positive	-.008 (0.716)	.017 (0.748)
Firm size	Positive	Negative	.000 (0.165)	-.002 (0.291)
Non debt tax shield	Negative	No relationship is specified.	.039 (0.509)	**-.359** (0.014)**
Liquidity	Positive	Negative	**-.113** (0.013)**	**-.229** (0.027)**
P values are indicated in brackets for all the time periods. ***Significant at 1% level.				
**Significant at 5 % level.				

The regression analysis for the total time period was done by using the backward entry method for both the debt ratios. The first model, including all the variables, was found suitable as the VIF was considerably low.

Regression analysis for the pre liberalization period was done by using the backward entry method for both the debt ratios. Here, for the total debt, the second model, including five variables was found suitable as the VIF was considerably low. The variable excluded in this model is Ln NDTS. However, its coefficient in the first model was found to be positive. Similarly, for long term debt, the third model, which has four variables in it is suitable on the basis of VIF. The excluded variables are liquidity and growth opportunity. Here, the coefficient of liquidity is positive in the first and the second model; and growth opportunity is positive in the first model, whereas it became an excluded variable in the second model also. For the post liberalization period , regression analysis has been done again by using the backward entry method for both the debt ratios. Here, for the total debt, the second model, including five variables

Table 4 : Pre Liberalization				
Variables	**Expected Relationship**		**Actual Relationship and β Coefficients**	
	Trade-off theory	**Pecking order theory**	**Total Debt**	**Long term debt**
Asset structure	Positive	No Relationship is specified.	**-.989* (0.061)**	**-3.920*** (.000)**
Profitability	Positive	Negative	**-.256***(.003)**	**-1.221***(.000)**
Growth Opportunity	Negative	Positive	0.017 (.459)	
Firm size	Positive	Negative	**0.016*** (.002)**	**.023*** (.002)**
Non debt tax shield	Negative	No relationship is specified.		**0.429 **(.042)**
Liquidity	Positive	Negative	.079 (.171)	
P values are indicated in brackets for all the time periods. ***Significant at 1% level.				
**Significant at 5% level. *Significant at 10% level.				

was found suitable as the VIF was considerably low. The variable excluded in this model is liquidity. However, its coefficient in the first model was found to be positive. Similarly, for the long term debt, the second model, which has five variables in it, is suitable on the basis of VIF. The excluded variable is asset structure. Here, the coefficient of asset structure is positive in the first model.

Table 5 : Post Liberalization				
Variables	**Expected Relationship**		**Actual Relationship and β Coefficients**	
	Trade-off theory	**Long term debt**	**Total Debt**	**Long term debt**
Asset structure	Positive	No Relationship is specified.	0.489 (.409)	
Profitability	Positive	Negative	0.153 (.111)	-.103(.374)
Growth Opportunity	Negative	Positive	**-0.035* (.089)**	-.035(.288)
Firm size	Positive	Negative	.000 (.253)	.000 (.197)
Non debt tax shield	Negative	No relationship is specified.	**-.177**(.015)**	**-.236*(.054)**
Liquidity	Positive	Negative		.033 (.646)
P values are indicated in brackets.**Significant at 5% level. *Significant at 10% level.				

Table 6 : Model Summary									
Ratios	**R^2 values**			**D-W**			**F-value**		
	Total period	**Pre Lib. period**	**Post lib. period**	**Total period**	**Pre Lib. period**	**Post lib. period**	**Total period**	**Pre Lib. period**	**Post lib. period**
Total debt ratio	0.622	0.928	0.862	1.950	1.011	1.635	6.299 **(.001)**	15.214 **(.001)**	11.236 **(.001)**
Long term debt	0.657	0.978	0.803	1.037	1.582	1.953	7.352 **(.000)**	113.54 **(.000)**	.7355 **(.005)**
P values are indicated in brackets.									

The Jarque Bera test of normality was done for normality assumption of residuals. It shows that in spite of being some variables in the logarithm form, the residuals are following the normal distribution, and the model is significant. This is true for both - the total debt to total assets and long-term debt to total assets ratios in all the periods (total period, pre and post liberalization).

FINDINGS AND CONCLUSION

The correlation matrix shows a sign of negative correlation between total debt and cash ratio as a measure of liquidity, at 5% and 1% levels of significance. Similarly, firm size and non debt tax shield are also correlated at the 5% and 1% level of significance. The other variables which are correlated at the same level of significance are profitability and long-term debt, but they are negatively correlated. Non debt tax shield is also negatively correlated with total debt at 1% level of significance. Profitability is negatively correlated with asset structure at the same level of significance.

The regression analysis for the total period of 1977-78 to 2006-07 shows the cash ratio and firm size to be the only significant variables at the 5% level. But cash is having a negative coefficient. It means that an increase in cash decreases the debt ratio, which is again true according to the pecking order theory. Here, the study period is divided into the pre and post liberalization periods to get a better picture. In the pre liberalization period, i.e. 1977-78 to 1991-92, profitability, non debt tax shield and asset structure are the significant variables at the 5% level of significance. However, profitability and asset structure are with the negative signs. Profitability is negative according to the pecking order theory, but this theory doesn't suggest any relationship with the asset structure. According to the trade off theory, asset structure should be positively related with the total debt, but it is showing a negative relation. In the post liberalization period, cash is significant at the 5% level, with a negative coefficient. This is again falling in line with the pecking order theory. The above analysis for determinants shows that various determinants have varied importance in different time periods as the variables which are significant in the pre liberalization period are not necessarily significant in the post liberalization period. This is suggested by the chow test also - that structural change has come about in capital structure ratios i.e. total debt to total assets and long-term debt to total assets.

Ogden, Jen and Connor's (2003) analysis of publicly traded US non financial firms during 1980-2000 shows that the use of debt and other current liabilities increased in the late 2000. Common stocks usage declined and increased again. The present study also finds similar results that borrowing through trade dues and other current liabilities have declined, but it is dominating the other alternatives of financing. Damodaran (2004) after analyzing patterns of financing, mentioned that countries like Brazil and India utilize internal and external equity more. However, various researchers in India such as Sahoo and Omkarnath (2005) found that Indian firms rely more on debt due to the less-developed capital markets. The reason can be availability of finances from external sources or less-developed capital market in a developing country. The present study also concludes that the Indian Public Ltd. companies depend on borrowing more than the equity. The empirical analysis also shows that net change in paid-up capital is not significant, while borrowings were found to be significant.

As there has been an argument on the applicability of trade off theory or pecking order theory, the results of the analysis show that both the theories are applicable. The results of previous studies like Sahoo and Omkarnath (2005), Mahakud (2006) and Kaur and Rao (2009) found trade off theory to be more applicable in the Indian context. But the results of the present study provide no conclusive evidence.

LIMITATIONS OF THE STUDY

The present study has a few limitations, which are summarized below:

- The study has considered the consolidated data of all the Public Ltd. companies and ,therefore, suffers from the problem of consolidation. The behaviour of individual industries/companies is not revealed.
- Jarque-Bera test of normality, which is basically a large sample test has been used for sample of 30 (30 years data).
- Only the Chow test has been done to see the structural change in the two time periods, which doesn't indicate the sources of structural change (either intercept or slope coefficient).

Table 7 : Test Results

Ratios	J-B test[2]			Equality of variance test[3]	Chow [4]test
	Total period	Pre lib	Post lib	(tabular value : 2.53)	(2.66)
Total debt	1.578(0.454)	0.5211(0.7705)	0.9860(0.6107)	2.2735	5.21
Long-term debt	1.094(0.5509)	1.1922(0.5509)	0.1146(0.944)	2.4988	19.4
P values are indicated in brackets.					

[2] **JB** $= n\ [\frac{S^2}{6} + \frac{(K-3)^2}{24}]$

[3] **Equality of variance Test :** H0: $s1^2 = s2^2$; F- statistic= $s2^2 / s1^2$

[4] **Chow test**

$$F = \frac{RSS - (RSS1+RSS2)}{(RSS1+RSS2)} * \frac{T-2k}{k}$$

SCOPE FOR FUTURE RESEARCH

This study has been done till the year 2006-07. A further study can be done by including more recent years as the year 2007 faced the financial meltdown. It might be possible that the recession has had some impact on the financing decisions. A questionnaire based study may reveal a better picture for testing the applicability of the Pecking order theory and Dummy variables can be used to confirm the source of structural change.

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