

PRODUCT MARKET COMPETITION AND CAPITAL STRUCTURE OF FIRMS: THE INDIAN EVIDENCE

SUMITRA NAHA¹
MALABIKA ROY²

Abstract

The present study intends to analyze empirically to what extent product market competition that a firm faces in a developing country like India, affects its capital structure decisions. The product market behaviour is captured from three different angles viz. structure-conduct-performance. We examine the impact of market structure, conduct and performance on both the short-term and long-term debt ratios separately, after controlling for the other determinants of capital structure. A new feature of the study is to underscore the role of economic liberalization in this respect. The method used is panel regression analysis. It is observed that the structure and conduct is significant in influencing only the short-term debt ratio whereas performance is consistently having a negative impact on both short-term and long-term debt ratios. The structural break dummy is also significant irrespective of the maturity structure of debt.

Keywords: market structure, conduct, performance, capital structure, liberalisation

JEL Classifications: G30

1. Introduction

The burgeoning literature relating to the financial structure of firms has generated a number of studies predicting that a variety of factors influence leverage decision. The debate on corporate capital structure starts from the pioneering work of Modigliani and Miller (1958), where they argue that financing does not matter. However the Modigliani-Miller hypothesis is true within a premise defined by some restrictive assumptions. So the modern theories on capital structure argue that the choice between debt and equity financing matters. The factors due to which it matters include taxes, differences in information and agency costs. Theories of capital structure differ in their relative emphasis on, or interpretation of these factors. Until the end of 1980's traditional industrial organization theories have ignored the association between capital structure and product market behaviour. Financial economists also were not concerned with the possibility of product market rivalry in designing the optimal capital structure. Theories exploring the possibility of the interaction between capital structure decision and product market characteristics

¹ Assistant Professor, Department of Economics, Siliguri Mahila Mahabidyalaya, Email: sumitra.naha@gmail.com

² Associate Professor, Department of Economics, Jadavpur University

started appearing in the recent past and the literature is still in its infancy. Also, empirical work has been lagging behind theoretical research in this area.

Against this backdrop, the present study is an attempt to analyze empirically the impact of product market competition on the capital structure of Indian firms, after controlling for the conventional determinants of the capital structure. It also examines whether the product market characteristics are sensitive to the maturity structure of debt. A new feature of the study is to emphasize the role of economic liberalization and the significance of the product market characteristics in the post-reform Indian industry.

The paper is organized into the following sections. Section II provides a review of relevant literature. Section III covers the data, methodology and the description of the variables. Section IV estimates the model and discusses the results and interpretations. The last section summarizes the main points.

2. Review of Literature

Brander and Lewis (1986) were the first to study the interaction between capital structure decision and product market competition theoretically. In a duopoly model, they showed that leverage leads to tougher competition due to the limited liability effect. They were followed by Maksimovic (1988). Both the models stressed on the output maximization hypothesis and were of the opinion that oligopoly firms employ higher levels of debt to produce more when opportunities to earn higher profits arise. This implies a positive relationship between capital structure and market structure. Meckling (1977) developed the agency cost theory. He argued that due to the problem of asset substitution the shareholder- bondholders conflict results in risk shifting and wealth appropriation in favour of the shareholders as they take on risky investment projects. In terms of product market decisions, the implication of the agency theory is that firms would borrow more to pursue an aggressive production policy that would benefit the share holders.

The tax-shield theory put forward by Modigliani and Miller (1963) also justifies the use of more debt in the capital structure of firms. Since interest costs are tax deductible, profitable firms borrow more to save taxes. The output maximization is expected to increase the profitability of firms. Thus, both the agency cost-theory and tax-shield theory predicts a positive association between market structure and capital structure of firms.

Faure-Grimaud (2000), however, argued that the usual limited liability effect is offset by a negative one due to endogenous financial costs under asymmetric information. A powerful firm, by including less debt in its capital structure may exploit its output market power to secure favoured access to capital, and use that access to capital to consolidate its position in the market. Again, the management of a powerful firm by using less debt may be interested in superior profits and reduced risk associated with a conservative capital structure. All these possibilities would suggest a negative relationship between debt-ratio and concentration ratio. Thus, pecking order or asymmetric information suggests a negative association between market structure and capital structure. Chevalier (1995) empirically studied the effect of capital structure on product market competition of the supermarket industry using the leverage buyouts as a natural experiment. He found that higher leverage induces softer product market competition. Phillips (1995) examined the same issue in four industries and observed that in three of the four industries, higher leverage leads to softer competition and in the fourth one, high leverage leads to hard competition. The

results obtained by MacKay and Phillips (2005) revealed that most of the variations of capital structure arises within industry rather than between industry; and that leverage and the toughness of the product market competition are inversely related. Moreover, they found that entrants usually use lower leverage than incumbent. Lyandres (2006) took a reduced-form approach to conclude that optimal leverage and the degree of competition in the product market is positively related. All the empirical results strongly suggest that capital structure and product market are strongly interrelated and that firms make interdependent financial and product market decisions.

It is found that both theoretical and empirical studies centering on product market interactions and capital structure decisions are limited in number. In all the above- discussed papers which are based on the sample of developed countries; the structure, conduct, performance (S-C-P) paradigm has not been used directly to study the choice of the capital structure, which is the basic objective of this paper. The present study also addresses the relationship between the maturity structure of debt and the product market characteristics, probably for the first time in the context of a developing country like India. Above all the impact of product market structure, conduct and performance on capital structure decisions is analyzed in view of the economic liberalization in India. So this present study attempts to fill a gap and has some important implications in the arena of product market competition and capital structure.

3. Data, Methodology and Description of Variables

In the present section we discuss the data and methodology and describe the variables. In section 3.1 different variables are identified and described. In section 3.2 we discuss the data and methodology.

3.1 Description of Variables

The present study tries to provide new insights to the linkage between product market competition and capital structure by considering three important aspects of product market behaviour viz. structure, conduct and performance. The structure conduct performance or S-C-P paradigm is considered to be an important tool of contemporary industrial economics and there are several studies on industry based on the SCP paradigm in both developed and developing countries. But, trying to identify the role of SCP in determining the choice of capital structure of Indian firms is probably the first of its kind. As the SCP variables might influence the short term debt and long-term debt ratio separately, here the impacts of the SCP variables is analyzed on short-term and long-term debt ratio. The long-term debt ratio (ltdtta) is defined as the ratio of total debt less current liabilities over total assets and the ratio of bank loans to total assets as a proxy for short-term debt ratio (stdtta). The variables that proxy for the structure, conduct and performance of firms are discussed below.

Concentration-Ratio or Structure (strc):

Structure (strc) refers to market structure defined mainly by the concentration of market share. Market concentration shows the extent to which an individual market is dominated by its leading firms. A highly concentrated market is one, which is dominated by a few large sellers. It is therefore unlikely that any one seller can make a change in major policy variables without seriously disturbing the environment of the competitors and thereby risking their retaliation.

Concentration reflects technology, and thus cost structures to create entry barriers and increase market share. In our study, we use the four firm concentration ratio to capture the extent of competitiveness in an industry as a regressor or cause variable and the debt-ratio as the regressand or the effect variable.

Advertising or conduct (condt):

Conduct refers to the behaviour of firms or implies how firms compete. Advertising expenditure can be looked upon as an investment in building up the brand name of a company by increasing demand for a firm's product range or as a sales promoting activity. Bain (1956) and Comanor & Wilson (1967) have argued that advertising creates a stock of good will that potential entrants find hard to overcome. So, a firm may consider advertising as a means of non-price competition and incur high advertising expenditure to compete with the entry deterring behaviour of incumbents and thereby get a toehold in the market. Advertising creates an intangible asset viz. the brand image and is a genuinely sunk cost. Since advertising capital has no salvage value, finance for advertising is either expensive or not easily available.

In our study the ratio of advertising expenditure plus selling commission over gross sales is used as an explanatory variable. Advertising is interpreted as broadly representing all selling expenses. It is proposed that there will be in general a positive relationship between debt and advertising expenditures. However, it is expected that short-term and long-term debt-ratios of firms would be affected differentially by the advertising expenditure.

Performance or Return on assets (perf)

Performance of a firm reflects how profitable a company's assets are in generating income. One of the best measures of profitability is return on assets or ROE. Thus, ROE is used as a proxy for profitability or performance. Myers (1977) and Donaldson (1961) are of the opinion that highly profitable firms generate sufficient retained earnings and hence include less debt in their capital structure following the financing hierarchy or the pecking order theory. Thus, profitability is expected to have a negative influence on leverage. On the contrary, static trade-off theory envisages a positive relation between profitability and leverage because a firm with high profits would require more tax shelter and they also have more debt taking capacities. Profitability or return on assets is defined as the ratio of profit after tax (PAT) to total assets

Dummy variables

Liberalisation may be defined as a program of changes in the direction of moving towards a free-market economy. India went through policy changes during the year 1990-91, both in the industrial and financial sector. Since the present analysis considers a long time period of nineteen years, 1985-86 to 2004-05, which includes the year when the new economic policies were introduced, we can easily demarcate the pre and post liberalization periods by introducing an intercept dummy. The dummy variable would be of much help in identifying the point of structural break and also capture the impact of regime shift on the debt ratio of Indian firms. The intercept dummy, (lib) is defined as

$lib=1$ for year $> t$ and $=0$ otherwise, where 't' ranges from 1992 to 1995

Three slope dummies, $z = \text{lib} * \text{strc}$, $k = \text{lib} * \text{condt}$, and $w = \text{lib} * \text{perf}$ have also been introduced to capture the change in marginal impact of market structure or concentration ratio, advertising and profitability on the capital structure of firms, due to the initiation of liberalisation policies.

The other firm specific attributes or conventional variables as suggested by different theories of capital structure that might influence a firm's financial structure decision are:

Asset structure or tangibility (tan):³ Both information asymmetry and agency cost theories of capital structure have suggested that the composition of assets owned by a firm affect its capital structure choice. According to the agency cost theory suggested by Jensen and Meckling (1976), Galai and Masulis (1976) and Myers (1977), the shareholders of a highly leveraged firm has a tendency to invest-optimally to expropriate the wealth from the existing bond holders. They predict that if debt can be collateralized, the borrower is restricted to use the funds for a specified project and hence the incentive to invest sub-optimally decreases. This feature may induce a positive association between tangibility or collateralizable asset and debt.

However, Grossman and Hart (1982) argue that tangibility should have a negative relation to the level of debt. According to them, firms with less collateralizable assets are supposed to choose higher debt levels to increase the chances of bankruptcy and hence limit their managers' consumption of perquisites by reducing free cash flow.

Non-debt tax shield (shld): DeAngelo and Masulis (1980) and Ross (1985) postulate that the presence of deductions from taxable income, other than interest payments, reduces the expected gains from leverage. These non-interest tax deductions are generally known as "non-debt tax shields" Thus, the incentive to finance with debt diminishes as volume of non-debt tax shield increase or debt is crowded out. These arguments all suggest that there should exist a negative relation between leverage and non-debt tax shields.

Firm Size (size): Warner (1977) and McConnell (1982) argue that large firms tend to be more diversified, have more stable cash flows and established operating and credit histories. Hence, they are less prone to bankruptcy. If bankruptcy costs include a fixed component, these costs constitute a larger fraction of the value of a firm as firm size decreases. Thus, large firms are encouraged to take on relatively high debt burden.

Financial Distress (volt): As debt involves commitment of periodic payment, highly leveraged firms are vulnerable to financial distress costs in a near bankruptcy situation. De Angelo and Masulis (1980) have suggested that an additional unit of debt increases the likelihood of bankruptcy for the firm. For firms who have high volatility in their earnings, investors will have little ability to accurately forecast future earnings based on publicly available information. Thus, financial risk makes debt costly and is supposed to be inversely related to debt levels.

Growth (gtta): Jensen and Meckling (1976) opines that the costs associated with the agency problem of asset substitution is likely to be more for growing firms since it might have more flexibility in the choice of future investment. So, one would expect a negative association between long-term debt and future growth. However, Myers (1977) pointed out that short-term debt can mitigate such problem and growing firms might substitute short-term financing for long-term financing.

³ The abbreviations in the bracket shows the short forms used in the regression equations.

Potential debt tax shield (dshld): Sheutrim, Lowe and Morling (1993) argue that potential debt tax shield also influences the debt-ratio of firms. According to them, the potential income against which firms can offset interest expenses or the potential debt tax shield should have a positive sign because the gains from debt are reduced if interest cannot be deducted in the current period.

In the next section we discuss the sample and methodology.

3.2. Sample and Methodology

The sample consists of 50 firms from different industries belonging to the Indian Manufacturing sector. The period covered is 1985-86 to 2004-05. As the study is based on a balanced panel analysis, in the process of designing a balanced panel with representative firms in each year for the entire period of study, the data source⁴ used restricted the choice of firms in each industry. The sample includes only eight different industries having at least four representative firms in each year.⁵ The existing studies analyzing the determinants of leverage estimated the models by using either factor analytic technique or maximum likelihood method or ordinary least square regression. The methodology used in this study is panel regression analysis, which is a more appropriate one as compared to those used in the previous studies. Since this is an estimation technique simultaneously involving both cross-sectional and time series data, the estimates are expected to be more accurate and efficient.

The mean, median and standard deviation of the variables included in the regression equations are reported in table 2 in the Appendix.

4. Model Description and Results

In the present section we develop the econometric model and then derive and interpret the results.

4.1 Model Specification

The model explores the impact of the structure, conduct, or performance of Indian firms on their corresponding debt-ratios after controlling for the conventional determinants of the financial structure. The structure, conduct and performance variables may be sensitive to the maturity structure of debt. Hence the impact of these product market factors are analyzed on both the short-term debt ratio and long-term debt ratios separately, after controlling for the conventional variables.

Depending on the nature of technology used, length of production cycles, extent of inventory holding etc different industries will have different working and fixed capital requirements and hence different long term and short term loan requirements. So we also need to control for the industry specific effects, which are not captured by the traditional variables explaining capital structure. As the sample includes eight different industries from the manufacturing sector, we have introduced seven industry dummies with the existing set of conventional variables to capture

⁴ Source of Data: RBI

⁵ The list of industries and the number of firms from each industry included in the sample is given in table 1 of the Appendix.

the additional industry-specific effect if any, on the choice of the capital structure. The dummy variables da, db, dc, dd, de, df, dg, each correspond to the seven industries viz metal products, chemical fertilizers, cement, paper, automobile vehicles, electrical machineries and drugs & pharmaceuticals respectively. Now, the regression is carried out in two different stages. In the first stage before going into the estimation of the main model, we test for the homogeneity of the different industries with respect to their short-term and long-term debt requirements, i.e. we check whether industry specific effects exist within our group of industries. The results of the two OLS regressions are reported in table 1 and table 2.

Table 1. Industry Homogeneity w.r.t Short-term Debt.

Dependent Variable: Short-term debt (stdtta)	
Variables	Co-efficients
da	-0.0256 (1.51)
db	0.0025 (0.21)
dc	-0.0056 (0.37)
dd	-0.0311 (2.29) *
de	-0.0026 (0.17)
df	-0.0020 (0.19)
dg	-0.0399 (3.56) **
tan	-0.0731 (3.78) **
gtta	0.0513 (3.20) **
size	-0.016 (6.53) **
shld	-0.0086 (0.05)
dshld	0.4411 (6.13) **
volt	-0.0001 (0.04)

** indicates significant at .01 level; * indicates significant at .05 level

Table 2. Industry Homogeneity w.r.t Long-term Debt

Dependent Variable: Long-term debt(ltdtta)	
Variables	Co-efficients
da	0.1846 (8.41) **
db	0.0512 (3.40) **
dc	0.0707 (3.66) **
dd	0.0624 (3.56) **
de	0.0374 (1.89) *
df	0.0050 (0.35)
dg	0.0074 (0.51)
tan	0.0581 (2.32) **
gtta	0.0940 (4.54) **
size	0.0066 (2.10) **
shld	0.9855 (4.55) **
dshld	0.3983 (4.28) **
volt	-0.0002 (0.53)

** indicates significant at .01 level; * indicates significant at .05 level

Table 1 explains the industry specific effect on short term debt. The result shows that the industries are more homogeneous with respect to short term debt as most of the industry dummies are insignificant. Only the paper industry and drugs and pharmaceuticals industry behave differently in their demand for short-term debt. Table 2 reports the industry effect on long term debt. It is observed that excepting for the two industries viz. electrical machinery and drugs and pharmaceuticals, all the other industry dummies are turning out to be positively significant. This indicates that these industries show high degree of heterogeneity with respect to their long-term debt requirements. But, they are similar in the sense that all these industries have included more and more long-term debt in their capital structure over time.

Next, we run two separate regressions, with two different dependent variables, viz long-term and short-term debt respectively using panel regression technique. The structure, conduct, performance and liberalistaion variables are incorporated as regressors along with the conventional variables. To take care of the industry specific effects, the industry dummies of the respective heterogeneous industries are also introduced accordingly.⁶ Though, the main objective of our study is to examine the influence of the change in structure, conduct and performance on the debt ratios of firms, we need to rule out the reverse causation of the change in the capital structure affecting structure, conduct and performance of the industry. Otherwise, this may cause an endogeneity problem. The correlation matrix⁷ given in the appendix under table 3 reflects that the problem of endogeneity in the specified model is a minimum (as is evident from the weak correlation statistics between the variables). Since, it is difficult to carry out causality analysis in a panel regression; additionally, to account for the problem of simultaneity if any, we have introduced lagged values of the performance and structure variables as instruments for the current ones. The regression equation for short term debt and long term debt are estimated and reported in the next section. The variables are defined below.

- stdtta: the ratio of bank loans to total assets as a proxy for short-term debt ratio
- ltdtta: the ratio of total debt less current liabilities over total assets
- perf: the ratio of profit after tax (PAT) to total assets with one period lag,
- tan: the ratio of net fixed assets to total assets,
- shld: the ratio of depreciation allowance to total assets,
- size: the natural logarithm of net sales,
- gtta: the annual percentage growth in firm's total assets,
- volt: the ratio of the standard deviation of earnings before interest and tax (EBIT) for a specific period of time over the average EBIT of that period,
- dshld: the sum of interest paid and taxable income after all allowable non-debt tax deductions have been made. The sum is expressed as a percentage of total assets,
- condt: the ratio of advertising expenditure plus selling commission over gross sales,
- strc: the four firm concentration ratio defined as the ratio of net sales of the top four firms to the sum of net sales of all firms present in the industry with one period lag,
- lib: structural break dummy,

⁶ The outcome is that the fixed effect model turns out to be collinear due to the presence of too many dummy variables (firm+ industry). Thus we report the pooled regression results.

⁷ Thomas and Serju have used similar correlation matrix to take care of the problem of endogeneity.

z,k,w: slope dummies defined as $z=lib*strc$, $k=lib*condt$, $w=lib*perf$ respectively.

The null hypothesis is that there exists no significant association between structure, conduct, performance variables and the choice of the capital structure.

4.2 Results and Interpretations

Table 3 and table 4 report the main results.

Table 3. Impact of Product Market Characteristics on Short-term Debt Dependent Variable: Short-term debt (stdtta)

<i>Variables</i>	<i>Co-efficients and t-ratios in the parentheses</i>
strc	0.0836 (2.50)**
condt	-0.9783 (8.76)**
perf	-0.6727 (9.07)**
tan	-0.0925 (4.83)**
gtta	0.0382 (2.13)*
size	0.0085 (5.62)**
volt	0.0001 (0.52)
shld	0.0703 (0.37)
dshld	0.0884 (1.64)
lib	-0.0483 (2.14)*
z	-0.0715 (1.71)**
k	0.7329 (6.22)**
w	0.0655 (0.65)
dd	-0.0105 (1.56)
dg	0.0126 (1.61)
R ² =0.53	No.of obs=950

** indicates significant at .01 level, * indicates significant at .05 level

Table 4. Impact of product market characteristics on long-term debt Dependent variable: Long-term debt (ltdtta)

<i>Variables</i>	<i>Co-efficients and t-ratios in the parentheses</i>
strc	0.0367 (1.06)
condt	0.5667 (5.47)**
perf	-0.4494 (5.87)**
tan	0.0142 (0.56)
gtta	0.0369 (1.81)
size	-0.0066 (1.57)
volt	-0.0009 (0.32)
shld	0.4083 (1.81)
dshld	-0.0668 (1.06)
lib	0.0470 (1.65)
z	0.0738 (1.29)**
k	-0.4447 (4.27)**
w	0.3460 (2.81)**
da	0.1927 (9.11)**
db	0.0390 (2.90)**
dc	0.0671 (3.56)**
dd	0.0504 (3.32)**
de	0.0395 (1.92)**
R ² =0.47	No.of obs=950

** indicates significant at .01 level, * indicates significant at .05 level

The coefficients on market structure (*strc*) and conduct (*condt*) variable are strongly significant so far as short-term debt is concerned, resulting in the rejection of the null hypothesis that there is no significant association between structure and conduct variables and the choice of the capital structure. The positive impact of market structure on short term debt-ratio suggests that more concentrated a firm is, it includes more short term debt in the capital structure. Thus, monopolies are expected to have higher short-term debt-ratios than oligopolies. As concentration increases, a firm becomes more powerful player in the market with better access to the capital market. Hence, such a firm is easily supplied with more short-term debt. Though, the direction of association between short-term debt and market structure in our study seems to be consistent with the conclusions of Brander and Lewis (1986) and Maksimovic (1988) on product market competition and capital structure; but the difference lies in the fact that they did not comment on the term -structure of debt. The result slightly alters when long-term debt is considered, where only the conduct of firms turns out to be statistically significant.

Surprisingly the impact of conduct variable is different for short term debt as compared to long term debt. The direction of influence of conduct is positive in case of long-term and negative in case of short-term debt. A firm with the objective of promoting sales in the near future incurs advertising expenditure, which requires more capital for creating unique capabilities, maintaining more inventory and specific human skills that will differentiate its product from that of others. Thus, to sustain itself in terms of sales, the requirement of long-term debt increases with increase in the expenditure to maintain its conduct. Such a behavior on the part of a firm reflects the positive association of the conduct variable with long-term debt ratio. The significant negative relation between short term debt and conduct variable is somewhat of a puzzle to us. However the following argument can provide a tentative explanation. If the conduct variable has its desired impact it would improve the competitive position of the company which may reduce the working capital requirements leading to a reduction in short term loan requirement. That is the relation is capturing a trade-off between improved selling activities and short term capital requirement.

The performance (*perf*) of firms captured by its PAT to total assets ratio is consistently negatively significant when both short-term and long-term debt is considered. This implies that firms that perform better are able to accumulate more retained earnings and following the financing hierarchy include less debt in their capital structure.

The structural break dummy is significant irrespective of the maturity structure of debt. However, it is interesting to note that the coefficient is negative for the short-term debt implying that the Indian firms turned towards substantial deleveraging with respect to short-term debt. But, it is positive for the long-term debt. These results can be interpreted from two different angles. First is the deregulation of interest rate as a part of financial sector reforms has made interest rates highly volatile in the post reform era. This greater concern for interest risk makes choice of debt maturity more important than before. Short-term borrowings exposed borrowers to roll-over risk and interest rate risk. Firms, which borrow short-term to fund their new investment projects, may face difficulties if interest rates go up sharply and thus demand less of short-term debt. Another interpretation can be that with the developments in the financial markets and better access to capital markets and other financial institutions, in the post-liberalisation period, firms are going in for more long-term investment and cutting down their working capital expenditures by restructuring operation. Thus, they included more long-term debt and demanded less of short-term debt in the post-liberalisation period.

Now, we concentrate on the impact of the interactions of the structure, conduct and performance variables with the liberalization dummy on both the short-term and long term debt separately. It is noticed that the slope dummy which captures the effect of the shift in conduct or advertising expenses of firms due to implementation of the liberalisation policies is turning out to be significant in case of both long-term and short-term debt-ratio. However, the direction of impact is negative with respect to long-term debt ratio and positive with respect to short-term debt ratio. The slope dummy capturing the effect of the shift in performance or profitability of firms due to liberalization is significant in influencing only the long-term debt ratio and the slope dummy capturing the shift of structure of firms (market concentration) is significant in influencing only the short-term debt ratio. The direction of impact of the interaction of performance with liberalization dummy on the long-term debt ratio is positive, whereas the impact of the interaction of the structure with liberalization dummy on the short-term debt ratio is negative. Thus, the results indicate that the short-term debt ratio has become more responsive to marginal changes in the conduct of firms but less responsive to marginal changes in structure of firms in the post-liberalisation period. On the other hand the long-term debt has become more responsive to marginal changes in the performance of firms and less responsive to marginal changes in the conduct of firms.

Market structure itself and its interaction with the liberalization dummy both influences only short-term debt ratio and fail to influence long term debt ratio. But, the direction of impact of the structural dummy itself on debt ratio is just the opposite of its interaction with liberalization dummy. Though the conduct variable as well as its interaction with the liberalization dummy influence both the short-term and long –term debt ratios, the direction of impact completely alters in case of this interaction dummy as opposed to that of the original one. When the performance variable is compared with that of its interaction with the liberalistaion dummy, it is noticed that while the original variable influences both the short-term and long-term debt ratios in a negative way; the interaction variable positively influences only the long- term debt ratio.

Tangibility, firm size, growth rate of firms, non-debt tax shield, potential debt shield are found to maintain consistency in their behaviour with respect to both short-term and long-term debt ratios.⁸

5. Conclusion

This paper empirically examines the impact of market structure, conduct and performance on the choice of capital structure of Indian firms. Performance seems to be the key driving factor in influencing the level of short-term and long term debt ratios. The term structure of debt becomes important when the impact of market structure and conduct are considered. Conduct affects both short-term debt and long-term debt ratios, but, structure has a significant impact only on the short-term debt ratio. The negative impact of performance on the level of debt included in the capital structure signals that in the presence of asymmetric information, the Indian firms follow a pecking order. They prefer financing through retained earnings followed by equity financing and the last resort being debt financing. The series of economic reforms that were introduced in the economy in a phased manner did affect the term structure of debt, with a shift in

⁸ See Naha and Roy (Jan 2007)

favour of long-term debt and against short-term debt. It also changed the marginal impact of the structure, conduct and performance of firms on their capital structure.

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APPENDIX

Table 1. List of Industries Included in the Sample

<i>Industry No.</i>	<i>Industry name</i>		<i>No. of firms</i>
1.	Breweries and Distilleries	B&DS	6
2.	Automobile vehicles	AVEH	5
3.	Electrical machinery & appliances	EM&A	9
4.	Metal products	OMPR	7
5.	Chemical fertilizers	CFER	4
6.	Drugs & pharmaceuticals	DP&H	8
7.	Cement	CEMT	4
8.	Paper	P&PR	7

Table 2. Summary Statistics of the Variables Included in the Regression Equation

<i>Variables</i>	<i>Mean</i>	<i>Median</i>	<i>Stdev</i>
stdtta	0.1462	0.1298	0.1094
ltdtta	0.1950	0.1747	0.1298
perf	0.0224	0.0229	0.0730
tan	0.5964	0.5706	0.2622
shld	0.0388	0.0324	0.0252
size	13.2401	13.3209	1.5875
gtta	0.1505	0.1104	0.1984
volt	5.2073	0.4730	121.26
dshld	0.0768	0.0726	0.0765
condt	0.0257	0.0044	0.0883
strc	0.4989	0.4735	0.1585

Table 3. Cross-Correlations between the Variables

	<i>bfbta</i>	<i>dtta</i>	<i>strc</i>	<i>condt</i>	<i>perf</i>	<i>tan</i>	<i>gtta</i>	<i>size</i>	<i>shld</i>	<i>dshld</i>	<i>volt</i>
bfbta	1.00	--	--	--	--	--	--	--	--	--	--
dtta	-0.04	1.00	--	--	--	--	--	--	--	--	--
strc	-0.05	0.21	1.00	--	--	--	--	--	--	--	--
condt	-0.35	0.22	-0.02	1.00	--	--	--	--	--	--	--
perf	-0.40	-0.16	0.04	0.21	1.00	--	--	--	--	--	--
tan	0.34	0.43	0.30	0.24	-0.03	1.00	--	--	--	--	--
gtta	0.09	0.06	0.03	0.17	0.26	-0.02	1.00	--	--	--	--
size	-0.46	0.12	0.21	0.46	0.26	0.22	0.07	1.00	--	--	--
shld	-0.29	0.32	0.26	0.26	0.11	0.51	-0.05	0.19	1.00	--	--
dshld	-0.06	-0.23	-0.03	0.02	0.42	-0.35	0.16	-0.03	-0.30	1.00	--
volt	0.02	-0.006	-0.02	0.02	-0.10	-0.01	0.03	-0.01	0.01	-0.06	1.00

