Debt Capital in Indian Corporate Sector: A Study with Reference to Selected Public Limited Companies

By

Raveesh Krishnankutty
08AT0229009

THESIS

Submitted in partial fulfilment

of the requirements for the award of the degree of

DOCTOR OF PHILOSPHY

in

The Institute of Chartered Financial Analysts of India University
Kamalghat, Sadar, West Tripura
2014

Dedicated to all my Beloved Teachers

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CERTIFICATE

This is to certify that the Thesis titled "**Debt Capital in Indian Corporate Sector: A Study with Reference to Selected Public Limited Companies"** submitted by **Raveesh Krishnankutty** IDNo. **08AT02290009** for the award of the Ph.D Degree of the ICFAI University embodies original work done by him/her under my supervision.

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Never let your memories be greater than your dreams." Douglas Ivester

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Abstract

In this study, we examined the status of debt capital among selected listed companies in India. The major objectives of the study are 1) to review the trend of debt structure in Indian companies during the study period. 2) To examine the choice among the different kinds of debt used by the Indian companies. 3) To investigate the potential determinants of the debt maturity structure of sample companies. 4) To examine the relationship between the growth of a company and its dependence on long -term debt. The study has divided the debt capital into three major stage present status and determents of debt capital, choice of debt capital and determinants of debt maturity. And study has looked into the growth of a firm and its dependence on long-term debt. The financial data have been collected from Capital line database for a period of ten years from 2002-2011. We have examined the objectives, applying the various statistical tools like quantile regression, panel data fixed and random effects and GMM 1991 and 1998. Moreover, simple percentages and averages also have been used.

The result of a trend analysis shows that total debt capital has grown up significantly during the study period. However the growth in debt capital in comparison to equity capital is less. It confirms that Indian companies are following pecking order theory. I.e., when there is a need for capital, first they will prefer internal capital, and then if necessary will go to debt capital. In other words, we can say that Indian companies are trying to keep debt as minimum as possible.

The Indian companies are managing their debt capital keeping more of unsecured debt in the total debt capital than secured debt. It confirms that Indian companies managing their capital requirements using more short-term debt than long-term debt. The sectors such as agriculture, capital goods, chemical& petrochemicals, information technology, media & publishing, oil & gas and transport equipment are using short-term more than long-term debt. Moreover, total sample companies also show the same (see chapter IV table 1-20). However, Indian companies are managing their debt structure, keeping a trade off between secured and unsecured debt as well as short-term and long-term debt.

The various factors determine the levels of debt capital in Indian companies are size, creditworthiness, foreign direct investment and economic growth are directly influencing the level of debt capital. However, debt capacity and Non-debt tax shield negatively determining the level of debt capital in Indian companies.

The Indian companies are managing their debt requirements depending on commercial banks. Commercial banks are the major contributor of debt capital in various ways as long- term secured loan as well as short-term unsecured loans. Debenture & bonds are the second major contributor. It confirms that the Indian debt market is still untapped. The nature of Indian banks may be a reason for companies to choose banks as their major choice. Banks in India are governed and controlled by central government. So in case companies incurred loss or they are not repaying the loan amount there a chance to write-off the loan amount.

The factors affecting the debt maturity of Indian companies are; Previous year debt maturity, firm size, leverage ratio and growth opportunity are the factors that directly affect the debt maturity of Indian companies. On the other hand effective tax rate, liquidity and interest rate are the factors inversely affecting the debt maturity of Indian companies. It confirms that large companies will go for more long-term debt in the total debt, i.e., it holds the liquidity theory. Moreover, firms having a high growth opportunity will also go for long-term debt confirms the agency cost theory of overinvestment.

Liquidity, effective tax rate and prime lending rate are negatively determining the debt maturity of Indian companies. The negative relationship between liquidity and debt maturity in the Indian context has to check further. It is not supporting the liquidity theories. Effective tax rate negatively determining debt maturity, it supports that in India the firms are not getting the tax shield advantage. Or it may be due to high transaction and issuance cost prevailing in the Indian debt market. The interest rate is negatively related to debt maturity. It support that if the rate of interest is low companies will prefer more long-term debt.

The dependence between long-term debt and growth shows that the level of previous year long-term debt is directly influencing the current year long-term debt. However, previous two year long-term debt is inversely affected the current year long-term debt. Other variables case we are unable to give a conclusion because of inconsistency in the results.

The discourse is divided into six chapters, including the Introduction and Conclusion. The subject matter is and review of literature is introduced in chapter-I. Statement of problem, objectives, methodology, scope, etc. also discussed in chapter-I. The debt structure in Indian companies is discussed in chapters II. The choice among the different kinds of debt used by the Indian companies is examined in chapter-III. The potential determinants of debt maturity of sample companies and, the relation between the growth of a company and its dependents on long -term debt are reviewed in chapter-IV and V respectively. Conclusion and suggestions are offered in chapter-VI.

Keywords: Debt management, debt maturity, debt structure, Growth, Panel data, Quantile regression, GMM, Debt choice

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CHAPTER I

INTRODUCTION

1.1 Background

There are two possible approaches to the concept of capital; fund concept and assets concept. According to the fund concept, the capital of a firm is the sum total of the funds that have been employed in its running. According to the assets concept, capital means capital invested in fixed assets and current assets. In both the cases, the assets may comprise of either tangible or intangible, including fictitious assets (Banerjee 2010). Irrespective of whether the capital is approached in terms of fund concept or assets concept, there are two major sources of capital, debt and equity. Equity capital is called the owners' capital and debt is called borrowed

capital. In a broad way we can say that the firm's mix of debt and equity is called its capital structure.

A number of theories like net income approach, net operating income approach, traditional approach, MM approach, etc. explain the significance of the proportion of debt and equity in a firm's capital structure. According to net income approach, the firm is able to increase its total valuation and lower its cost of capital as it increases the degree of leverage. The significance of this theory is that a firm can lower its cost of capital continually by the use of debt capital. As per net operating income approach the overall cost of capital does not vary with leverage. Traditional approach says that the use of debt capital increases the value of the firm and reduces the cost of capital up to a certain point. Beyond that, the increase in equity more than offsets the use of cheaper debt capital in the capital structure, and the average cost of capital begins to rise. The optimal capital structure is the point at which overall cost of capital is the minimum or the value of the firm is maximized. Therefore, incorporating debt in capital structure has its own sets of advantages as well as risk also.

Companies require funds for investing in long-term assets and working capital. Companies will generate funds mainly from two sources - internal and external. Depreciation and retained earnings are a major internal source of income. Whereas common stocks, preferred stocks and debt are the major external sources. Whenever firms require money for investment in long-term assets and net working capital they face a gap

between the cash that the company needs and the cash that may be generated internally. This calls for two basic financing decisions: what share of profit a firm should retain in the business and what proportion of the deficit should be financed by borrowing or by issue of equity. Addressing these issues firms should require a payout policy and a debt policy respectively. Payout policy and debt policy depend on various factors such as cost of capital, leverage, tax policy, general macroeconomic conditions etc. (Brealey et al 2008).

Generally it is very difficult to decide how much a firm should borrow or how much it should include debt in the capital structure. Because the financing policy of the companies are varies from company to company and industry to industry. A firm's basic resource is the stream of cash flows produced by its assets. When the firm is financed entirely by common stocks, all those cash flow belongs to the stockholders. When it is issued both debt and equity, it splits the cash flows into two streams, relatively safe streams that go to the debenture holders and a riskier stream that goes to the stockholders

It is evident from the capital structure theories that if a company includes debt instruments in their capital structure the risk will increase. In this context, if a company includes debt in its capital structure how efficiently they are managing the debt is the vital question? In this background the present study on debt capital in the Indian corporate sector is proposed and planned.

1.1.1 Research question

The resilience of emerging markets to an America growth slowdown is a striking development and the associated strong and positive global growth trends of the emerging 'BRIC' markets, led by China and India, represents a significant offsetting influence on global growth. But the 2008 economic recession caused by Americas, sub-prime lending and the accompanying demand destruction have taken a heavy toll on India's corporate sector. The worst-hit are those that had launched aggressive growth plans, largely funded through debt, believing the demand growth in the years to come would be robust as predicted by many experts. Many of such firms now find themselves in a spiral of declining profitability, shrinking market capitalisation and rising liabilities. This raises a question mark over their financial viability. In this background the present study on debt capital in the Indian corporate sector is proposed and planned to see how liquid the Indian companies are. What kind of debt structure they are following and the major factors that determine debt capital in India. What are the major sources of debt capital for Indian companies? Which are sources of debt capital mainly they prefer? Moreover, the major determinants of debt maturity structure and the impact of growth in long term debt capital.

1.2 Literature Survey and Identification of Research Gap

There are a number of studies found relevant for the present study. The survey of literature pertaining to the study is categorised under three sections and presented below.

1.2.1 Debt structure and debt choice

Bevan and Danbolt (2002) studied the difficulties of measuring gearing, and the sensitivity of Rajan and Zingales' results to variations in gearing measures. Based on an analysis of the capital structure of 822 UK companies, Rajan and Zingales' where results were found to be highly definitional-dependent. The determinants of gearing appeared to vary significantly, depending upon which component of debt was analyzed. In particular, significant differences have been found in the determinants of long- and short-term forms of debt. Given that trade credit and equivalent, on average, accounts for more than 62% of total debt, the results are particularly sensitive to whether such debt is included in the gearing measure. Therefore, it was observed that analysis of capital structure is incomplete without a detailed examination of all forms of corporate debt.

They have found that larger companies will have higher levels of both long-term and short-term debt than do smaller firms; profitability to be negatively correlated with the level of gearing, although profitable firms tend to have more short-term bank borrowing than less profitable firms, and tangibility to positively influence the level of short-term bank borrowing, as well as all long-term debt elements. However, the level of

growth opportunities appears to have little influence on the level of gearing, other than short-term bank borrowing, where a significant negative relationship is observed.

Colla et.at.al (2010) says that the debt structure of small and unrated firms having either capital leases or bank debt. But in case of large firms having high credit quality the authors observed that they use multiple types of debt in the debt structure. Moreover, they have suggested that debt structure is an important part of capital structure decisions. Arena and dewally (2012) says that firms geographical location influence the corporate debt. The authors find that rural firms face higher debt yield spreads and attract smaller and less prestigious bank syndicate than urban firms. However the capital structure decision of the firm is also influenced by the environment at which it operates (Deesomsak, Paudyal and Pescetto, 2009).

Titman and Wessel (1988) introduced a factor analytic technique for estimating the impact of unobservable attributes on the choice of corporate debt ratio. And they have found that debt level is negatively related to the uniqueness of a firm line of business. Leland (1994) examines the corporate debt valuation and capital structure in a unified analytical framework and derives closed form result to the value of long-term debt, yield spread and optimum capital structure, when the value of the firm's assets follows a diffusion process with constant volatility. Lee and Gentry (1995) develop a rationale that links a firm's financial health as measured by its cash flow components while going for external

financing. They have found that companies that are financially sound offered straight debt while equities are offered by financially weaker companies for raising external capital. Graham (1996) studied the impact of marginal tax rate on issue of corporate debt. The author provides the information that the firms paying high tax issue more debt than their low tax rate counterparts. Elyasiani, Jia and Mao (2010) documents that the stability of institutional ownership in determining the cost of debt. The study found that there is a robust negative relationship between the cost of debt and institutional stability. Institutional ownership stability plays an important role in determining the cost of debt. At least they have mentioned that institutional ownership stability affects the cost of debt to a greater extent for firms that are subject to more severe information asymmetry and grater agency cost of debt. Jong, Verbeek and Verwijimeren (2011) have tested the static trade-off theory against the pecking order theory. They have focused on the important difference in prediction: the static trade-off theory argues that a firm increases leverage until it reaches its target debt ratio, while the pecking order yields debt issuance until the debt capacity is reached. The study finds that from the selected sample of US firms the pecking order theory is a better descriptor of firms' issue decisions than the statistic trade-off theory. In contrast, when they have focus on repurchase decisions they have find that static trade-off theory is a stronger predictor of firms' capital structure.

The second step or after deciding the proportion of debt in capital structure the next issue is regarding through what type of debt company needs to finance. Rajan and Zingales (1995) suggested that the level of

gearing in UK companies is positively related to size and tangibility, and negatively correlated with profitability and the level of growth opportunities. However, Harris and Raviv (1991) argued that, 'The interpretation of the results must be tempered by an awareness of the difficulties involved in measuring both leverage and the explanatory variables of interest' dependent. Further Aydin Ozkan (2001) conducted studies on the determinants of the capital structure of the selected UK firms. He examined the empirical determinants of borrowing decisions of firms and the role of the adjustment process. A partial adjustment model was estimated by GMM estimation procedure using data from an unbalanced panel of 390 UK firms over the period of 1984–1996. The results provided positive support for the positive impact of size, and negative effects of growth opportunities, liquidity, profitability of firms and non-debt tax shields on the borrowing decisions of the firms.

Huang and Song (2006) studied the determinants of the capital structure of the selected firms in China, by using a database containing the market and accounting data (from 1994 to 2003) from more than 1200 Chinese-listed companies to document their capital structure characteristics. As in other countries, leverage in Chinese firms increases with firm size and fixed assets, and decreases with profitability, non-debt tax shields, growth opportunity, managerial shareholdings and correlates with industries. It was found that state ownership or institutional ownership has no significant impact on capital structure and Chinese companies consider the tax effect on long-term debt financing. Different

from those in other countries, Chinese firms tend to have much lower long-term debt.

Delcoure (2007) investigated, whether capital structure determinants in emerging Central and Eastern European (CEE) countries support the traditional capital structure theory developed to explain western economies. The determinants like Collateral value of assets, size, risk, growth opportunities, profitability and non debt tax shield were studied. The empirical evidence suggested that some traditional capital structure theories are portable to companies in CEE countries. However, neither the trade-off, pecking order, nor agency costs theories explain the capital structure choices. Companies do follow the modified “pecking order.” The factors that influence firms' leverage decisions are the differences and financial constraints of banking systems, disparity in legal systems governing firms' operations, shareholders, and bondholders’ rights protection, sophistication of equity and bond markets, and corporate governance.

Campello and Giambona (2010) studied the relation between corporate asset structure and capital structure by exploiting variation in the saleability of tangible assets. The theory suggests that tangibility increases borrowing capacity because it allows creditors to more easily repossess a firm's assets. Tangible assets, however, are often illiquid. It has been shown that the redeploy ability of tangible assets is a main determinant of corporate leverage. To establish this link, the analysis used an instrumental variables approach that incorporates measures of supply

and demand for various types of tangible assets (e.g., machines, land, and buildings). Consistent with a credit supply-side view of capital structure, they found that asset redeploy ability is a particularly important driver of leverage for firms that are likely to face credit frictions (small, unrated firms). The tests have also shown that asset's redeploy ability facilitates borrowing the most during periods of tight credit.

Noulas and Genimakis (2011) studied the determinants of the capital structure of the firms listed on the Athens Stock Exchange, using both cross-sectional and nonparametric statistics. The data set is mainly composed of balance sheet data for 259 firms over a 9-year period from 1998 to 2006, excluding firms from the banking, finance, real estate and insurance sectors. The study assessed the extent to which leverage depends upon a broader set of capital structure determinants, got evidences showing that the capital structure varies significantly across a series of firm classifications. The results document empirical regularities with respect to alternative measures of debt that are consistent with existing theories and, in particular, reasonably support the pecking order hypothesis

The empirical literature suggests a number of factors that may influence the capital structure of firms. Bradley et al., (1984), Rajan and Zingales (1995), Kremp et al., (1999) and Frank and Goyal (2002) find leverage to be positively related to the level of tangibility. However, Chittenden et al., (1996) and Bevan and Danbolt (2001) find the relationship between tangibility and leverage to depend on the measure of

debt applied. Further, managers of highly levered firms will be less able to consume excessive perquisites, since bondholders more closely monitor such firms. The monitoring costs of this agency relationship are higher for firms with less collateralizable assets. Therefore, firms with less collateralizable assets might voluntarily choose higher debt levels to limit consumption of perquisites (Drobetz and Fix, 2005). Hence, the agency model predicts a negative relationship between tangibility of assets and leverage. Firms with more tangible assets have a greater ability to secure debt. Alternatively, Grossman and Hart (1982) argue that the agency costs of managers consuming more than the optimal level of perquisites is higher for firms with lower levels of assets that can be used as collateral. The monitoring costs of the agency relationship are higher for firms with less collateralizable assets. Consequently, collateral value is found to be a major determinant of the level of debt financing (Omet and Mashharance, 2002). From a pecking order theory perspective, firms with few tangible assets are more sensitive to informational asymmetries. These firms will thus issue debt rather than equity when they need external financing (Harris and Raviv, 1991), leading to an expected negative relation between the importance of intangible assets and leverage.

Titman and Wessels (1988), in their study mentioned that because of bankruptcy risk, managers would not likely to use debt choice. However, since larger firms have a chance to be more diversified, they have relatively little bankruptcy risk. Warner (1977) suggests that bankruptcy costs would be higher for smaller firms. Research evidences for this variable are also ambiguous (Drobetz and Fix, 2005). For example, Friend

and Hasbrouck (1988), Crutchley and Hansen (1989) and Berger et al., (1997) report a positive relationship between firm's size and leverage, whilst Feri and Jones (1979) suggest that firm's size has a significant impact on leverage even though the sectoral decisions have been observed to vary among industries. Rajan and Zingales (1995) argued that larger firms tend to be more diversified and fail less often, so size may be an inverse proxy for the probability of bankruptcy. Large firms are also expected to incur lower costs in issuing debt or equity. Thus, large firms are expected to hold more debt in their capital structure than small firms. The measure of size used in this paper is the natural logarithm of net sales similar to the approach followed by Drobetz and Fix (2005). They discuss the logarithm of total assets as an alternate; however, they accept the net sales as a better proxy for the measure of size.

Titman and Wessles (1988) and Barclay and Smith (1996) find a negative relationship between growth opportunities and the level of either long-term or total debt. Similarly, Rajan and Zingales (1995) also find a negative relationship between growth opportunities and leverage. They suggest that this may be due to firms issuing equity when stock prices are high. As mentioned by Hovakimian et al. (2001), large stock price increases are usually associated with improved growth opportunities, leading to a lower debt ratio. However, Bevan and Danbolt (2001) find a negative relationship between growth and long-term debt, but find total leverage to be positively related to the level of growth opportunities. On the other hand, Bevan and Danbolt (2001) find short-term debt to be positively related to growth opportunities.

Toy et al., (1974), Kester (1986), Titman and Wessels (1988), Harris and Raviv (1991), Bennett and Donnelly (1993), Rajan and Zingales (1995), and Michaeles et al. (1999), Booth et al. (2001), Bevan and Danbolt (2001) all find leverage to be negatively related to the level of profitability (supporting the pecking-order theory). While Jensen et al. (1992) find leverage to be positively related to the level of profitability (supporting the trade-off theory).

Morellec (2001) investigated the impact of asset liquidity on the valuation of corporate securities and the firm financing decision. The author shows that asset liquidity increases debt capacity only when bound covenants restrict the disposition of assets. Furthermore the author is saying that with unsecured debt, greater liquidity increases credit spreads on corporate debt and reduces optimal leverage. Hooks (2003) examines the determinants of the concentration of bank debt in total debt of US firms. And his result was indicating that the determinant of the concentration of debt will vary by the size of the firm and its support the view that the firm faces different debt choice as it grows. Denis and Mihov (2003) examine the firm's choice among the different sources of debt financing. And they have found that the credit quality of the issuer is the primary determinant will decide the selection of debt source. Firms with the highest credit quality borrow from public sources, firms with medium quality borrow from bank and firms with low credit quality borrow from non bank private lenders. Antoniou, Guney and paudyal (2008) investigated the choice between private (bank loan) and public debt

determinants of British and German listed companies using generalised method of movements (GMM). They have found that the debt ownership decision of listed firms is not only the result of their own characteristics, but also the outcome of legal and financial environment and corporate governance traditions in which they operate. Furthermore, the authors mention that the factors such as liquidation and renegotiation, moral hazard and adverse selection, flotation cost are found to be significantly relevant while deciding the mix of corporate debt.

The next most important aspects of debt capital management are about the structure of the debt. How much a firm should finance its debts through debenture and in debenture itself, whether firms should go for convertible debenture, secured and unsecured debenture? Hosono (2003) explores the determinants debt structure of Japanese machine manufacturing firms. He found that firms that are having high growth and less collateral security are likely to borrow from the bank rather than to issue bonds. Yaman (2004) did an analysis on how firms choose the type and structure of debt issues in dual offerings of debt and equity. Furthermore, he has analyzed the determinants of type and structure of debt included in dual offerings of debt and equity. The author finds that the firms having higher asset substitution problems are more likely to issue convertible bonds along with common stock instead of straight bond and common stock. Moyen (2007) examines the debt overhanging problem and he found that an investor will earn under invest in debt if the risk is high and vice versa. Ojah and Pillay (2009) had made a first attempt for gauging the effects of corporate public debt issuance on the debt structure,

risk profile and valuation of firms in an emerging market. Through this study they have found the financial service firms, along with government institutions are important early supporters of an organized public debt market. Firms in this market use equity, public debt and private debt funds simultaneously as need be. Moreover the study reveals that public debt-issuing firms experience significant reduction in both overall and systematic risks, and incur lower cost of capital following issuance than non- public debt issuers.

Guha-Khasnobis and Kar (2006) says that firms in India have shown a low preference towards debt capital despite its advantages. Using panel data from 450 firms during 1992-93 and 2003-04, they have identified the factors which could explain the pattern of financing of manufacturing firms in India and the key determinants of their debt structure. And find that age of the firm, long term borrowing and net sales in affecting its debt structure.

All the studies reviewed in this section clearly indicate the importance of the need fullness of thorough study on debt capital. However, none of the studies are not concentrated the specific to debt capital, and the various choices of debt capital by the companies. Moreover, these studies are not specific to any sector, size of the company and the level debt capital they are having. So we are conducting the study on sector wise moreover using quantile regression to get more accurate findings.

1.2.2 Debt maturity

Stephan et al. (2011) investigate the determinants of corporate debt maturity choice in emerging markets. Their estimates confirms that the importance of agency cost, liquidity, signalling and tax theories in a transition economy for corporate debt maturity structure. They find that creditworthiness of the firm and access to long-term financing at bond market are the key drivers of corporate debt structure. Moreover, they confirm that financial constraints play an important role in explaining the debt maturity choice. Firms with restricted access to external financing exhibit a higher sensitivity to earnings volatility and tax charges when choosing an optimal liabilities structure. While their unconstrained peers are more susceptible to underinvestment and asset substitutions issues and are also more prone to follow maturity matching. Deesomask et al. (2009) examine the firm specific and country specific characteristics of the debt maturity structure of Asia pacific region. Their results indicate that firms in this region have a target optimal debt maturity structure. The maturity structure decision of a firm is driven by both its own characteristics and the economic environment. Cai et al. (2008) investigate the potential determinants debt maturity structure of Chinese listed firms. Their empirical analysis reveals that firm size, asset maturity and the liquidity factors tend to be significant in explaining debt maturity mix, consistent with predictions of maturity theories.

Kirch and Terra (2012) try to analyze, in a focus-country setting, how firm characteristics, quality of national institutions, and country level of

financial development affect the debt maturity of firms from a sample of South American countries. Moreover, and more importantly, they are able to provide novel evidence on the question of whether financial development or institutional quality (or both) have a first-order effect on the corporate debt maturity decision. They find that there is a substantial dynamic component in the determination of a firm's debt maturity, and firms face moderate adjustment frictions toward their optimal maturities. More importantly, the level of financial development does not influence debt maturity, whereas the institutional quality of a country has a significant positive effect on the level of long-term debt in a firm's financial structure. Our results support the hypothesis that the quality of national institutions is an important determinant of corporate financing in general and of debt maturity in particular. Schmukler and Vesperoni (2006) study how financial globalization affects the debt structure in emerging economies. They find that by accessing international markets, firms increase their long-term debt and extend their debt maturity. In contrast, with financial liberalization, long-term debt decreases and the maturity structure shift to the short-term for the average firm. These effects are stronger in economies with less developed domestic financial systems. The evidence is consistent with financial integration having opposite effects on the firms that are able to integrate with world markets and obtain financing globally, relative to the firms that rely on domestic financing only. Aarstol (2000) proposes a new explanation for the inverse relationship between inflation and the maturity structure of business debt.

It rests on the empirical finding that the variability of relative price changes increases with inflation.

Demirguc-kunt and Maksimovic (1999) examines how differences in financial and legal institutions affect the use of debt and especially the choice of debt maturity by firms in a sample of 30 countries in the period 1980-1991. The sample includes both developed and developing countries as well as countries with both common-law and civil-law legal systems. They have found those systematic differences in the use of long-term debt between developed and developing countries and small and large firms. In developed countries, Firms have more long-term debt and a greater proportion of their total debt is held as long-term debt. This is true Regardless of Firm size across their sample of countries. Moreover, they find strong evidence that large firms in countries with effective legal systems have more long-term debt relative to assets, and their debt is of longer maturity. Large firms in countries with effective legal systems have lower short-term liabilities, suggesting that such firms are substituting long-term debt for short-term debt. For small firms, evidence of a relation between the effectiveness of the legal system and the ratio of long-term debt to assets is weaker. They also do not find evidence of lower short-term liabilities by small firms in countries with more-effective legal systems, perhaps because small firms tend to use less long-term debt than do large firms. The authors also find that the magnitude of government subsidies to industry is positively related to the use of long-term debt by both large and small firms.

Qiuyan et al. (2012) employs the financial engineering approach to test the influencing factors of debt maturity structure with the data of 2012 listed companies distributed in 11 industries of China, by the simulation of single equation models and simultaneous equation model, using stepwise multiple regression analysis. The result of the paper conveys the endogenous relationship between capital structure and debt maturity structure matters a lot. Therefore, when the companies consider this relationship, the short-term debt maturity will not be an effective way to solve the problem of insufficient investment. In contrast, growth opportunity and leverage rate are significant negative correlation. With the role of leverage, growth opportunity will indirectly affect the debt maturity structure.

Lopsz-Gracia and Mestre-Barbera (2011) analyses the influence of the tax effect on small and medium-sized (SME) enterprise debt maturity structure. This study builds a dynamic adjustment model which endogenous optimum structure and assumes the existence of adjustment costs. Using Spanish data, the model is estimated using a system- GMM regression to a complete panel 11,028 firms covering 1997–2004. The main results indicate that the model fits the data well and that SMEs seem to adopt an optimum debt maturity structure, which they converge to slowly due to the high adjustment costs they face. Average adjustment speed is estimated at around 37%, the equivalent of taking some 20 months to cover half the existing gap. The effective tax rate is highly

significant and both the interest rate gap and interest rate volatility also have a significant impact on debt maturity.

Hajiha and Akhlaghi (2012) test the main theories of firm debt maturity structure in an emerging economy, including agency conflict, signaling and tax theories. The paper investigates the firm specific determinants of debt maturity structure for a sample of 140 Iranian manufacturing firms listed on the Tehran Stock Exchange during the period 2001-2009. They have used random effect panel data analysis and multivariate regression for the analysis. The study provides the empirical evidence that profitability, firm size, tangibility, growth opportunity and financial leverage have significant effects on debt maturity choice. However, tax effects and business risk are not significantly related to the debt maturity structure.

Elyasiani et al. (2002) examine the determinants of corporate debt maturity on the interdependent relation between maturity and leverage. They have used both single and simultaneous equations models on debt maturity and leverage for the estimation, and defined debt maturity as maturity of bonds at issuance or the percentage of firms total debt that mature in more than three years. The study finds that the firms with grater growth opportunities have short-term debt as per single equation model, however, under the simultaneous-equations model, the negative relation between a firm's debt maturity and its growth opportunities cease to hold. Instead, it is the leverage decision that is influenced by growth

opportunities. This suggests that existing models may overestimate the effect of growth opportunities on debt maturity.

The maturity aspect of debt needs a significant attention from the firm's side because the firm has to arrange money for the redemption of the debt capital there are some studies in this regards. Esho, Lam and Sharpe (2002) studied the interrelationship between maturity and debt type decision that arises from agency and floatation cost hypothesis. Using a sample of international bounds and syndicated loans of Australian firms, the study finds the evidence that maturity has a strong direct effect on debt choice, but weak evidence that debt choice affects maturity. Terra (2009) tested the main theories of corporate debt maturity in a multi-country framework, for understanding the country specific constraints. The study finds that the determinants of debt maturity do not seem very sensitive to a country's business and financial environment. Majumdar (2010) examines the debt maturity structure decision in context of Indian corporate. The author suggests that collateralizable assets and leverage are the important determinants of debt maturity choice. Thottekat and Vij (2013) examine how the tax hypothesis determines debt maturity in the Indian corporate sector using a panel data of 266 companies drawn from BSE 500 for the period 2000-2010. They have found that the tax rate, term structure and asset variance profoundly influence the debt maturity structure in the Indian corporate sector. Thottekat and Vij (2014) studied the relation between signalling hypothesis and debt maturity. And they have found that debt maturity inversely relates to firm quality and the debt maturity choice of a firm.

The debt maturity structure has not yet received much attention in Indian context. Moreover, most of the existing studies of debt maturity structure predominantly focussed on developed countries. As India is the second biggest emerging economy after China and having a steady economic growth during the study period. However the Indian debt market still is not yet established as well as not getting much attention from the corporate sector. Banks are the major sources of debt capital for Indian companies. This would have a different implication on behalf of the rigorousness of agency theory, information asymmetries, bankruptcy and taxation. Moreover, India is a mixed economy having number of government owned or controlling companies and private sector companies. Consequently, it is exciting to see the debt maturity theories were designed especially with respect to developed economies to the companies in the emerging economies.

1.2.3 Growth and long-term debt

The trade-off theory suggests that firms with more growth opportunities have less leverage because they have stronger incentives to avoid under investment and asset substitution that can arise from stockholder-bondholder agency conflicts (Drobetz and Fix 2005). Therefore, this theory predicts a negative relationship between leverage and growth opportunities. In the similar line, Jensen (1986) free cash flow theory suggests that firms with more investment opportunities have less need for the disciplining effect of debt payments to control free cash flows. Nevertheless, the pecking order theory supports a positive

relationship. According to the pecking order theory, debt typically grows when investment exceeds retained earnings and falls when the investment is less than retained earnings. The empirical evidence regarding the relationship between leverage and growth opportunities are also mixed, suggesting the operation of both theories. For example, Titman and Wessles (1988), Barclay and Smith (1996) and Chen et al., (1997) find a negative relationship between growth opportunities and the level of either long-term or total debt. Similarly, Rajan and Zingales (1995) also find a negative relationship between growth opportunities and leverage. They suggest that this may be due to firms issuing equity when stock prices are high. As mentioned by Hovakimian et al., (2001), large stock price increases are usually associated with improved growth opportunities, leading to a lower debt ratio. However, Bevan and Danbolt (2001) find a negative relationship between growth and long-term debt, but find total leverage to be positively related to the level of growth opportunities. Growth is likely to place a greater demand on internally generated funds and push the firm into borrowing (Hall et al., 2004). According to Marsh (1982), firms with high growth will capture relatively higher debt ratios. In the case of small firms with more concentrated ownership, it is expected that high growth firms will require more external financing and should display higher leverage (Heshmati, 2002). Aryeetey et al., (1994) maintain that growing SMEs appear more likely to use external finance – although it is difficult to determine whether finance induces growth or the opposite (or both). As enterprises grow through different stages, i.e., micro, small, medium and large scale, they are also expected to shift

financing sources. They are first expected to move from internal sources to external sources (Aryeetey, 1998). Another issue is regarding the growth opportunity and its relation to the level of debt of a firm. Goyal, lehn and Racic (2002) has studied whether growth opportunity has any influence on level and structure of corporate debt in U.S defence industry. This study supports from the evidence that defence industry face an abrupt change in growth opportunities.

The studies in this area all are based on the growth opportunities and not on the absolute growth. However, our study is focussing on the absolute growth and its impact specific to long term debt on sector wise. Moreover, we are measuring the impact using internal and external factors of a firm in financial point of view.

The review of literature categorised under the issues mentioned above reveals that there is no study as such particularly concentrating on the issues dealt with this study. Most of the studies have focused mainly on profitability and the leverage issues. There are a few studies have been conducted on choice of debt and equity, debt equity and profitability, cost of debt and risk and so on. But most of the studies are not in the context of Indian corporate sector. In the era of better economic growth of our country these issues are also not being examined. And no study is found on evaluating the sector wide variation in debt choice. The present study addresses the issues regarding the debt maturity, choice of debt among: bank, non bank, public and growth opportunity and the debt policy. The availability and level of debt depend on several factors like nature of

business, the macroeconomic condition, the growth prospects and the risk taking capacity of the management. Most of the available studies have also avoided these aspects while doing the analysis. The present study has considered all these aspects for the analysis.

1.3 The Objectives of the Study

The objective of the study is to focus upon the issues associated with debt capital in the Indian corporate sector. However, in specific terms the following objectives are pursued through the study.

1. To review the trend of debt structure in Indian companies during the period 2002- 2011.
2. To examine the choice among the different kinds of debt used by the Indian companies.
3. To investigate the potential determinants of the debt maturity structure of sample companies.
4. To examine the relationship between the growth of a company and its dependence on long -term debt.

1.4 Methodology and the Sources of Data

The study is analytical as well as an empirical one. Dealing with the issues naturally entails a thorough study of capital structure, financial structure, financial planning, etc. in the context of corporate sector in general and Indian corporate sector in particular. The secondary sources of

data such as research papers, articles, case studies & text books, publications of RBI, SEBI, Capital Line database, Publications of stock exchanges and other published & unpublished documents relating to the study are considered for the study.

1.4.1 Data collection

The study is based on secondary data. The data have been collected from Capital Line data base. The data is drawn from companies' annual income statement; balance sheet; cash flow statements and fund flow statements. At present in India there are 1452 companies listed on the National Stock Exchange as on 31st October 2011 and 4928 companies listed on Bombay Stock Exchange as on 31st October 2011. Since Bombay Stock Exchange 500 index represents nearly 93% of the total market capitalization on Bombay Stock Exchange as well as it covers all 20 major industries of the economy. The study considers Standard & Poor Bombay Stock Exchange 500 index as the population. A significant percent of the total population is considered as a sample for the study. The analysis is made on the basis of sector wise as per BSE sector classification as well as the sample taken as a whole. Reserve Bank of India bulletin is used for collecting the macroeconomic variables like Gross domestic product, wholesale price index and prime lending rate, etc. The table 1.1 shows the sector wise number of companies selected for the study.

Table.1.1 The sector wise list of sample companies conceded for the study

SL.NO	Sector	No. of. Com
1	Agriculture	18
2	Capital Goods	39
3	Chemical & Petrochemical	11
4	Consumer Durables	8
5	Diversified	8
6	FMCG	22
7	Healthcare	29
8	Housing Related	36
9	Information Technology	24
10	Media & Publishing	7
11	Metal, Metal Products & Mining	26
12	Miscellaneous	12
13	Oil & Gas	20
14	Power	17
15	Telecom	11
16	Textile	10
17	Transport Equipments	23
18	**Total sample**	**321**

1.4.2 Tools and techniques

The study used the balanced panel data for the analysis. A data set contains observations on different objects studied over a period of time is called panel data. It is the combination of cross-sectional data and time series data. In balanced panel data same time period must be available for all cross-sections.

To analyze the various objectives the study proposes the panel least squares with fixed and random effects. The most commonly used ways of assessing the relationship between debt and its determinants are the static

panel data models. There are three types of panel data models: a pooled Ordinary Least Squire (OLS) regression, panel model with random effects and the panel model with fixed effects.

For testing the relevance of unobservable individual effects, we used the LM test. This tests the null hypothesis of irrelevance of unobservable individual effects, against the alternative hypothesis of the relevance of unobservable individual effects. Not rejecting the null hypothesis, we conclude that unobservable individual effects are not relevant, and so a pooled OLS regression would be an appropriate way of carrying out an evaluation of debt determinants. On the contrary, if we reject the null hypothesis that unobservable individual effects are not relevant, we can conclude that a pooled OLS regression is not the most appropriate way of carrying out analysis of the relationship between debt and its determinants.

However, there may be correlation between firms' unobservable individual effects and debt determinants. If there is no correlation between firms' unobservable individual effects and debt determinants, the most appropriate way of carrying out evaluation is by using a panel model of random effects. If there is correlation between firms' individual effects and debt determinants, the most appropriate way of carrying out evaluation is using a panel model admitting the existence of fixed effects. For testing the possible existence of correlation, we use the Hausman test. This tests the null hypothesis of non-existence of correlation between unobservable individual effects and the explanatory variables, in this

study, debt determinants, against the null hypothesis of existence of a correlation. By not rejecting the null hypothesis, we can conclude that correlation is not relevant, and a panel model of random effects is the most correct way of carrying out an evaluation of the relationship between debt and its determinants. On the other hand, by rejecting the null hypothesis, we conclude that the correlation is relevant, and so the most appropriate way to carry out an evaluation of the relationship between debt and its determinants is by using a panel model of fixed effects. In this study, we also present the evaluation of the most appropriate panel model, according to the results of the LM and Hausman tests which is consistent with the existence of first order autocorrelation. Further, unlike other studies, we have also analyzed the model of two-way effect in which we assumed that company specific and period specific effects are random as there is every possibility of the presence of both effects simultaneously.

As was already mentioned, static panel models do not allow us to analyze the possible dynamism existing in company decisions when choosing their capital structure. Next, we present the dynamic panel estimators, and their particular relevance, compared to static models, in the study of choice of company capital structure. Besides the advantages mentioned earlier, concerning the elimination of firms' unobservable individual effects, of greater control of endogenity, use of dynamic panel estimators also has the advantage of allowing us to determine the level of adjustment of actual debt towards the optimal level of debt.

However, Blundell and Bond (1998) conclude that when the dependent variable is persistent, there being a high correlation between its values in the current period and in the previous period, and the number of periods is not very high, the GMM (1991) estimator is inefficient; the instruments used to generally being weak. In these circumstances, Blundell and Bond (1998) extend the GMM (1991) estimator, considering a system with variables at level and first differences. For the variables at the level in equation (6), the instruments are the variables lagged in first differences. In the case of the variables in first differences in equation (6), the instruments are those lagged variables at level. However the GMM (1991) and GMM system (1998) dynamic estimators can only be considered robust on confirmation of two conditions: 1) if the restrictions created, a consequence of using the instruments, are valid; and 2) there is no second order autocorrelation. Therefore, to test the validity of the restrictions we use the Sargan test in the case of the GMM (1991) estimator and the GMM system (1998) estimator. The null hypothesis in the Sargan test indicates the restrictions imposed by the use of the instruments are valid against the alternative hypothesis that the restrictions are not valid. By rejecting the null hypothesis, we conclude that the estimators are not robust. Further, we also test for the existence of first and second order autocorrelation through Arellano and Bond (1991) test. The null hypothesis is that there is no autocorrelation against the alternative hypothesis being the existence of autocorrelation. By rejecting the null hypothesis of the existence of second order autocorrelation, we conclude that the estimators are not robust.

Mover over we have used quantile regression too, because standard least squares regression techniques provide summary point estimates that calculate the average effect of the independent variables on the 'average company'. However, this focus on the average company may hide important features of the underlying relationship. As Mosteller and Tukey (1977, pp266) correctly argued, "What the regression curve gives a grand summary for the averages of the distributions corresponding to the set of *x*'s. We could go further and compute several regression curves corresponding to the various percentage points of the distributions and thus get a more complete picture of the set. Ordinarily, this is not done, and so regression often gives a rather incomplete picture. Just as the mean gives an incomplete picture of a single distribution, so the regression curve gives a correspondingly incomplete picture for a set of distributions". Quantile regression techniques can therefore help us obtain a more complete picture of the underlying relationship between debt and its determinants. In our case, estimation of linear models of quantile regression may be preferable to the usual regression methods for a number of reasons. First of all, we know that the standard least-squares assumption of normally distributed errors does not hold in our database because the values of all variables in our case are not normal. While the optimal properties of standard regression estimators are not robust to modest departures from normality, quantile regression results are characteristically robust to outliers and heavy tailed distributions. In fact, the quantile regression solution $\hat{\beta}_0$ is invariant to outliers of the dependent variable that tend to $\pm\infty$ (Buchinsky, 1994). Another advantage

is that, while conventional regressions focus on the mean, quantile regressions is able to describe the entire conditional distribution of the dependent variable. Finally, a quantile regression approach avoids the restrictive assumption that the error terms are identically distributed at all points of the conditional distribution. Relaxing this assumption allows us to acknowledge company heterogeneity and consider the possibility that estimated slope parameters vary at different quantiles of the conditional distribution of all determents of debt.

The study has used STATA 11 and E-views 7 software's for doing the analysis. Tools used for different objectives have been explained in details in the respective chapters.

1.4.3 Study period

The Indian economy started showing growth after introducing the new economic policy in 1991. In true sense the economic growth of the country was significant only in the 21st century. Therefore a period of 10 years, 2001-2002 to 2010-2011 is considered. The country's Gross Domestic Product started growing more than five percent every year during the period 2001-2002 to 2010-2011. The same way the Foreign Direct Investment was above 200 billion rupees in 2001-02, and touched 2198 Billion Rupee in 2010-11. Most importantly Bombay Stock Exchange Sensex was above 10,000 points and touched 20,000 points during the study period.

1.4.4 Scope and significance of the study

The study is dealing with public limited companies listed in Bombay Stock Exchange. The banking and finance companies are proposed to be kept out of the scope of the study. Foreign companies also not considered for the study. Companies incorporated in pursuance with the Indian Companies Act and whose registered office is situated in India is only considered. To analyses the financial data of selected companies a period of ten years from 2002-2011 is taken into consideration.

Studies relating to debt capital in the corporate sector are welcome since it would amply enrich the empirical aspects of the subject. In regards to the Indian corporate sector, a lot of advanced and comprehensive studies have been undertaken by different researchers and institutions regarding the debt to equity and capital structure. Unfortunately, unlike the other problems, the debt capital has not been able to draw the attention of researchers to any noticeable extent. The brief survey of the existing literature on different issues associated with the Indian corporate sector indicates that there is no single comprehensive study on the proposed issue. In specific terms, the present study occupies significance, in view of the fact that no such study has ever been attempted so far, with reference to debt capital in the Indian corporate sector. More importantly considerable expansion has taken place in the Indian corporate sector in recent years. Therefore, the issues like the trend of debt structure, composition of debt, determinants of debt maturity, and dependents on long -term debt, etc. cannot be ignored but requires special attention through in depth study of the issues. A comprehensive study

incorporating the issues associated with debt capital in the Indian corporate sector is the need of the hour.

1.5 Contribution

The present study gives a sketch of debt and liquidity position of Indian corporate sector in sector wise as well as sample companies taken as a whole. The study may help the investors for making the right choice of investment. It may provide them the basic idea about the debt level and the leverage position of the Indian companies in sector wise. It may help them to choose the safest sector in India to invest. This work will also helpful for the rating agencies and international financial institutions to rate the Indian corporate sector. The focus of the study will be helpful to them to give signals to investors and the governments on the liquidity positions. The work may give clear indication to the financial institutions mainly corporate money lenders about the preference of various types of debt capital by the companies in sector wise. The policy makers will get an idea about the role of commercial banks pertaining to issue of debentures, short-term and long-term loans etc, by the Indian companies.

The study gives the status of the Indian debt market to the Government of India, Indian debt market are more or less dependent on the commercial banks. A small change in the banking sector will make a significant change in Indian companies. To avoid that and make Indian companies more independent. Government should take some policy

decision. Moreover, this study contributes to the various market regulators of the country for rigid policy making to ensure safety.

It contributes to the academic society by giving a nutshell of the status of debt capital in Indian companies in sector wise. Moreover, this study analysis the debt capital determinants in sector level with the help of quantile regression. So it fills the research gap, giving deeper determinants of debt capital of Indian companies. Moreover, it provides the details of preference of debt capital of Indian companies in sector wise, determinants of debt maturity, the relationship between growth and long-term debt.

1.6 Organization of the Study

The discourse is divided into six chapters, including the Introduction and Conclusion. The subject matter is introduced in chapter-I. Literature review, objectives, methodology, scope, etc. also discussed in chapter-I. The debt structure in Indian companies is analysed in chapters II. The choice among the different kinds of debt used by the Indian companies is examined in chapter-III. The potential determinants of debt maturity of sample companies and, the relation between the growth of a company and its dependents on long -term debt are reviewed in chapter-IV and V respectively. Conclusion and suggestions are offered in chapter-VI.

1.7 Chapter Summary

The first chapter gives the brief introduction to the title followed by literature survey and research gap. The study has framed four objectives based on the literature. Then gives a brief idea on the methodology used for the analysis and the scope of the study.

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CHPTER II

DEBT STRUCTURE OF INDIAN COMPANIES

2.1 Introduction

Debt is a part of capital and it is a part of the capital structure of every company. The level of debt in capital structure will vary from Companies to company and industry to industry. As such there is no such theory explaining the corporate debt structure. However, there are quite number of study and theories of capital structure of corporations. Most of the theories say that cost and benefit associated with the equity and debt will determine the capital structure. The various sources of debt capital are banks, non bank financial institutions, public, government, group of companies and foreign investors. And it is in many forms as Bonds, debenture, loans and deposits, etc. The most commonly used debt capital is bank loan followed by debenture and bonds. The major theories that explain the choice of capital structure are Trade-off theory and pecking order theory the other theories like Net Income approach (NI), Net

Operating Income approach (NOI) and Modigliani & Miller (MM) theory explains how the proportion of debt and equity affect the total valuation of the firm. According to trade off theory firms choose the level of debt - equity decision as trade-off between the interest Tax shield and cost of financial distress. As per pecking order theory the firm uses first internal capital to first, then move to debt fund and on final stage it will go for equity.

Debt capital is the money borrowed from external sources having a fixed rate of interest and maturity period. Debt capital can be broadly divided on the basis of term of maturity and security offered *On the basis of maturity* there is short-term and long-term debt. Short- term debts are those which are having a maturity period less than or up to one year. A debt having a maturity period more than one year is called long -term debt. *Security offered* there is secured and unsecured debt. Secured debts are those attached with any collateral security or fixed assets of the firm. And unsecured debts are those which do not offer any security. In simple word debt capital structure means the combination of various kinds of debt used by the firm in their capital structure as short- term and long-term, secured and unsecured. Debt capital structure means the proportion of secured and unsecured debt in the total debt capital of the company.

According to the nature of debt, it can be classified in two secured debts and unsecured debt.

Secured debt: A secured loan is a loan in which the borrower pledges some asset as collateral for the loan, which then becomes a

secured debt owed to the creditor who gives the loan. The debt is thus secured against the collateral — in the event that the borrower defaults, the creditor takes possession of the asset used as collateral and may sell it to regain some or the entire amount originally lent to the borrower.

Unsecured debt: it refers to any type of loans or general obligation that is not collateralised by a lien on specific assets of the borrower in the case of a bankruptcy or liquidation. In the event of the bankruptcy of the borrower, the unsecured creditors will have a general claim on the assets of the borrower after the specific pledged assets have been assigned to the secured creditors, although the unsecured creditors will usually realize a smaller proportion of their claims than the secured creditors. In other words, it is a form of debt for money borrowed on which specific assets have been pledged to guarantee payment. Unsecured debt: a form of debt for money borrowed that is not backed by the pledge of specific assets.

2. 2 Debt to Equity Ratio

The table 2.1 shows the level of debt in the capital structure of companies in various sectors. FMCG, media& publishing and telecom sectors shows the level of debt capital in the capital structure is increasing. However the overall debt shows it declining. Consumer durable and textile sectors are having debt equity ratio more than 1. The companies in this sector are highly levered companies. Agriculture, diversified and housing related sectors are having debt equity ratio more than 0.8. These sectors are also having levered companies. The sectors

such as miscellaneous, oil & gas, power, telecom and transport equipment having a debt equity ratio more than 0.5. These sectors have more than average debt in the capital structure. However, capital goods, chemical & petrochemicals, FMCG, healthcare, information technology, media & publishing and metal, metal products & mining sectors are having debt equity ratio less than 0.5. Moreover information technology sectors have the lowest debt equity ratio 0.18. The overall capital structure of various sectors confirms that most of the sectors are having low levered companies. To get a better picture of the status of debt capital in Indian companies we have checked the trend of debt structure of Indian companies in sectors wise as well as overall sample.

Table.2. 1 Debt to equity ratio of various sectors

SL.no	Sector	No. of. Com	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
1	Agriculture	18	1.11	1.15	0.89	0.68	0.65	0.82	0.85	0.92	0.84	0.90
2	Capital Goods	39	0.78	0.64	0.43	0.45	0.33	0.38	0.32	0.42	0.35	0.35
3	Chemical & Petrochemical	11	0.99	0.83	0.69	0.70	0.62	0.60	0.64	0.72	0.52	0.45
4	Consumer Durables	8	1.67	1.80	1.82	2.17	0.94	1.44	0.85	1.06	1.03	1.05
5	Diversified	8	0.73	0.59	0.57	0.76	0.90	1.24	0.75	1.05	1.10	0.84
6	FMCG	22	0.19	0.14	0.31	0.30	0.26	0.30	0.32	0.34	0.38	0.36
7	Healthcare	29	0.37	0.36	0.35	0.50	0.63	0.57	0.48	0.57	0.41	0.34
8	Housing Related	36	1.62	1.66	1.49	1.40	1.24	1.19	0.88	0.92	0.83	0.86
9	Information Technology	24	0.05	0.05	0.06	0.05	0.05	0.09	0.18	0.20	0.22	0.18
10	Media & Publishing	7	0.11	0.13	0.17	0.27	0.46	0.28	0.32	0.34	0.43	0.38
11	Metal,Metal Products & Mining	26	1.37	1.41	0.92	0.57	0.49	0.50	0.43	0.50	0.47	0.47
12	Miscellaneous	12	1.39	1.11	1.09	0.63	0.63	0.72	0.72	0.91	0.69	0.63
13	Oil & Gas	20	0.66	0.50	0.51	0.44	0.52	0.52	0.54	0.63	0.54	0.54
14	Power	18	0.68	0.68	0.63	0.60	0.58	0.62	0.53	0.64	0.63	0.69
15	Telecom	11	0.29	0.20	0.28	0.56	0.53	0.50	0.49	0.41	0.33	0.61
16	Textile	10	1.01	0.94	0.83	0.89	0.92	1.02	1.07	1.19	1.22	1.04
17	Transport Equipments	23	0.68	0.56	0.44	0.54	0.51	0.47	0.52	0.63	0.55	0.50
18	Total sample	321	0.70	0.61	0.57	0.53	0.54	0.56	0.53	0.61	0.55	0.55

2.3 Trend of Debt Structure

Based on the collected data we have examined the trend of various debt capitals with the help of a line chart. To see the trend of debt capital in Indian firms during the last decade. We have calculated the sector wise average first, and then prepared the line chart. The detailed sector wise as well as sample companies, status of debt capital trends is the following.

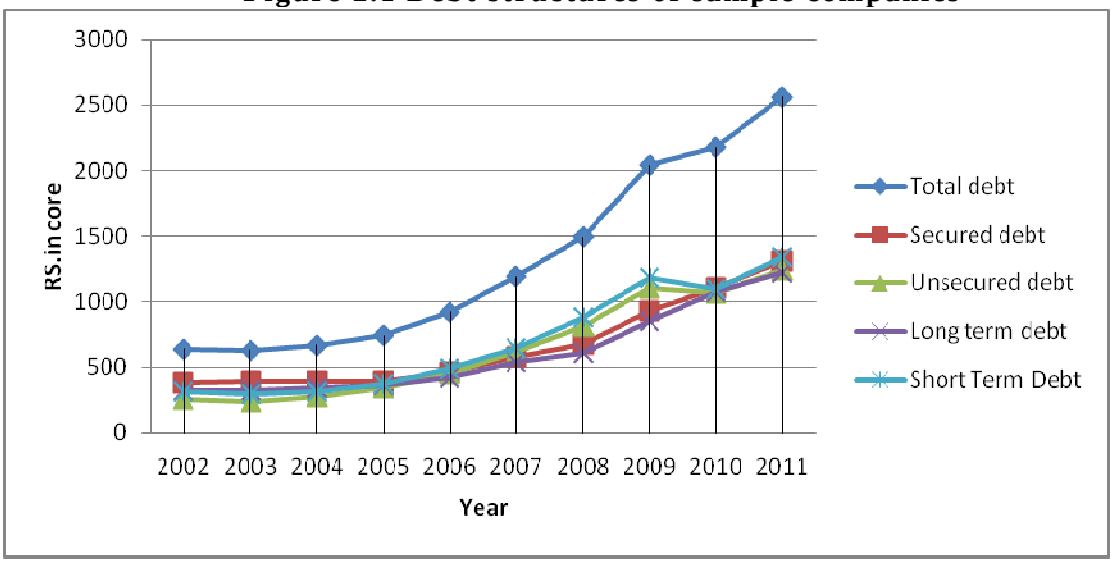
2.3.1 Sample companies:

Total debt capital is growing year by year. From 640 cores in 2002, it rises to 2562 cores in 2011. Secured debt rises from 385 cores in 2002 to 1311 cores in 2011. Unsecured debt increases from 254 cores in 2002 to 1247 cores in 2011. Long-term debt increases from 320 cores to 1221 cores in 2011 similarly short-term debt increases from 315 cores in 2002 to 1340 cores in 2011. The figure 2.1 shows the ten year trend of debt structure of sample companies taken as a whole.

The figure 2.2 shows the ten year trend of debt structure ratios of sample companies taken as a whole. The debt equity ratios had many up and downs. From 2002 – 2005 it showed a downward trend. From 1.08 times to equity it comes down to 0.50 times. However, in the following years, it showed an upward trend and again a downward movement in next year finally it's come down to 0.67 times to equity. Long-term debt is almost a straight line with minor fluctuations. From 0.43 times to total debt in 2002 it reaches to 0.42 times to equity in 2011. Short-term debt to

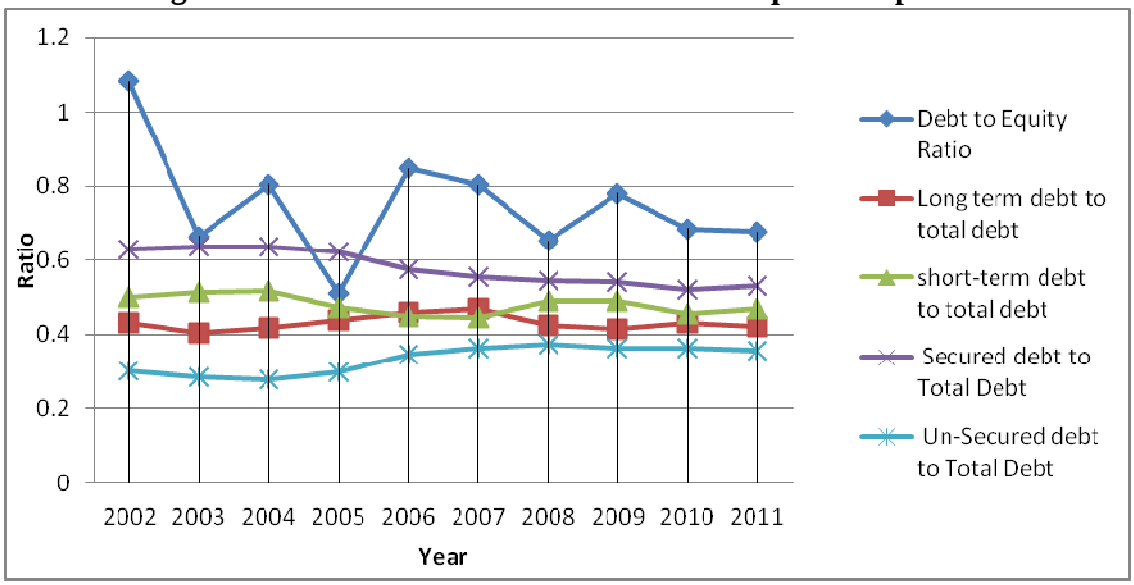
total debt shows a similar trend as long-term debt to total debt. From 0.49 times to total debt in 2002 it comes down to 0.46 times.

Figure 2.1 Debt structures of sample companies



Secured debt to total debt also not showed much variation. From 0.63 times to total debt in 2002 it comes down to 0.53 times in 2011. Unsecured debt to total debt is also almost a straight line. From 0.30 times to total debt in 2002 it increases to 0.35 times in total debt.

Figure 2.2 Debt structure ratios of sample companies



2.3.2 Agriculture sector:

The figure 2.3 shows the ten year trend of debt structure of agriculture sector. From 2002 – 2006 the total debt capital showing a slight decline and it is in and around 400 cores. But from 2006 – 2011 it is showing a sharp increase in the total debt capital. During this period the total debt capital is increased from 400 to 1400 cores. In case of secured and unsecured debt, a major part of debt capital is secured. In the initial period secured debt is showing a Down ward and unsecured debt showing an upward trend. And in 2007 both of them come closer. From 2007 -2008 in the one year period secured debt shows sharp increase and unsecured debt a sharp decline. Both secured and unsecured debts showed a proportionate increase in the level of debt capital between 2008-2010 periods

But in the financial year 2010-2011 secured once again showed a sharp increase and unsecured debt showed a declined trend. In the initial periods (2002- 2007) long-term debt was used more in the debt capital and short-term debt less. However, from 2002 -2007 year by year there a slight increase in the long-term debt. At the same time short-term debt slight decline from 2003-2005 and from 2005 on words it showed a sharp increase. It crosses the long-term debt in between 2007- 2008 financial year. From 200 cores total short-term debt increases to more than 800 cores over a period of 10 years, and the long-term debt from 300 to 600 cores.

Figure 2.3 Debt structures of agriculture sector

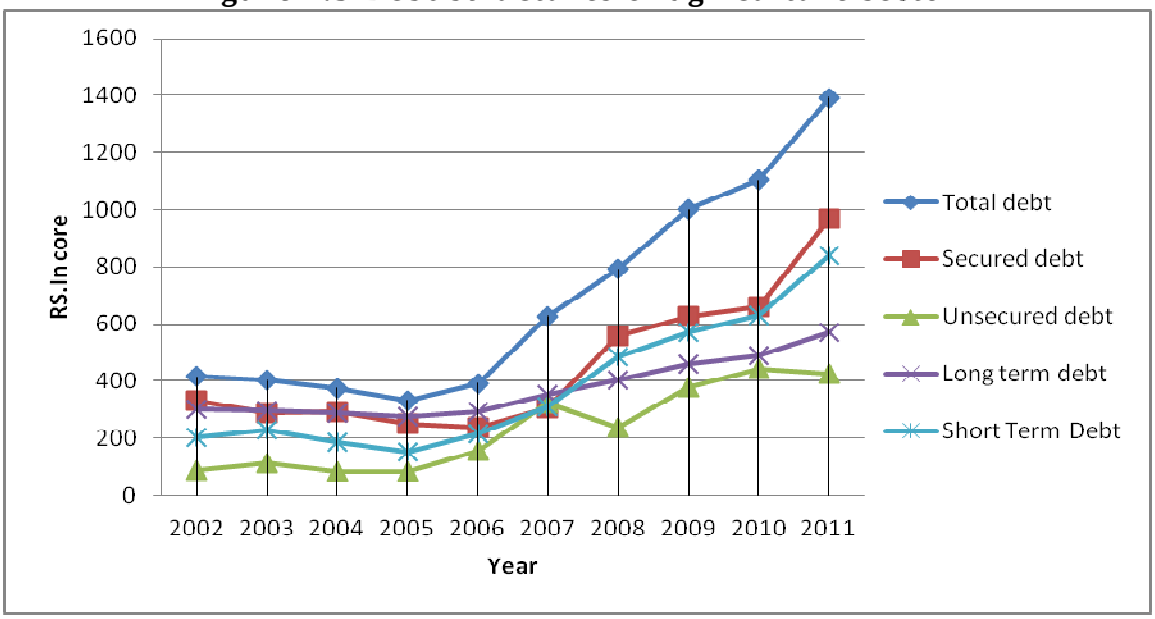
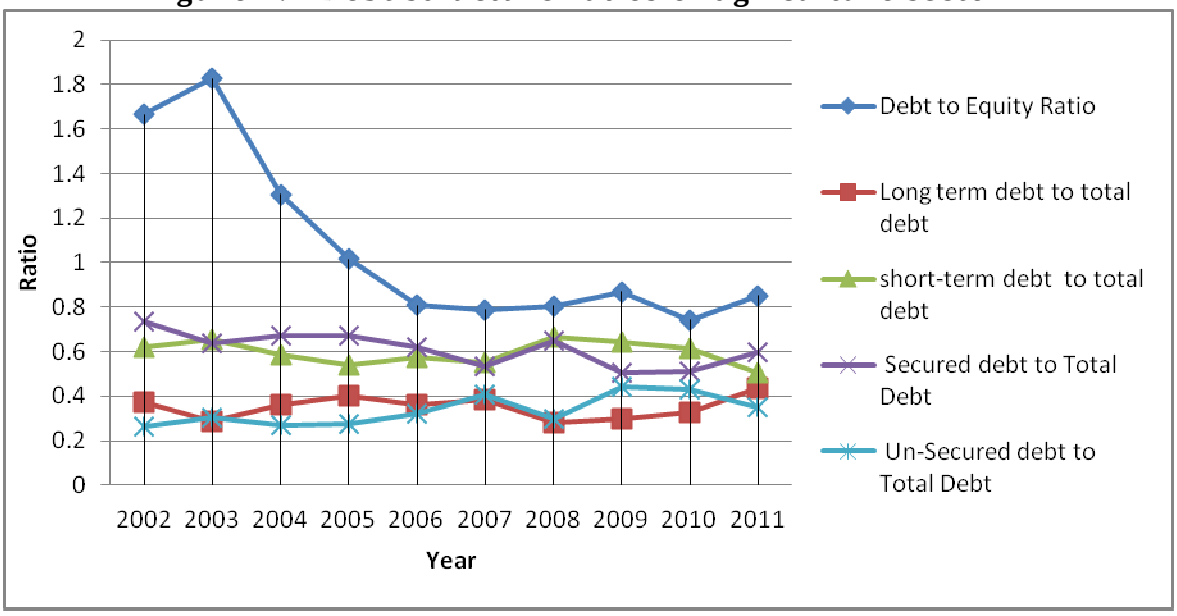


Figure 2.4 Debt structure ratios of agriculture sector



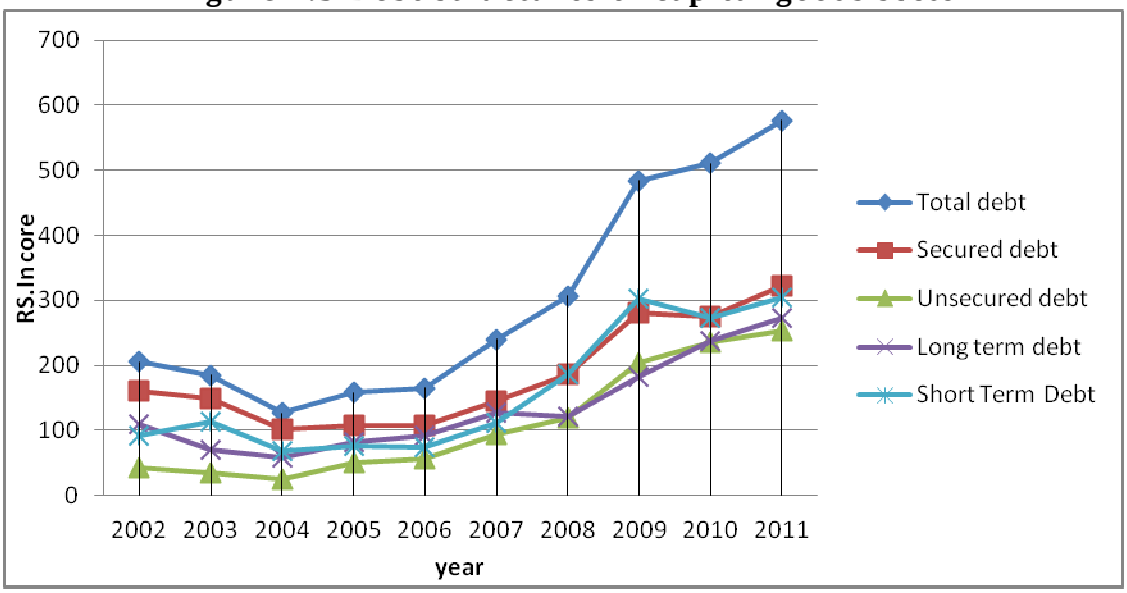
The figure 2.4 shows the various debt structure ratios of agriculture sector. The trend of debt to equity shows that a sharp decline in level of debt in proportion to equity capital from 2003- 2006 as 1.8 times to 0.8 times. However 2006- 2011 it remains same in 0.8. Long-term debt to total debt is fluctuating in between 0.3 and 0.4 similar in the case of short-term debt to total debt, it is fluctuating between 0.6 and 0.7 overall

both the ratio maintains 0.4 and 0.06 respectively. In case of secured debt to total debt shows a slight decline from 0.7 to 0.6 over a period of ten years from 2002 -2011. However the secured debt to total debt ratio is fluctuating between 0.5 and 0.7. At the same time unsecured debt to total debt is fluctuating between 0.3 and 0.4.

2.3.3 Capital Goods sector:

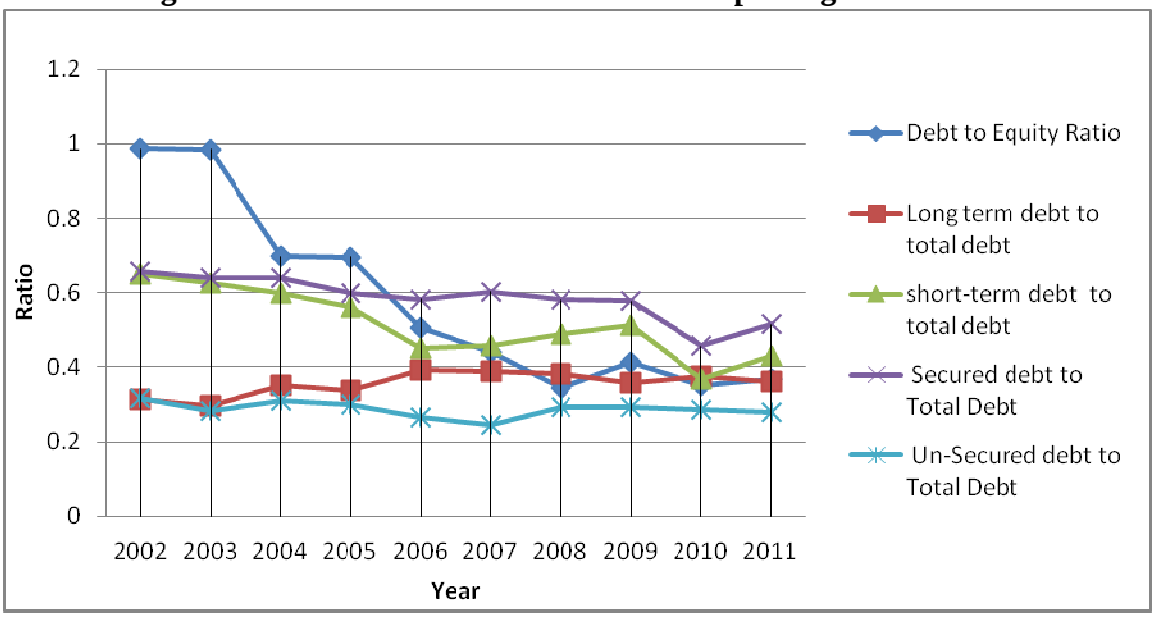
The figure 2.5 shows the ten year trend of debt structure of the capital goods sector. The total debt capital showed a downward trend from 2002- 2004 as it comes down from 200 core to 150 core. But from 2004 onward the level of debt capital stated showing an upward trend up to 2011. It rises year by year from 150- 590 core. In case of secured debt, it is declining in the initial periods 2002-2004 from150- 100 cores. 2004 – 2006 periods, it continues at 100 cores after that it started showing an increasing trend till 2011 and the total secured debt touch 300 cores. Similarly unsecured debt also showing a slight decline after that it shows an increasing trend. In capital goods sector more secured debt is employed than unsecured debt. In case long-term debt and short-term debt in the initial periods, it is going hand to hand in 2002 short-term debt bit less than 100 cores and long-term debt is a bit higher than 100 cores. At 2003 short- term debt goes up and reach slight 100 cores and long-term debt come down around 80 cores. And in 2004 both come close to 70 cores; however, in 2005 both lines touch each other and cross each other. Moreover, in 2006- 2007 long-term debt become a bit higher than short-term debt, but both shows an increasing trend

Figure 2.5 Debt structures of capital goods sector



Again from 2007 long-term debt declined and short-term debt continues showing an increasing trend up to 2011 it raises as much as 304 cores from 73 cores. At the same time long-term also started showing an increasing trend from 2008 to 2011 period; it increases from 120 cores to 272 cores. This sector uses a more short-term debt than long-term debt.

Figure 2.6 Debt structure ratios of capital goods sector



The figure 2.6 shows the ten year trend of debt structure ratios of capital goods sector. 2002 -2003 period the debt equity ratio is almost 1. From 2003- 2004 it sharply declined to 0.69 and remain unchanged for a year. Again from 2005 on words, it started to decline sharply up to 2008 to 0.35. And for the next three years, it maintained the same level with slight variations. Long-term debt to total debt is showing a slight increase from 0.31to 0.39 periods between 2002 – 2006 after that it maintains the same ratio up to 2008 then there again a slight decline to 0.36 through the study period. Overall short-term debt to total debt is showing a decline trend. It declined from 0.65 in 2002 to 0.45 in 2006. Then in shows a slight upward trend and touched 0.51 in 2009 and again come down to 0.43 in 2011. Secured debt to total debt ratio is not shown much fluctuation from 2002 to 2011. But it is showing a downward trend, as the ratio come down from 0.65 to 0.51.

2.3.4 Chemicals & petrochemicals sector:

The figure 2.7 is describing the ten year trend of debt structure in Chemicals & petrochemicals sector. From 2002-2004 total debt capital showed a downward trend as it falls from 400 cores to 300 cores. But from 2004 – 2009 the debt capital showed an upward trend, it grows as many as 687 cores. Then in 2010 it again reduced to 600 cores and maintains the same level for the next period also. In the initial period of the study secured debt is showing a downward trend at the same time unsecured debt showing an upward trend and its cross each other in the year 2005. Secured debt falls from 279 cores in 2002 to 164 cores in 2006 after that

in shows a slight upward trend and maintains the same level around 200 cores to the rest of the study period.

Figure 2.7 Debt structure of chemicals & petrochemicals sector

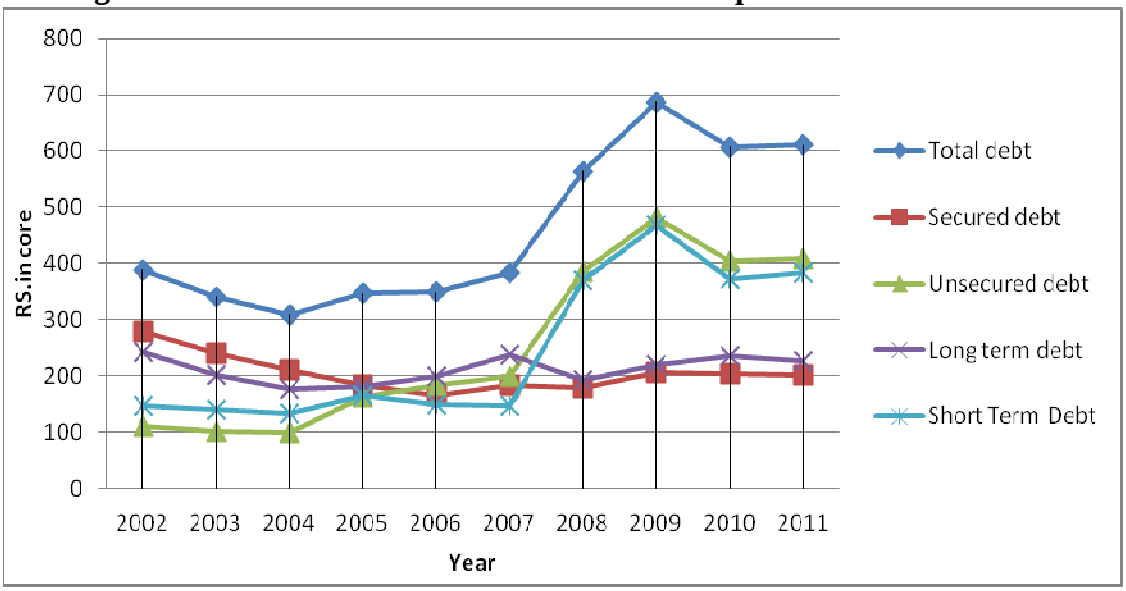
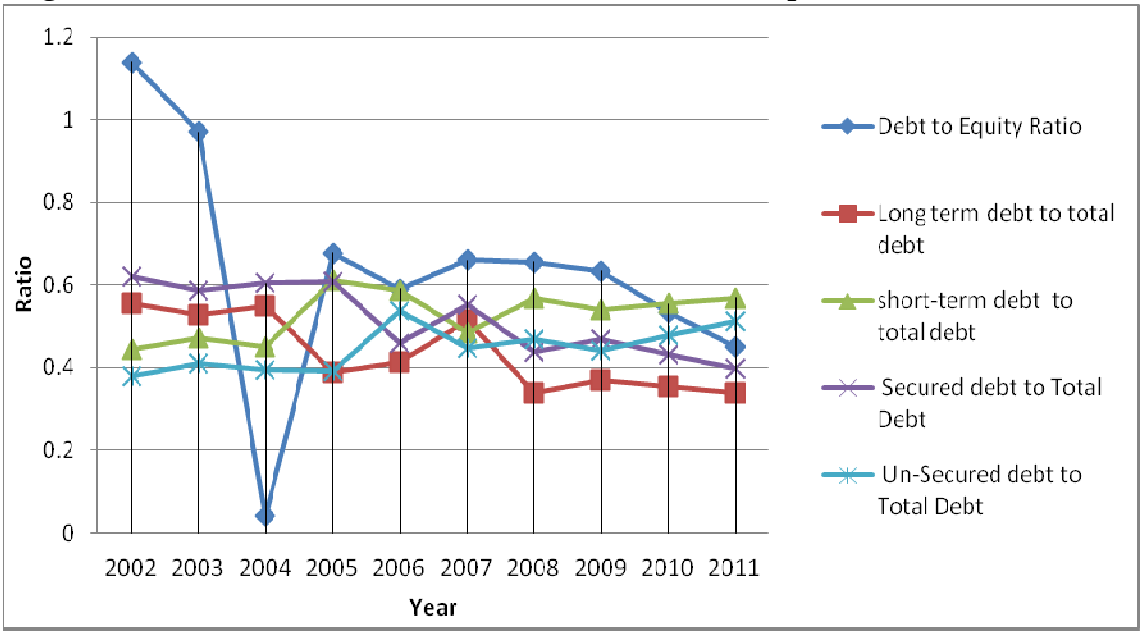


Figure 2.8 Debt structure ratios of chemicals & petrochemicals sector



From 2004 onwards unsecured debt started growing and there is a sharp rise between 2007-2009 periods. It grows from 99 cores in 2004 to 481 cores in 2009 more than secured debt. Then 2010 fell down to 400

cores and then not much change. Long-term debt showed a minor fluctuation in around 240 to 200 cores throughout the study period. At the same time short-term debt shows not much variation up to the period 2007. In 2007- 2009 periods, it grows sharply from 145 cores to 467 cores, then fall down to 372 cores in 2010 then again a slight increase to 384 cores in 2011.

According to the figure 2.8 Debt to equity ratio sharply declines from 1.13 to 0.04 in 2002 2004 period. In 2004- 2005 it rises from 0.04 to 0.67 and maintain with a little fluctuation up to 2009. From 2009 on words, it sated decline and reach 0.45 in 2011 overall the debt equity ratio showed a downward trend. Long-term debt to total debt overall, showed a decline trend with some up and downs. It falls from 0.55 in 2002 to 0.33 in 2011. But short-term debt showed an upward trend, it grows from 0.44 to 0.56. Secured debt to total debt shows a decline trend. It declined from 0.61 in 2002 to 0.39 in 2011. Short-term debt to total debt showed an upward trend, it rises from 0.38 in 2002 to 0.51 in 2011.

2.3.5 Consumer durables sector:

Total debt capital, secured and unsecured debt, long-term and short-term debt all the debt capital shows a similar trend in the case of consumer durable sectors. Total debt capital shows a sharp increase from 2005 on words, it rises to the extent that 198 cores from 2002 to 2111 cores in 2011. Secured debt increases from 120 cores in 2002 to 1290 cores in 2011. Unsecured debt increases from 78 cores to 871 cores. Long-term debt increases from 110 cores to 916 cores and short-term debt

increases from 87 cores to 1195 cores in the study period. The figure 2.9 shows the graphical representation of ten year trend of debt structure in the consumer durable sector

Figure 2.9 Debt structure of consumer durables sector

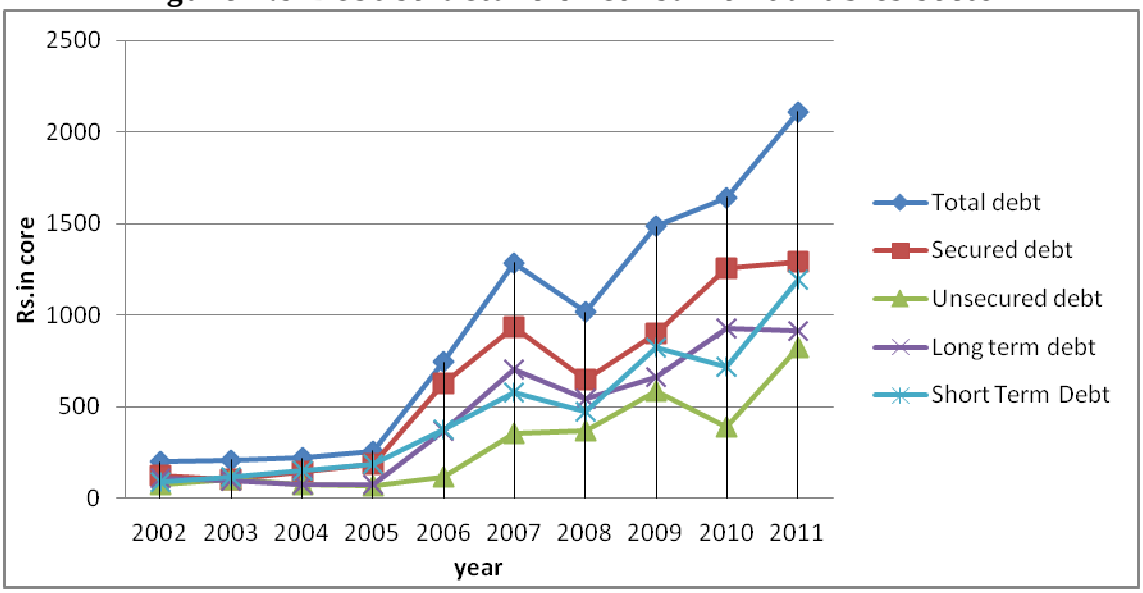
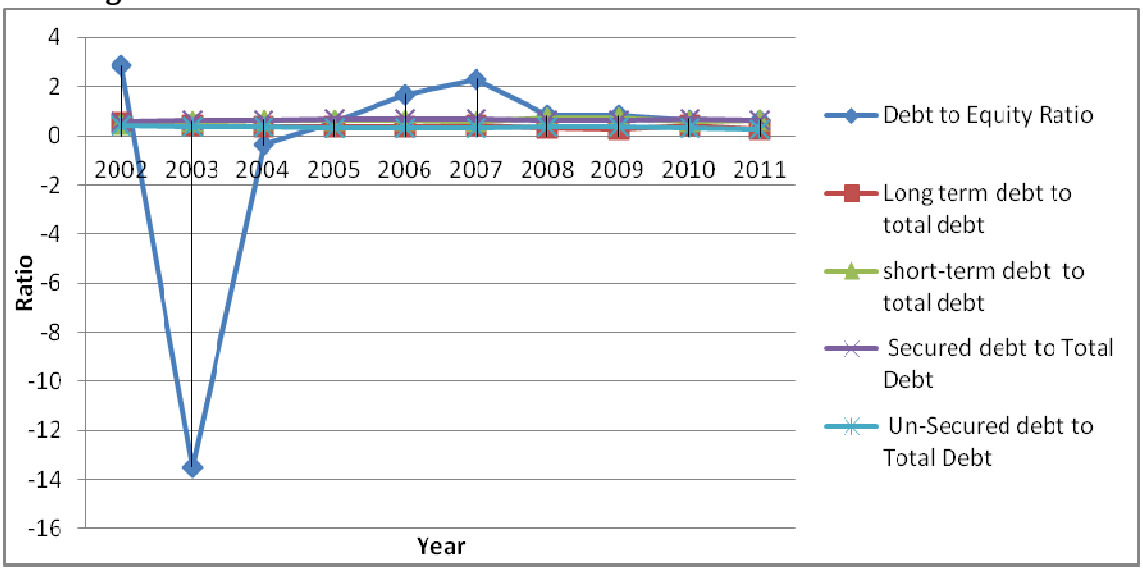


Figure 2.10 Debt structure ratios of consumer durables sector



Debt to equity ratio in 2002 – 2004 periods went to negative. It falls from 2.86 to -13.48 in 2002 -2003 and then increase to -0.38 in 2004. From 2003 onwards it increases sharply up to 2007 as it reaches again 2.2

equity capital. From 2007 onwards it shows downward trend and in 2011 the ratio comes down to 0.64 of equity capital. Long-term debt to total debt showed a downward trend, it comes down from 0.51 in 2002 to 0.24 in 2011. Short-term debt to total debt is showing an upward movement in year by year. As it increases from 0.48 in 2002 to 0.72 in 2009, then it is declining to 0.62 in 2011. Secured debt to total debt fluctuate the entire study period between 0.58- 0.69. Unsecured debt to total debt showing a downward trend, it slips from 0.41 in 2002 to 0.24 in 2011. The figure 2.10 shows the graphical representation of ten year trend of debt structure ratios in the consumer durable sector.

2.3.6 Diversified sector:

This sector also shows the similar trend like consumer durables. Secured and unsecured debt, long-term and short-term debt all the debt capital shows a proportionate flow along with total debt capital. From 2002- 2003 there is a slight decline in the total debt capital, secured and unsecured debt, short-term and long-term debt. But 2003 in words up 2010 all the debt capital increases and in 2011 all started showing a downward trend. Overall the total debt grown from 285 cores to 1313 cores, secured debt raises 234 cores to 642 cores; unsecured debt rises from 50 cores to 670 cores, long-term debt increases from 164 cores to 668 cores and short-term debt e rises from 121 cores to 644 cores during the study period. The figure 2.11 shows the ten year trend of debt structure of the diversified sector.

Figure 2.11 Debt structure of diversified sector

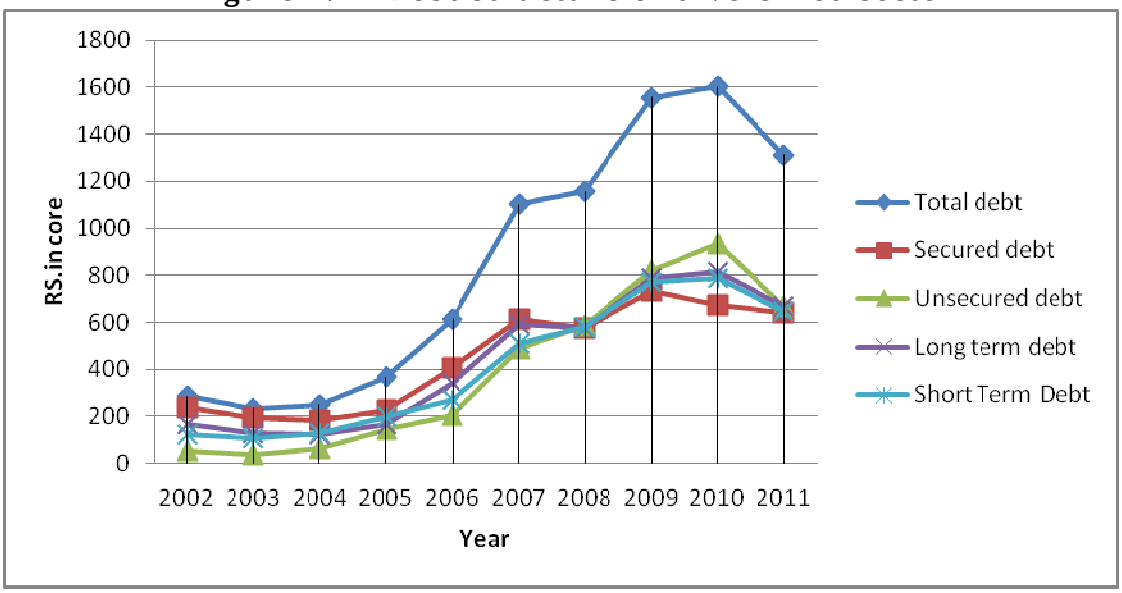
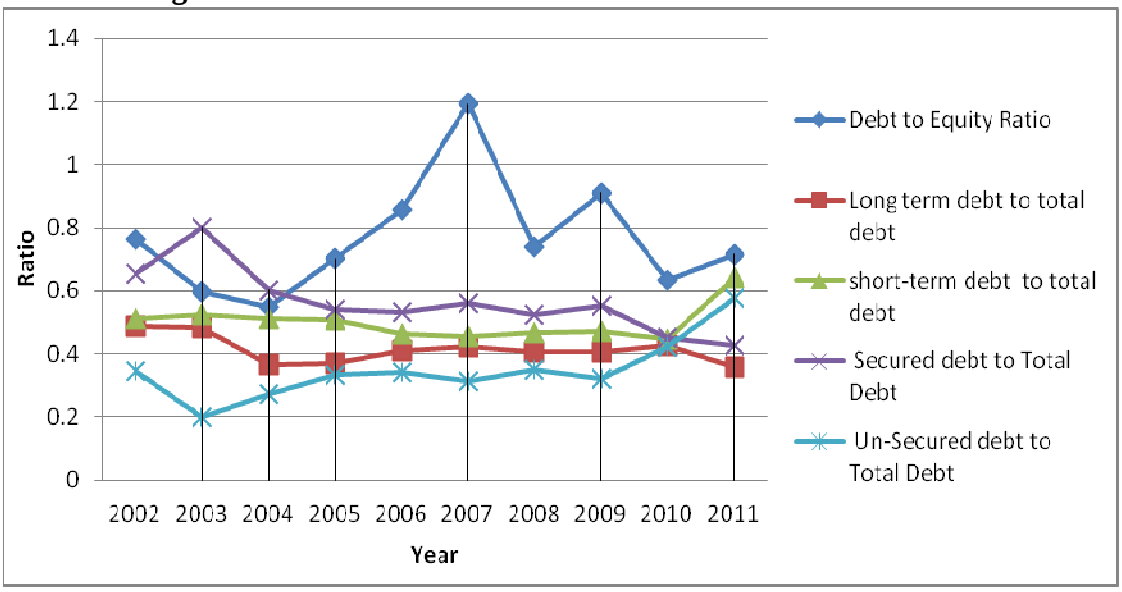


Figure 2.12 Debt structure ratios of diversified sector



Debt equity ratio showed a declining trend in the initial period, it falls from 0.76 in 2002 to 0.54 in 2004. After that it showed a sharp increase, the ratio went up to 1.19 in 2007. Again, it comes down to 0.71 in 2011. At the end of the ten year period the ratio does not have much change. Long-term debt to total debt maintained a same level with minor

fluctuations in the study period. However, it declined from 0.48 in 2002 to 0.35 in 2011. Short-term debt to total debt not fluctuate much between the period 2002-2005 as it maintain 0.5 from 2005 onwards it started declining slightly and reach 0.44 in 2010. But in 2011 it sharply increases to 0.64. Secured debt to total debt shows a downward trend from 2003 on words. Unsecured debt to total debt shows an immediate downfall from 2002- 2003. From 2003 onwards shows an upward trend. It rises 0.19 in 2003 to 0.57 in 2011. The figure 2.12 shows the ten year trend of debt structure ratios of the diversified sector.

2.3.7 FMCG sector:

The figure 2.13 represents the trend of the FMCG sector. With the total debt capital all the categories of debt capital show a proportionate increase over the study period. Total debt capital increase from 104 cores to 681cores, secured debt rises from 60 cores to 446 cores, unsecured debt increases from 36 cores to 223 cores, long-term debt grown from 42 cores to 374 cores and short-term debt rises from 61 cores to 306 cores.

Debt to equity ratio is showing a downward trend with fluctuations in year by year. But overall it declined from 1.06 in 2002 to 0.61 in 2011. Long-term debt to total debt is fluctuating year by year but not making many deviations Debt to equity ratio is showing a downward trend with fluctuations in year by year. But overall it declined from 1.06 in 2002 to 0.61 in 2011. Long-term debt to total debt is fluctuating year by year but not making many deviations.

Figure 2.13 Debt structure of FMCG sector

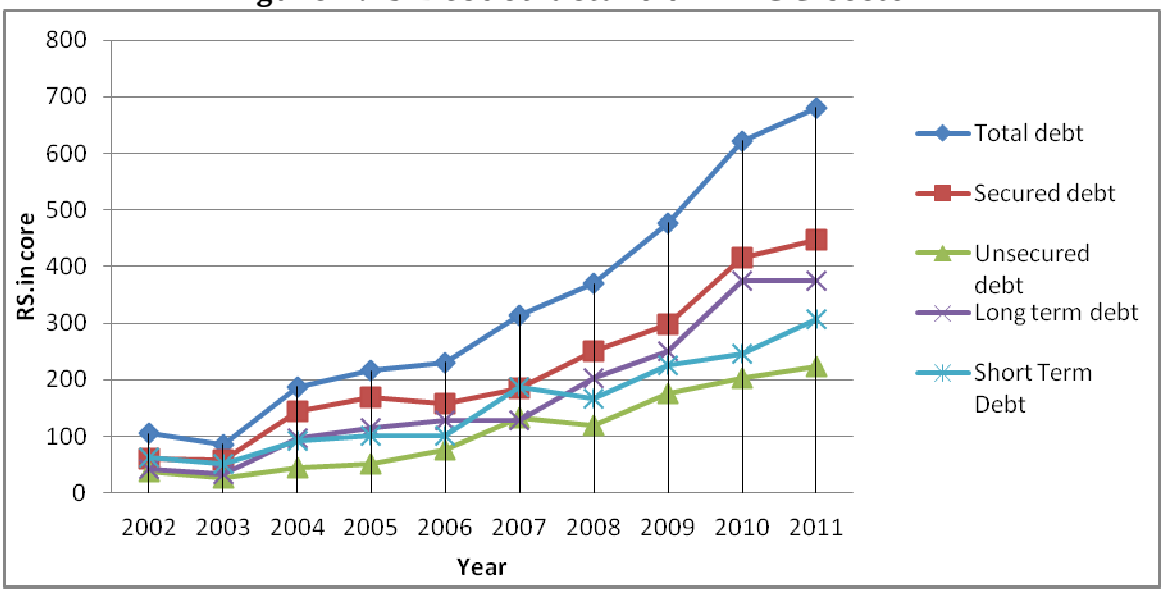
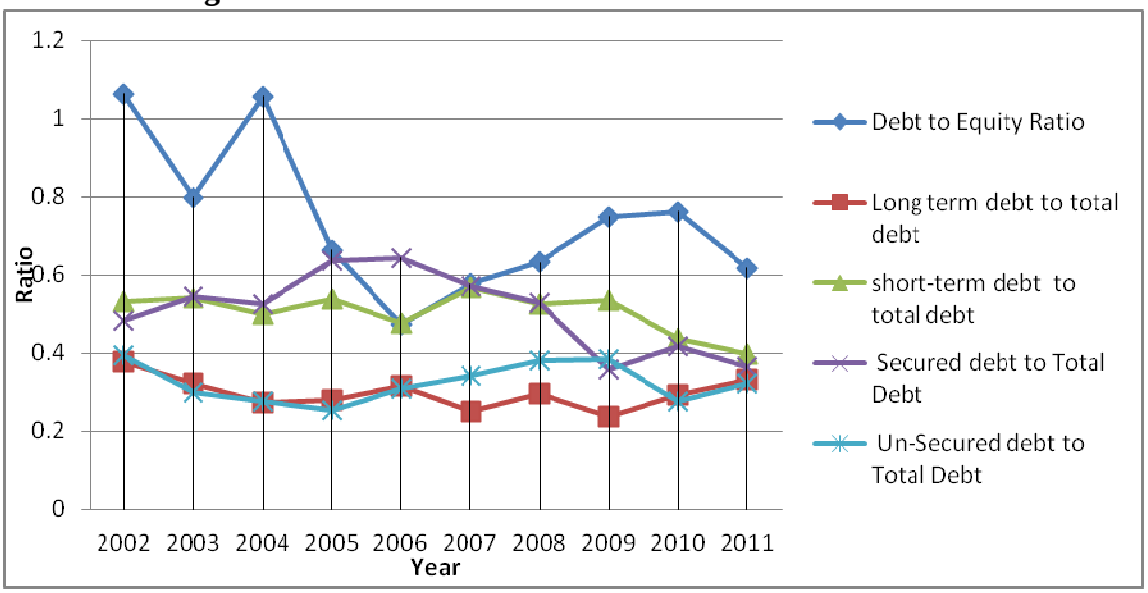


Figure 2.14 Debt structure ratios of FMCG sector



In 2002 it was 0.37 and at the end of the study period after a lot of fluctuations it reaches 0.33. Short-term debt to total debt also in the similar to long-term debt in 2002 it was around 0.53 and then it shows downward trend in the following years and showed upward movement and

reaches again 0.53 in 2010. But after that it declined to 0.39 in 2011. Secured debt to total debt shows an up word movement in the initial periods of the study. From 0.48 in 2002 it rises to 0.64 in 2006. But from 2006 on word it started declining and reaches 0.36 in 2011. Unsecured debt to total debt is not fluctuated much in the study period. During the initial periods, it declined from 0.39 in 2002 to as much as 0.25 in 2005. From 2005 on the word in started showing an upward movement till 2009 and the ratio reach 0.38 again. But then it fell down to 0.32 in 2011. The figure 2.14 shows the ten year trend of debt structure rations in FMCG sector.

2.3.8 Healthcare sector:

The figure 2.15 shows the graphical representation of ten year trend of debt structure in the healthcare sector. The entire debt capital showed an upward movement. Total debt has been increased from 123 cores in 2002 to 832 cores in 2011. Secured debt rises from 83 cores in 2002 to 402 in 2011. At the same time unsecured debt was 40 cores in 2002 less than secured, but in 2011 it reaches to 429 cores more than secured debt. Long-term debt showed an upward movement throughout the study period except in 2010. In 2010 it showed a downward trend, but again went up in 2011. During the study period long-term debt rises from 69 cores to 450 cores. Short-term debt rises from 54 cores to 381 cores in a ten year period

Figure 2.15 Debt structure of healthcare sector

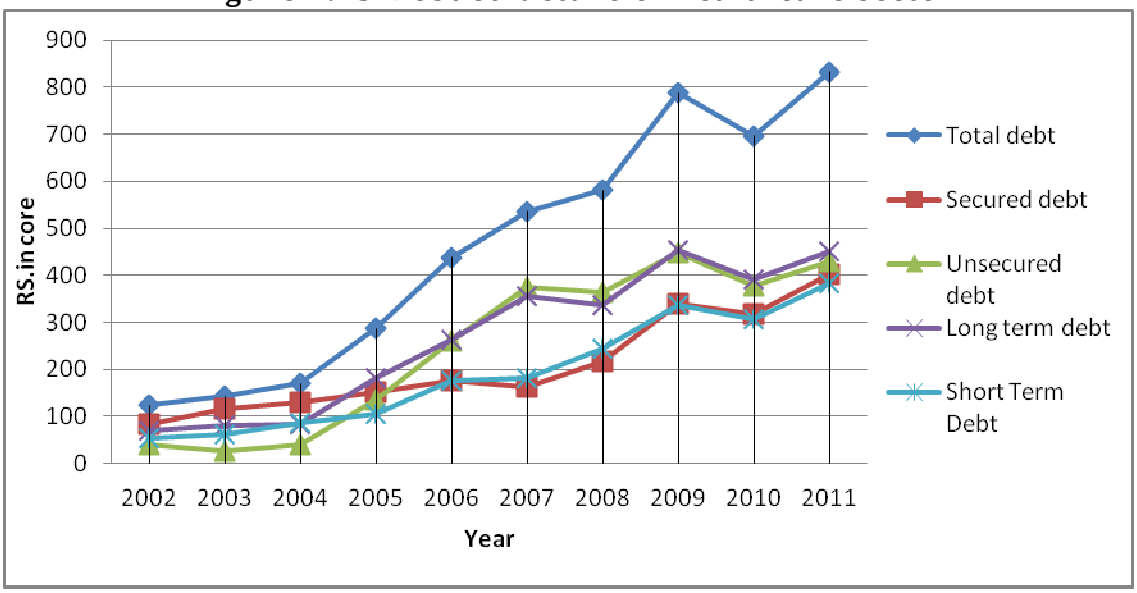
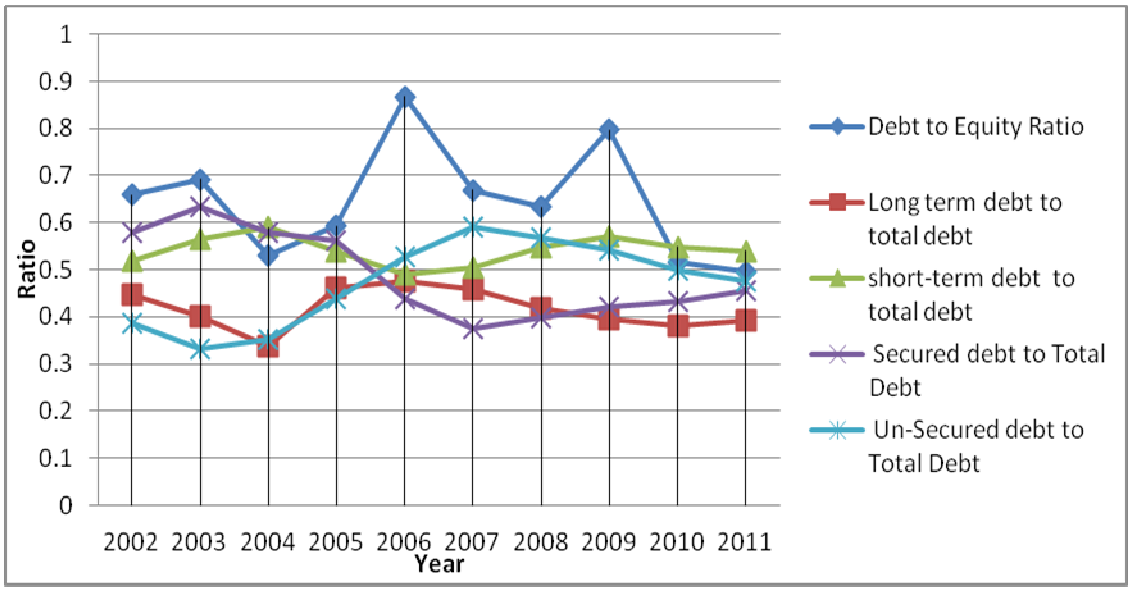


Figure 2.16 Debt structure ratios of healthcare sector



Debt to equity ratio shows a lot of fluctuations year by year. In 2002 it was 0.65 times of equity capital 2003 rises to 0.69 times. But in 2004 it reduced to 0.59 and in 2005 on word it started showing upward movement till 2006 and it reaches to 0.86. However, from 2007 again went up to 0.66 words. And overall at the end of the study period, it is 0.49 times of equity capital. Long-term debt to total debt shows the similar

trend as a debt equity ratio. 2002 – 2004 period, it is showing a downward trend, it falls from 0.44 to 0.33. But in following years, it shows an upward movement and reaches 0.47 in 2006. However, after 2006 it started showing downward trend and the ratio falls to 0.39 in 2011 after lot of up and downs. Short-term debt to total debt fluctuates between 0.50 and 0.59. In 2002 short-term debt was 0.51 times to total debt and in 2011 it 0.53 times of total debt capital. Secured debt to total debt shows a downward trend. From 0.57 to total debt in 2002 it is reduced to 0.37 in 2007. However, from 2007 on word it started showing a slight upward movement. And the secured debt recovers to 0.45 to total debt in 2011. Unsecured debt to total debt overall shows an upward trend. In 2002 it was 0.38 times of total debt and increases year by year and touched 0.59 times of total debt. Later in starting reducing and come down to 0.47 times of total debt in 2011. The figure 2.16 shows the graphical representation of ten year trend of debt structure of the healthcare sector.

2.3.9 Housing related sector:

The figure 2.17 shows the ten year trend of debt structure in housing related sector. The total debt capital with all sub categories shows an upward movement. Total debt is having a slow growth up to 2006. But from 2006 on words, it shows a rapid growth in year by year. From 328 cores in 2002 it rose to 2560 in 2011. Secured debt and long-term debt show the similar trend of total debt and it contributes more in total debt capital. From 248 cores secured debt jump to 1931 cores in 2011 and the long-term debt rose from 228 cores to 1831 cores during the study period.

Unsecured debt and short-term debt show a similar trend. Both are not showing much growth. Unsecured debt increase from 76 cores in 2002 to 627in 2011. At the same time short-term debt increases from 99 cores to 728 cores in the ten year period.

Figure 2.17 Debt structure of housing related sector

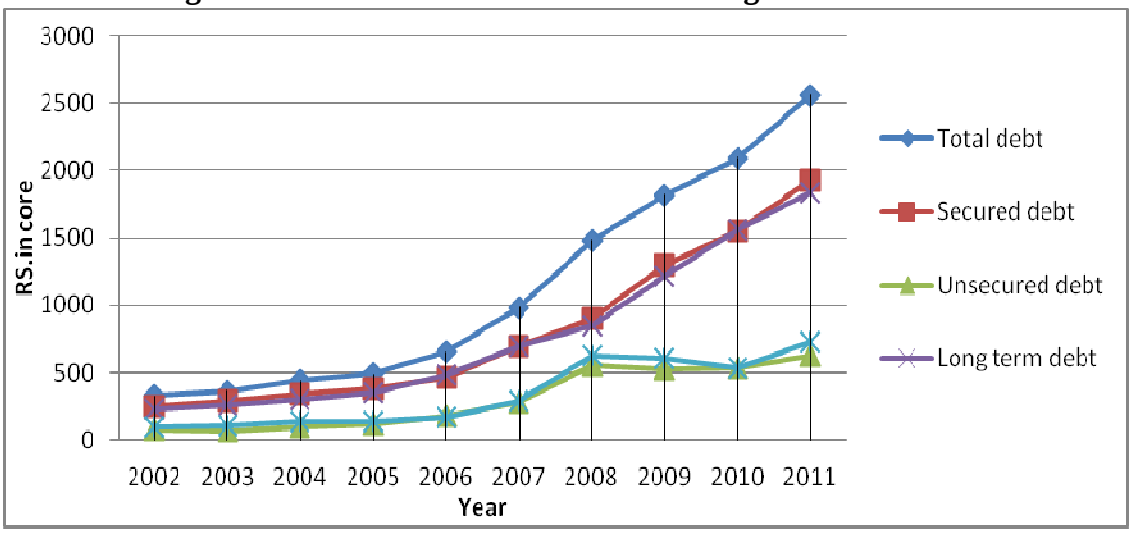
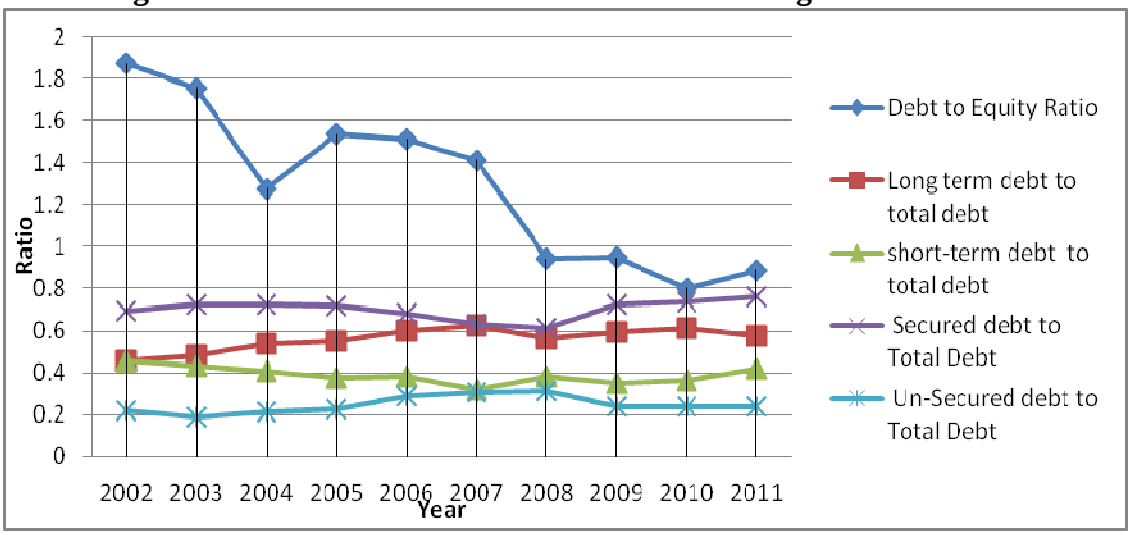


Figure 2.18 Debt structure ratios of housing related sector



Debt to equity ratio has shown a decline trend throughout the study period. It fell down from 1.87 to 0.88 to equity capital during the study period. Long-term debt to total debt shows a slight increase and not

showing many fluctuations throughout the study period. From 0.45 in 2002 to total debt the ratio increases to 0.57 to total debt in 2011. Short-term debt to total debt is almost study lined with minor fluctuations. In 2002 to the ratio is 0.45 in total debt and in 2011 it was 0.42 in total debt. Secured debt to total debt showed a steady trend in the initial periods that is 2002- 2005. From 2005 onwards started to decline slightly up to 2008. And from 2008 it started showing an upward movement till 2011. The figure 2.18 represents the ten year trend of debt structure ratios of housing related sector.

Unsecured debt to total debt is showing the similar trend like secured debt to total debt. The initial period of the study it shows a straight line after that little bit upward movement after that come to the same past level. 2002 the ratio was 0.21 in total debt and at the end of the study period, it was 0.23 in total debt. The figure 16 shows the ten year trend of debt structure of housing related sector.

2.3.10 Information technology sector:

The figure 2.19 shows the ten year trend of debt structure of information technology sector. In the initial periods of the study this sector holds a very low level of debt capital compared to other sector and it continue up to 2006. But from 2006 on words there a rapid increase in debt capital up to 2010 and in 2011 it showed a declining trend. The total debt was 21.50 cores in 2002 and 48 cores in 2006 then it rises to 588 cores in 2011. Secured debt and long-term debt show the same trend.

Secured debt is i17. 7 cores in 2002 and in 2008 it becomes 28 cores, reaches 187 cores in 2011. Same time long-term debt was 14 cores in 2002 and in 2006 it has grown to 23 cores and end up with 2011 as 173 cores. Unsecured debt and short-term debt also show a similar trend like secured and long-term debt. Like other debts the initial period, both are not changed much. After 2006 it showed a sharp increase up to 2010 and in 2011 it showed a decline trend. But overall it rises. From 3.7 cores unsecured debt increase to 25 cores in 2006 and rises to 444 cores to 2010 and then come down to 401 cores in 2011. Similarly, short-term debt was 7.4 cores in 2002 then increase to 25 cores in 2006 and then again grown to 453 cores in 2010 and decline to 414 cores in 2011.

The figure 2.20 shows the trend of debt structure in the information technology sector. Debt to equity ratios shows a lot of fluctuations in this sector. Overall, it shows an upward trend during the study period. In 2002 debt capital was 0.19 time of equity capital, and then it went up in the following years and again decline and reached 0.19 in 2006. Then from 2006 it started showing upward trend and touched the debt capital as 0.33 time of equity capital in 2009. But from 2009 it started declining and become 0.29 times of equity capital. Long-term debt to total debt reaches the same position where it started in 2002 after a lot of fluctuations. It was 0.36 times to total debt in 2002 and increases to 0.53 times of total debt in 2007 and then decline to 25 times to total debt in 2010, then increases to 0.31 times in 2011. Short-term debt to total debt also shows a similar trend. In 2002 it was 0.46 times to total debt and then increases to

0.48 in 2003. After that it declined in the following years and reduced to 0.34 times total debt in 2007. From 2007 onward it started showing upward movement at touched in 2009. Then again fell down to 0.43 times to total debt in 2011. Short-term debt to total debt crosses the long-term debt to total debt at 2006 and 2008.

Figure 2.19 Debt structure of information technology sector

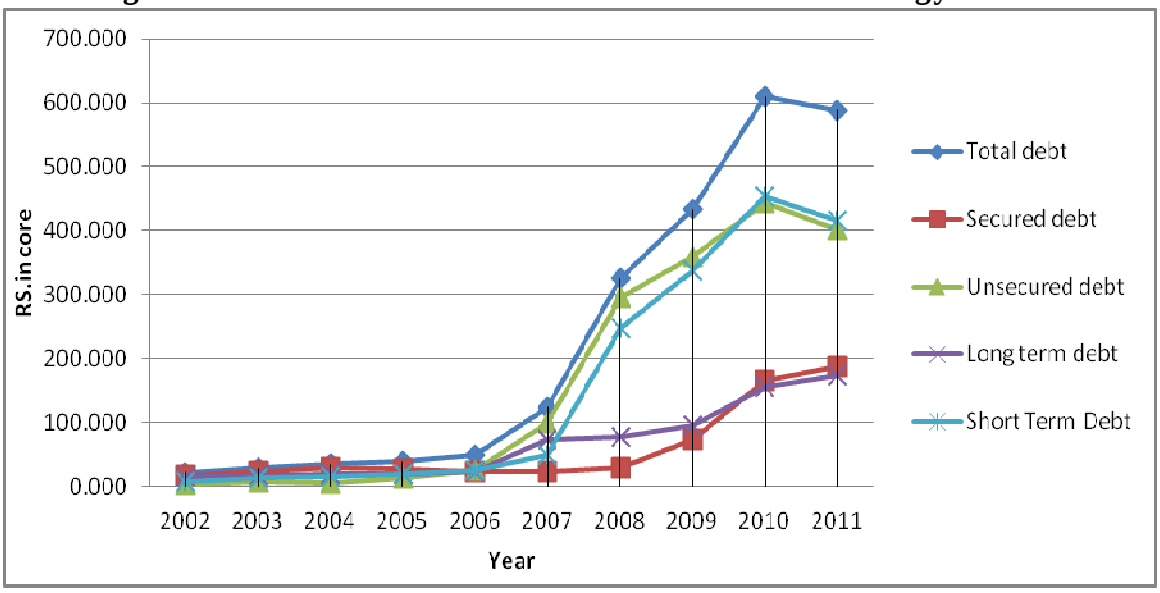
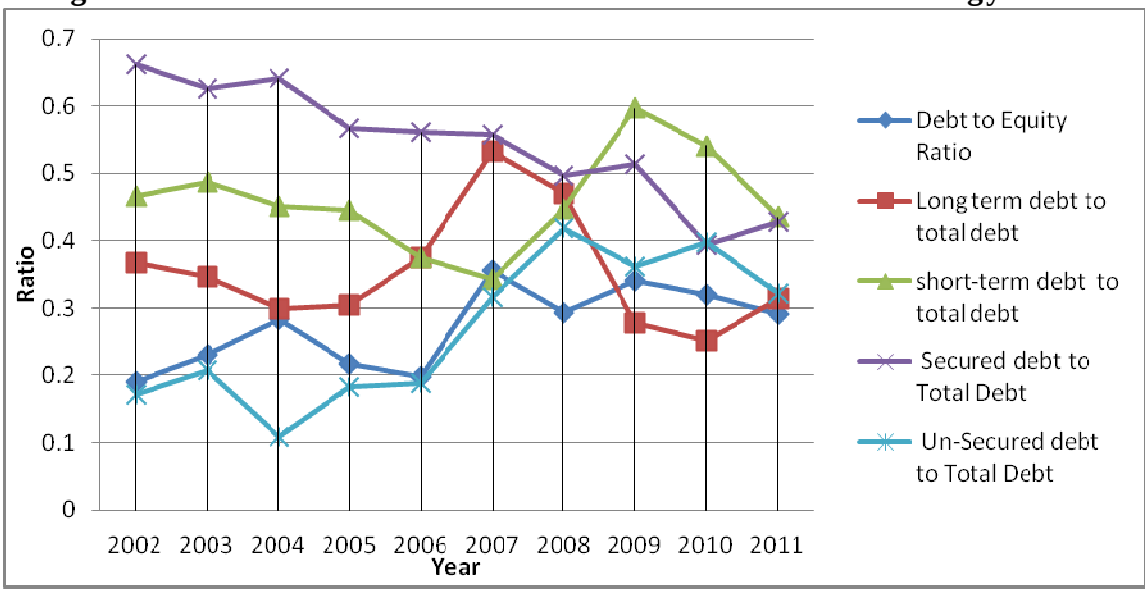


Figure 2.20 Debt structure ratios of information technology sector



Secured debt to total debt shows a downward trend. It was 0.66 times to total debt in 2002 become 0.42 times in 2011. Unsecured debt to total debt shows an increasing trend form 0.17 times to total debt in 2002 it went up to 0.32 times to total debt in 2011.

2.3.11 Media & publishing sector:

Total debt capital and all other subdivisions of debt capital show an upward trend under media and publishing sector. Total debt was 71 cores in 2002 rises to 422 cores in 2011. Secured debt from 47 cores in 2002 rises to 147 cores in 2011. Unsecured debt was 24 cores in 2002 and went up to 275 cores in 2011. Long-term debt was 32.75 cores in 2002 and grown to 160 cores in 2011. Short-term debt was 38 cores in 2002 increases to 262 cores in 2011. The figure 2.21 shows the ten year trend of debt structure in media and publishing sector.

The figure 2.22 shows the ten year trend of debt structure ratios of Media & publishing sector. The debt equity ratio shows a steady upward trend. The debt capital from 0.23 times to equity capital in 2002 rises to 1.78 times to equity capital at 2011. Long-term debt shows an up and down trend in 2002 it was 0.39 times to total debt and then fell down in 2003 and again rises in 2004- 2006 period to 0.51 times of total debt capital. Again shown a decline trend from 2006 -2007 and remain same in 2008 as 0.31 times in total debt capital. In 2009 it rises after that decline and finally reaches in 2011 as 0.33 times to debt capital. Short-term debt to total debt rises in the initial period from 0.32 times to debt capital in

2002 to 1.79 times in 2004. From 2004 -2005 it fell down to 0.34 times. And again increases 0.59 in 2005 -2010 period. From 0.59 times to total debt it comes down to 0.38 times in 2011.

Figure 2.21 Debt structures in media & publishing sector

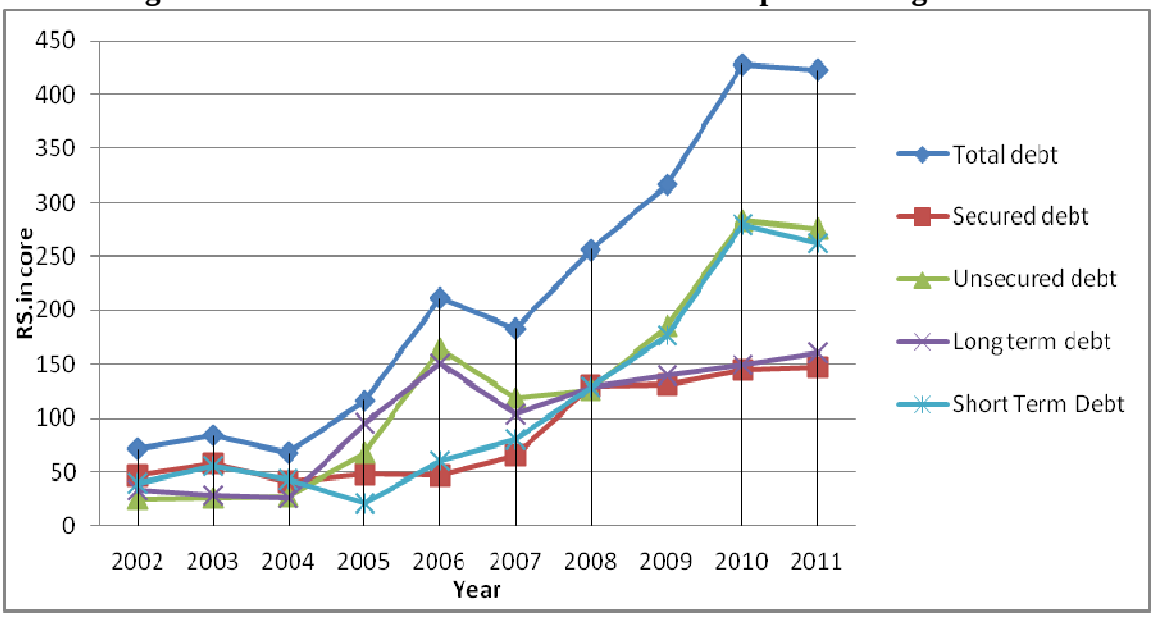
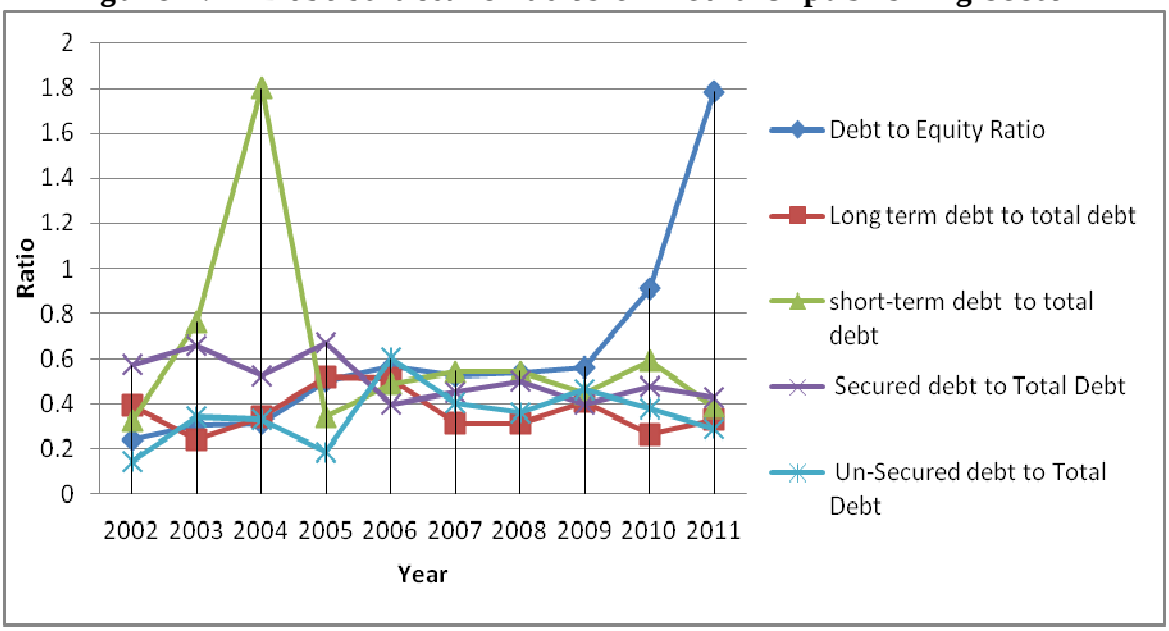


Figure 2.22 Debt structure ratios of media & publishing sector



Secured debt to total debt shows also up and downs in year by year. But overall it shows a downward trend. It comes down from 0.56 time's to total debt in 2002 to 0.42 times in 2011. Unsecured debt to total debt shows many fluctuations, but it shows an upward trend. From 0.14 times to total debt in 2002 it went up to 0.28 times in 2011.

2.3.12 Metal, metal products & mining sector:

The total debt capital and all the subdivisions show an upward trend. Total debt has been shows a declining trend in the initial periods from 2002 – 2005 from 2005 on words, it sharply increases every year till the end of the study period. From 1227 cores in 2002 it rises to 4591 cores in 2011. Similarly secured debt shows a downward trend between 2002-2005 periods and then shows upward movement. It increases from 883 cores in 2002 to 2290 cores in 2011. Unsecured debt also showed an upward trend as it increases from 343 cores in 2002 to 2301 cores in 2011. Long-term debt shows a similar trend as secured debt. From 807 cores in 2002 to it rises to 2628 cores in 2011. Short-term debt is also rises hand to hand with unsecured debt. From 420 cores in 2002 it increases to 1963 cores in 2011. The figure 2.23 shows the ten year trend of debt structure in metal, metal products & mining sector.

Debt to equity ratio is many up and down year by year. But overall shows a downward trend. In 2002 it was 1.16 times to equity capital and in 2003 rise to 1.44 times to equity capital. Then onwards it shows a downward trend and reaches to 0.80 times to equity capital at 2011. Long-

term debt to total debt is showing a minor up and down. It was 0.57 times to total debt in 2002 reduced to 0.43 times to total debt in 2011. Short-term debt to total debt shows an upward trend. From 0.34 times to total debt in 2002 it rises to 0.48 times to total debt in 2011.

Figure 2.23 Debt structures in metal, metal products & mining sector

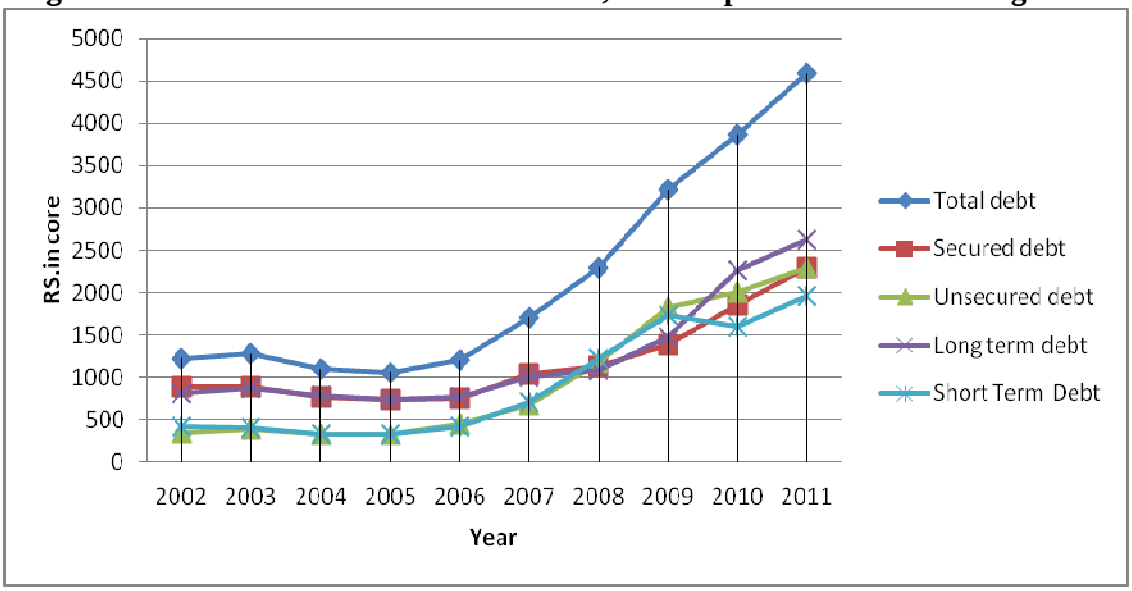
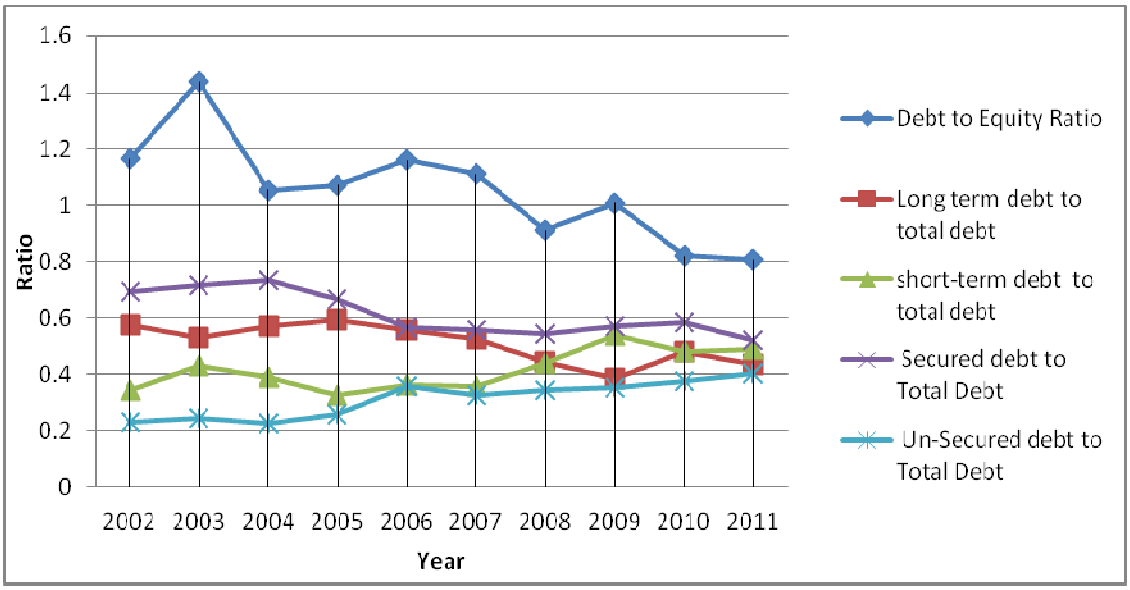


Figure 2.24 Debt structure ratios of metal, metal products & mining sector



Secured debt to total debt shows an upward movement from2002 - 2004 period as it rises from 0.69 to 0.73 times to total debt. 2004- 2008 it shows a downward trend, it fell down from 0.73 to 0.54 times to total debt. Then again went up in 2009- 2010 periods at 0.58 and come down to 0.52 times to total debt in 2011. Unsecured debt to total debt showed an upward movement without much up and downs. From 0.23 times to total debt in 2002 it went up to 0.40 times to total debt in 2011. The figure 2.24 shows the ten year trend of debt structure ratios of metal, metal products & mining sector.

2.3.13 Miscellaneous sector:

Total debt capital and secured debt showing a similar trend during the study period. Total debt slight increase in 2002-2004 period from 257 cores to 292 cores. Then decline to 234 cores in 2005. From 2005 onwards it showed an upward movement till 2009 and the total debt rises to 728 cores. After that in 2010 it decline to 676 cores, but in 2011 again rises to 732 cores. Secured debt showed an upward trend, from 220 cores in 2002 rises 515 cores in 2011. Unsecured debt shows a not much variation between 2002 – 2005 periods. After that it shows an up word trend. In 2002 it was 37 cores and touched 217 cores in 2011. Long-term debt shows an upward trend. It increases from 121 cores in 2002 to 398 cores in 2011. Short-term debt shows a downward trend from 2002 to 2005 period. This period the short-term debt comes down from 136 cores to 74 cores. From 2005 – 2011 it showed an up word trend and reaches the total

short-term debt to 333 cores in 2011. The figure 2.25 shows the ten year trend of debt structure in miscellaneous sector.

Figure 2.25 Debt structure of miscellaneous sector

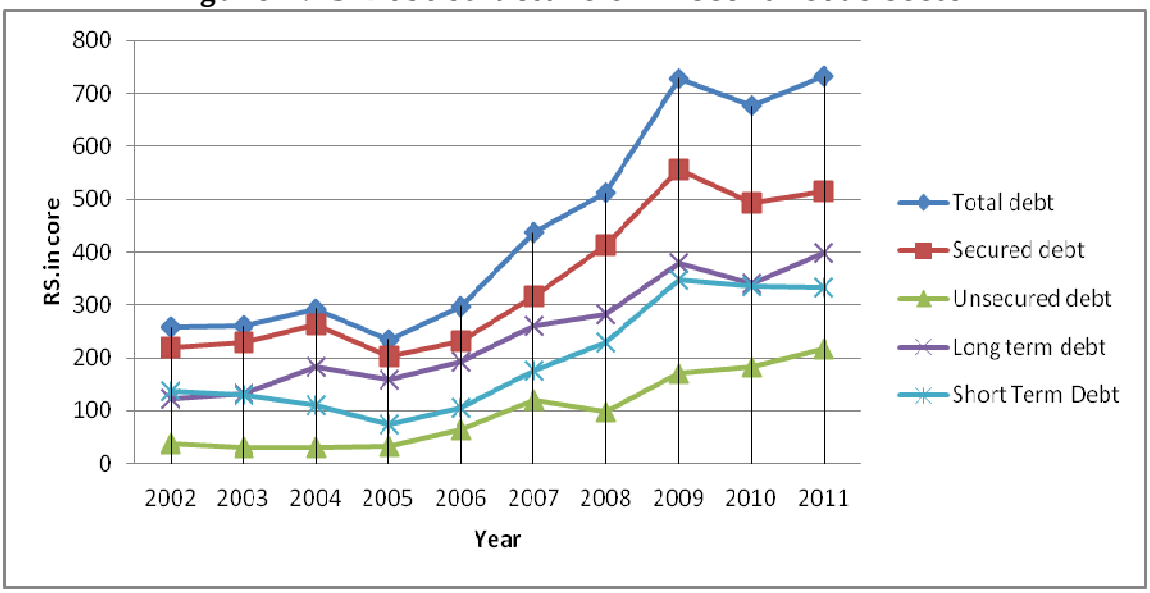
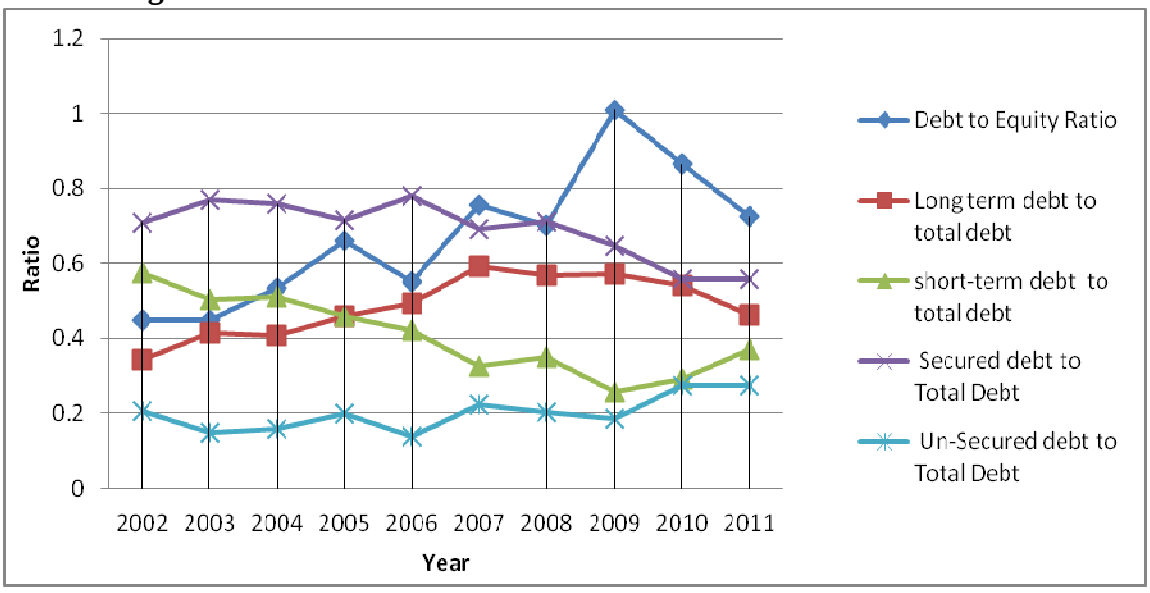


Figure 2.26 Debt structure ratios of miscellaneous sector



Debt to equity ratio is having ups and downs; however, up to the year 2009 it shows an upward trend. From 0.44 times to equity the debt

capital rises to 1 times in equity in 2009. Then the debt capital decline in the following years and comes down to 0.72 times to equity capital. Long-term debt to total debt increases in initial periods and then started to decline slightly. Long-term debt was 0.34 times to total debt in 2002 and increases to 0.59 in 2007 and then reduced to 0.46 times to total debt in 2011.

Short-term debt to total debt has shown a downward trend. It reduced from 0.57 times to total debt in 2002 to 0.25 times to total debt in 2009, then rises to 0.37 times in 2011. Secured debt to total debt shows several up and downs during the study period. However, it shows a downward trend. From 0.70 times to total debt in 2002 to it is reduced to 0.55 times to total debt in 2011.unsecured debt to total debt also have up and downs but the fluctuations are minor. But overall it shows an upward trend. From 0.20 times to total in 2002 it increases to 0.27 times to total debt in 2011. The figure 2.26 shows the ten year trend of debt structure ratios of miscellaneous sector.

2.3.14 Oil & gas sector:

The total debt capital and all the subdivisions of it show an upward trend under oil and gas sector. The total debt rises from 3172 cores in 2002 to 10720 cores in 2011. Secured debt and long-term debt show the similar trend. Both showed an upward trend, but the growth is negligible. Secured debt rises to 1677 cores in 2002 to 3064 cores in 2011. Long-term

debt rises from 1372 cores in 2002 to 2299 cores in 2011. Unsecured debt and short-term debt grow significantly. Unsecured debt was 1494 cores in 2002 went up to 7656 cores in 2011. At the same time short-term debt increases from 1800 cores in 2002 to 8421 cores in 2011. The figure 2.27 represents the ten year trend of restructuring in oil and gas sector.

Figure: 2.27 Debt structure in oil & gas sector

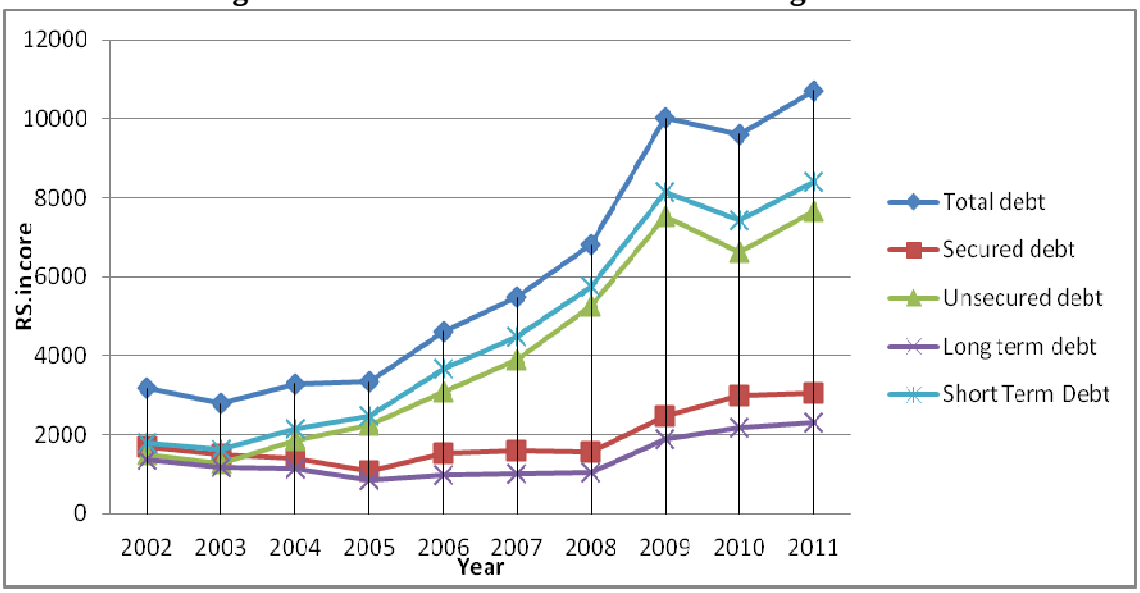
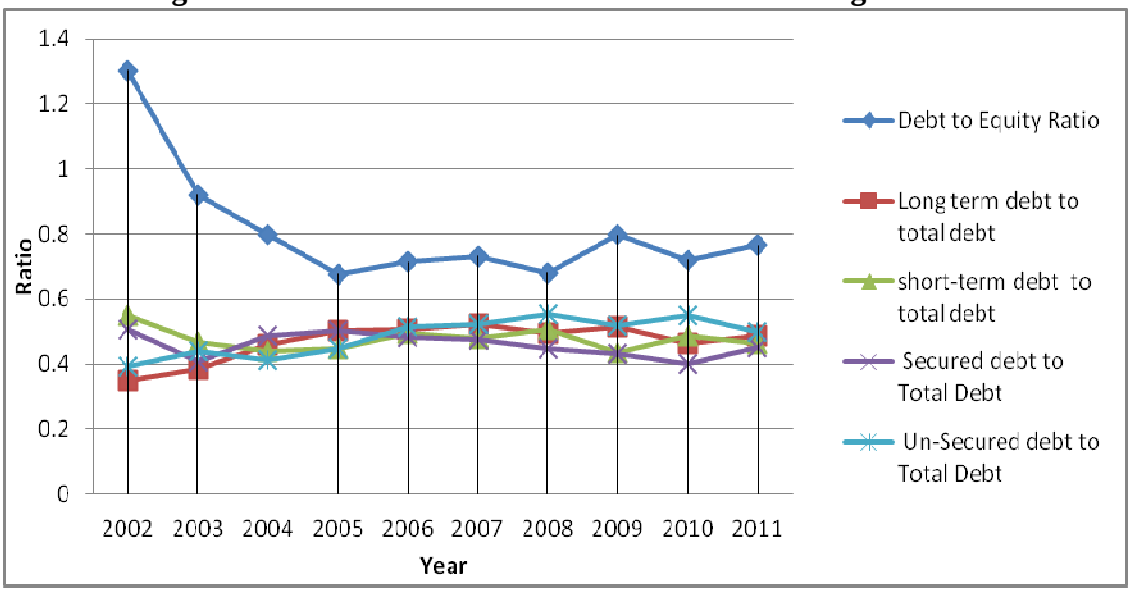


Figure 2.28 Debt structure ratios of oil and gas sector



The figure 2.28 shows the ten year trend of debt structure ratios of oil and gas sector debt to equity ratio shows a straight downward trend from 2002 to 2005. It falls from 1.3 to equity capital to 0.67 times. Then shows slight upward trend and maintain the same level. Finally, at the end of 2011 it was 0.76 times to equity capital. Long-term debt to total debt, short-term debt to total debt shows almost a straight line without many fluctuations. It was 0.34 times to total debt in 2002 increases to 0.48 times to total debt. However, short-term debt to total debt reduces from 0.55 times to total debt in 2002 to 0.46 times in 2011. Secured debt total debt and unsecured debt to total debt also shows a similar trend like short-term and long-term debt to total debts. Secured debt was 0.50 times to total debt in 2002 to reduce to 0.45 times to total debt in 2011. Unsecured debt to total debt rises from 0.39 times to total debt in 2002 to 0.49 times to total debt in 2011.

2.3.15 Power sector:

The table 2.29 shows the ten year trend of debt structure in power sector. Total debt capital shows a straight upward trend without any fluctuations. Debt capital rises more than three times during the study period. It rises from 2513 cores in 2002 to 8506 cores in 2011. Secured debt and long-term debt also show a similar trend like total debt. Secured debt increases from 1122 cores in 2002 to 5455 cores in 2011. Long-term debt rises from 949 cores to 5534 cores in 2011. Unsecured debt and short-term debt also showed an upward trend, however the growth level

was low. From 1375 cores in 2002 it increases to 2996 cores in 2011 and short-term debt from 1564 cores in 2002 to 2972 cores in 2011.

Figure 2.29 Debt structure of power sector

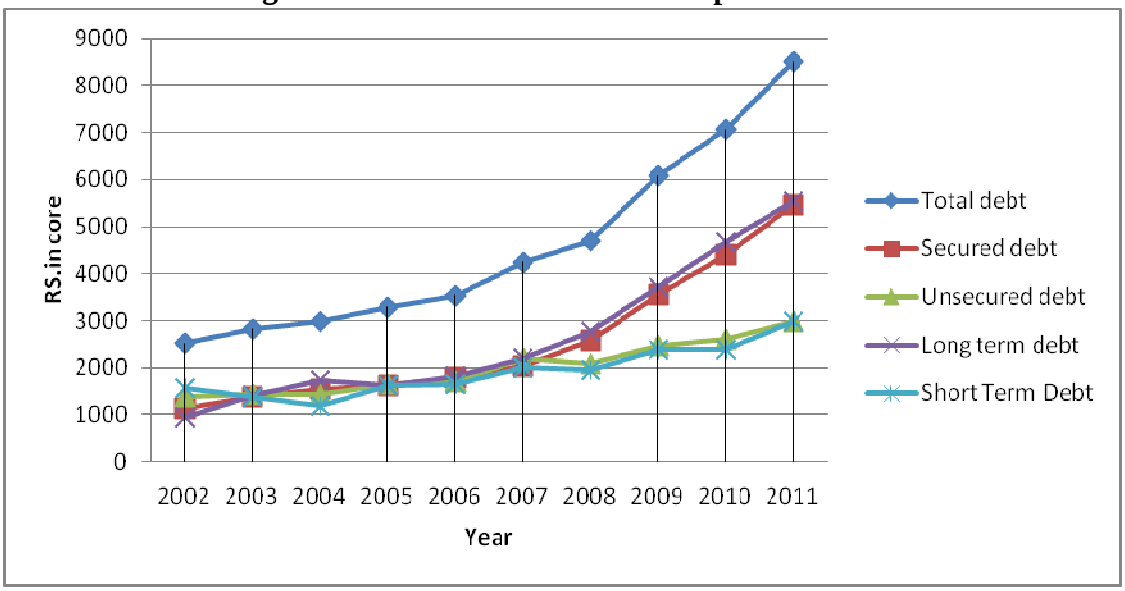
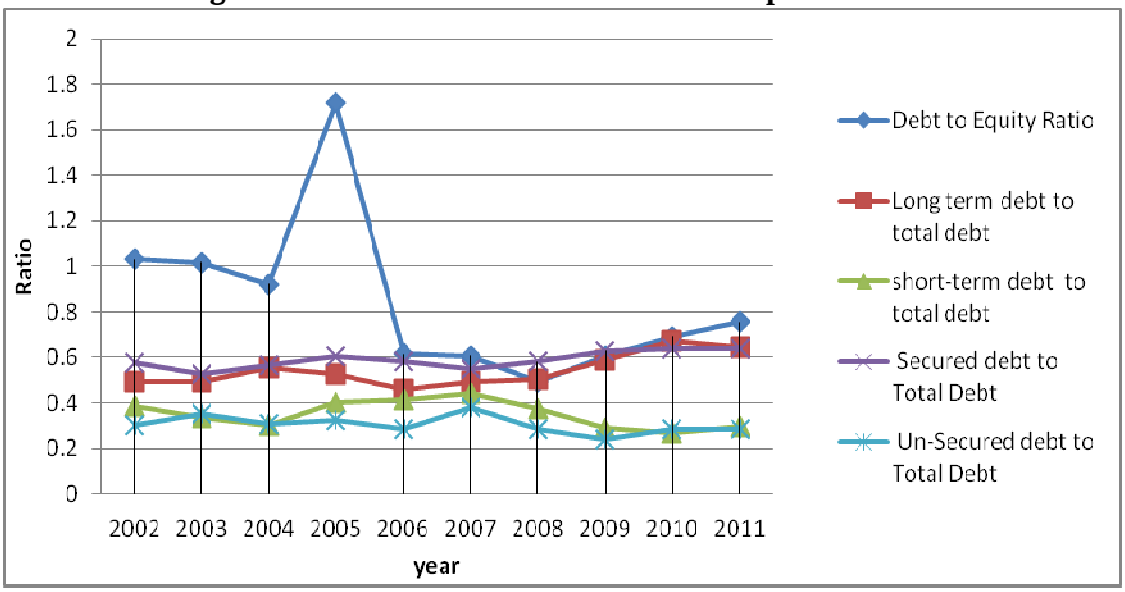


Figure 2.30 Debt structure ratios of power sector



The figure 2.30 shows the ten year trend of the debt structure ratio of power sector. Debt to equity ratio bit falls from 1.03 times to equity to 0.92 between 2002- 2004. Then the following year it sharply rises to 1.71 times to equity. In 2006-2008 again come down to 0.49 times to equity. Finally, in 2011 it touches 0.75 times to equity capital. Long-term debt to total debt shows some up and down, but it showed upward movement. From 0.49 times to debut in 2002 it rises to 0.64 times to total debt in 2011. The level of Short-term debt to total debt reduces in 2002- 2004 periods from 0.38 to 0.30 times to total debt. Then increase to 0.44 times in 2007. After then it is declining to 0.29 times to total debt of 2011. Secured debt to total debt showed an overall upward trend. It rises from 0.57 times in 2002 to 0.64 times 2011. Unsecured debt to total debt is almost a straight line with minor variations. It was 0.30 times to total debt in 2002 finally in 2011 it slightly down to 0.28 times to equity.

2.3.16 Telecom sector:

The figure 2.31 shows the ten year trend of debt structure of telecom sector. Total debt capital rises more than six times in between the study period. From 526 cores in 2002 it rises to 2051 cores in 2009 and then fell down to 1856 cores in 2010. But from 2010-2011 it showed a sharp rise and reached 3799 cores in 2011. Secured debt and long-term debt show a similar trend. Both showed an upward trend. Secured debt increases from 204 cores in 2002 to 1355 cores in 2011. Long-term debt rises from 324 cores in 2002 to 1443 cores in 2011. Unsecured debt and short-term debt show same movement as total debt. From 321 cores in

2002 unsecured debt went up to 2444 cores in 2011. Short-term debt rises from 201 cores in 2002 to 2356 cores in 2011.

Figure 2.31 Debt structure of telecom sector

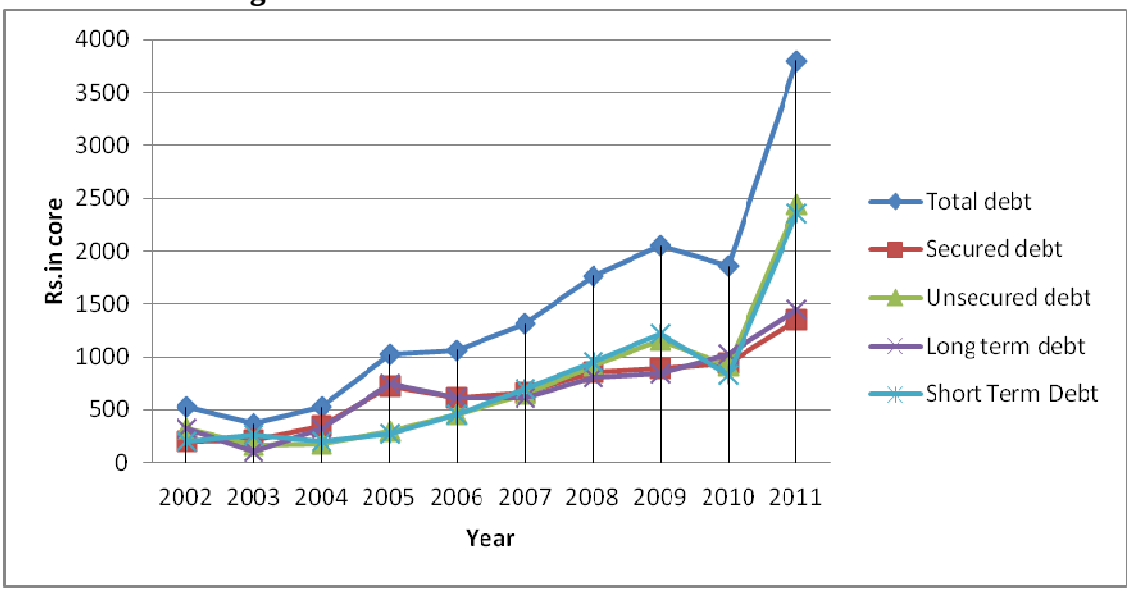
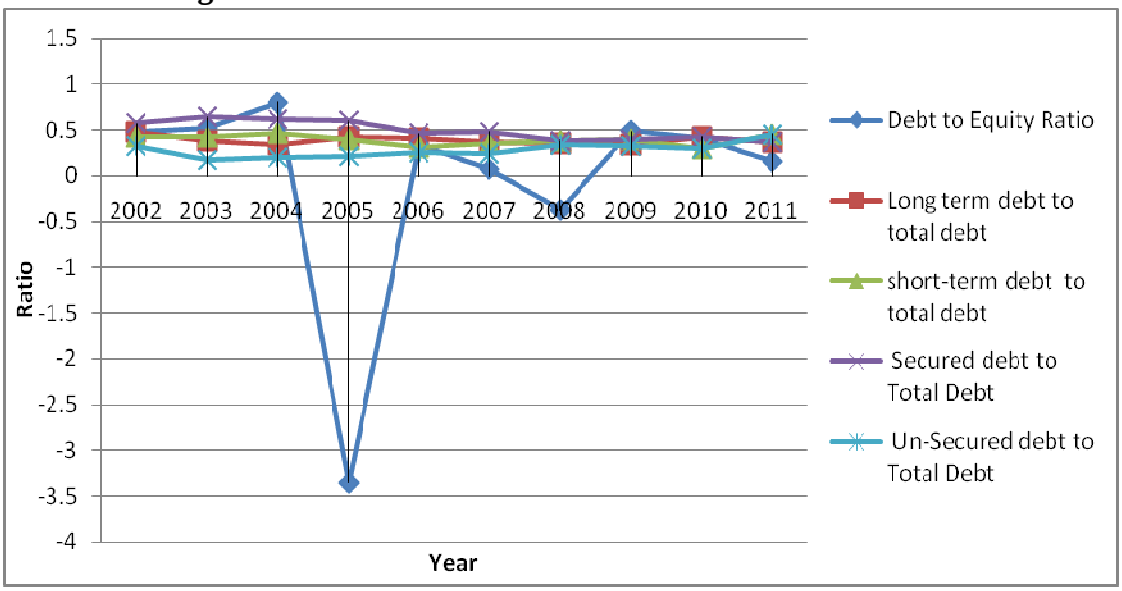


Figure 2.32 Debt structure ratios of telecom sector



The figure 2.32 shows the ten year trend of debt structure ratios of Telecom sector. Debt to equity ratios shows up and downs during the study period. From 2002- 2004 it went up slightly as 1.24-1.39 times to

equity capital. In 2005 in fall down drastically to -3.34 times in equity. 2006 again recovered and reached 0.33 times to equity. But in 2008 it fell down to -0.37. Finally, in 2011 it reaches to 0.16 times to equity. Long-term debt to total debt also shows up and downs. In 2002 it was 0.48 times to total debt and come down to 0.37 times to total debt in 2011. Short-term debt to total debt shows a downward trend in initial periods then recovered. In 2002 it was 0.42 times to total debt and then started declining in the following years and touched 0.31 times to total debt in 2006. But from 2006 it showed an upward trend and rises to 0.44 times to total debt. Secured debt rises little up in 2002-2003 periods after that it showed a downward trend till 2011. Overall from 0.57 times to total debt it comes down to 0.36 times. Unsecured debt to total debt also showed up and downs. Form 0.33 times to total debt rises to 0.45 times in 2011.

2.3.17 Textile sector:

Total debt shows an upward movement without many fluctuations. From 677 cores in 2002 the total debt went up to 2465 cores in 2011. Secured debt rises from 493 cores in 2002 to 2273 cores in 2011. Unsecured debt is almost a straight line. From 183 cores in 2002 it moved to 192 cores in 2011. Long-term debt rises from 266 cores in 2002 to 1659 cores in 2011. Similarly, short-term debt increases from 281 cores to 791 cores in 2011. The figure 2.33 shows the ten year trend of debt structure in Textile sector.

Debt to equity ratio had many fluctuations. From 1.24 times to equity in 2002 it went to the minis ratio in 2005 at -6.67 times to equity.

Then recovered and rises at touched 2.04 times in equity in 2010 then again decline to 1.25 in equity in 2011. Long-term debt to total debt shows an upward movement. It rises from 0.378 times to total debt in 2002 to 0.53 times to total debt in 2011.

Figure 2.33 Debt structure of textile sector

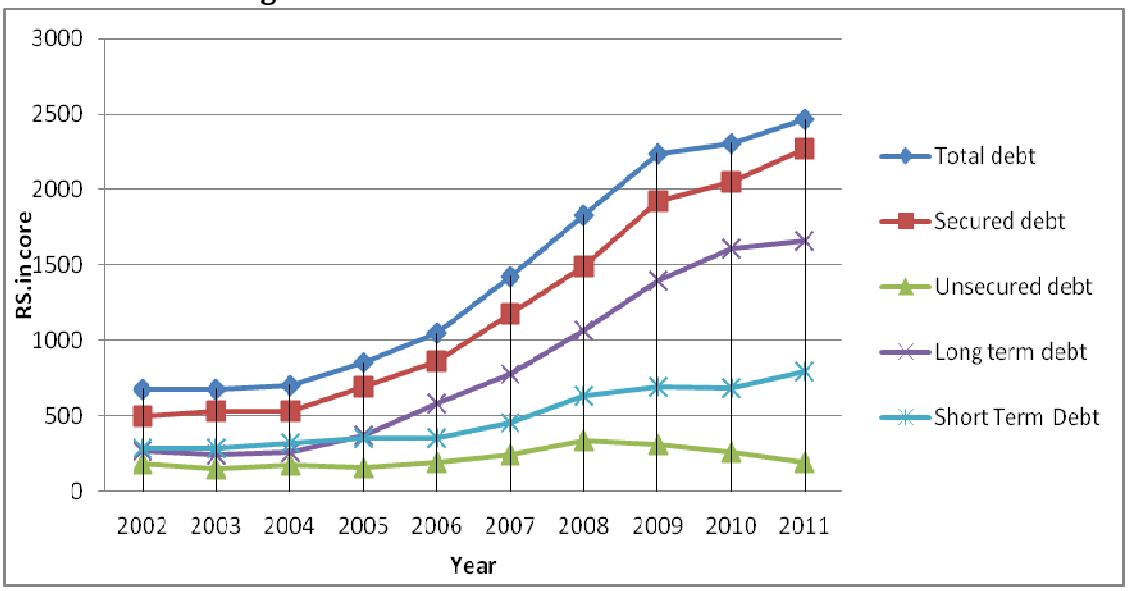
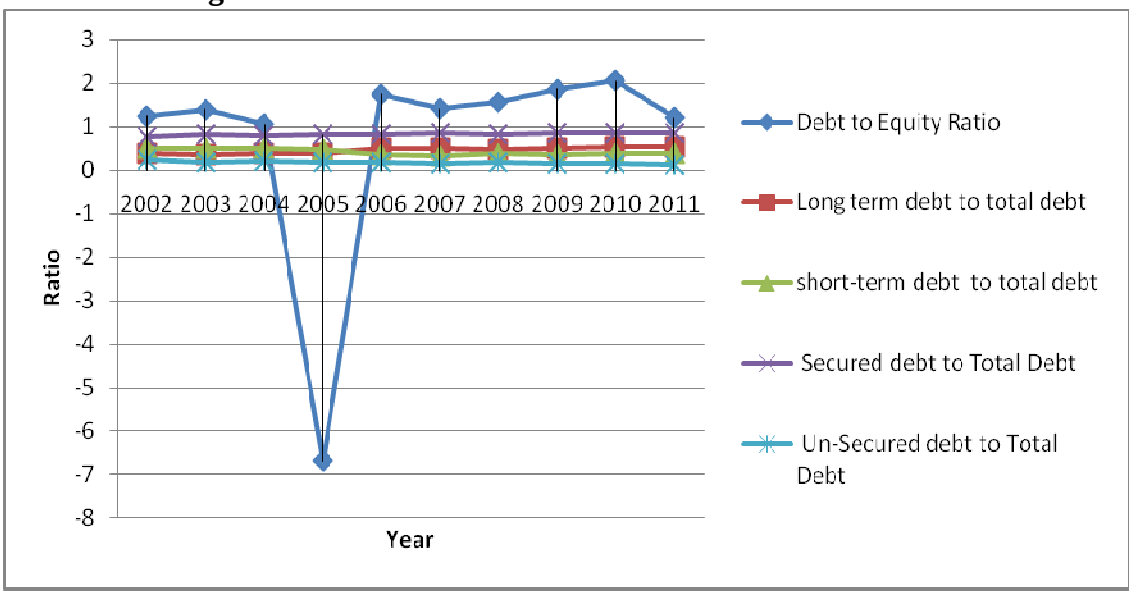


Figure 2.34 Debt structure ratios of textile sector



Short-term debt to total debt has several minor up and downs. From 0.49 times to total debt, it fell down to 0.37 times in 2011. Secured debt

to total debt has risen from 0.75 times to total debt in 2002 to 0.86 times in 2011. Unsecured debt to total debt declined from 0.24 times to total debt in 2002 to 0.13 times to total debt in 2011. The figure 2.34 shows the ten year trend of debt structure of telecom sector.

2.3.18 Transport equipment sector.

The figure 2.35 shows the ten year trend of debt structure in the transport equipment sector. Total debt is rising from 419 cores in 2002 to 1695 cores in 2011. Secured debt rises from 283 cores to 844 cores in 2011. Unsecured debt rises from 135 cores in 2002 to 851 cores in 2011. Long-term debt rises from 258 cores in 2002 to 795 cores in 2011. Short-term debt showed little up and downs, but overall it rises from 161 cores in 2002 to 899 cores in 2011.

The figure 2.36 shows the Ten year trend of debt structure ratios of the transport equipment sector. The debt equity ratio is shown an upward movement during 2002 – 2006 periods. It rises from 1.06 times in equity to 1.27 times. Then fell down to 0.79 in 2007 after that it again rises and fell down finally it reached 0.89 times to equity in 2011. Long-term debt shows a downward trend year by year with minor fluctuations. 0.51 times to total debt in 2002 to it come down to 0.34 times to total debt in 2011. Short-term debt to total debt shows a slight upward trend. It increases from 0.48 times to total debt in 2002 to 0.65 times to total debt in 2011. Secured debt to total debt showed a bit downward trend during 2004- 2006 periods then almost a straight line. From 0.61 times to total debt in 2002 short-term debt to total debt comes down to 0.52 times to total debt.

Unsecured debt total debt showed an upward trend in 2004 – 2006 period, then almost not showing much changes. The ratio rises from 0.38 times to total debt in 2002 to 0.47 times to total debt in 2011.

Figure 2.35 Debt structure of transport equipment sector

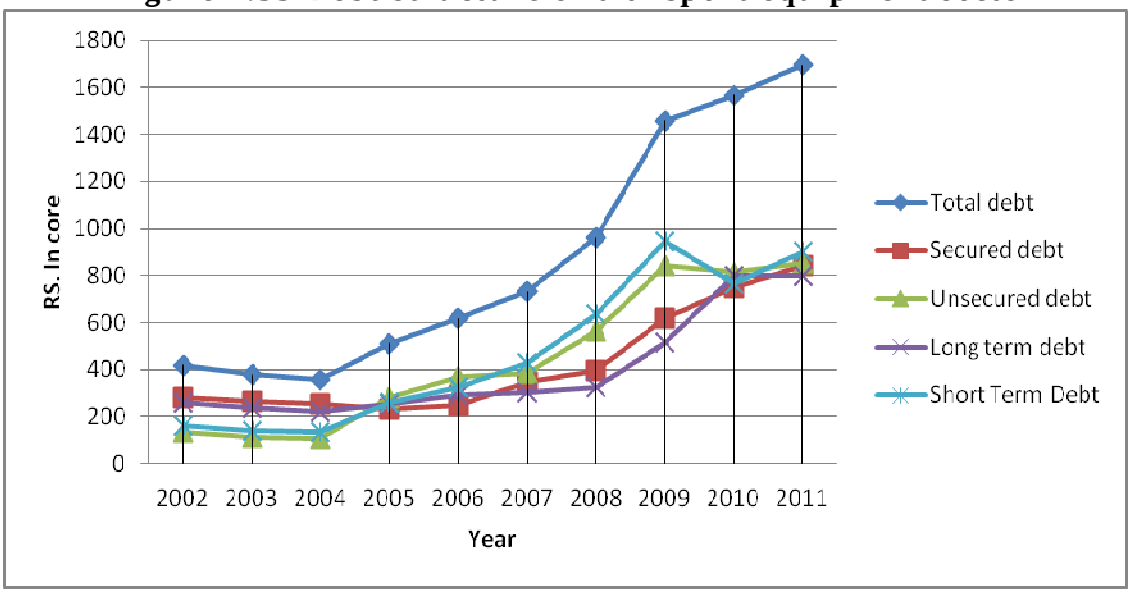
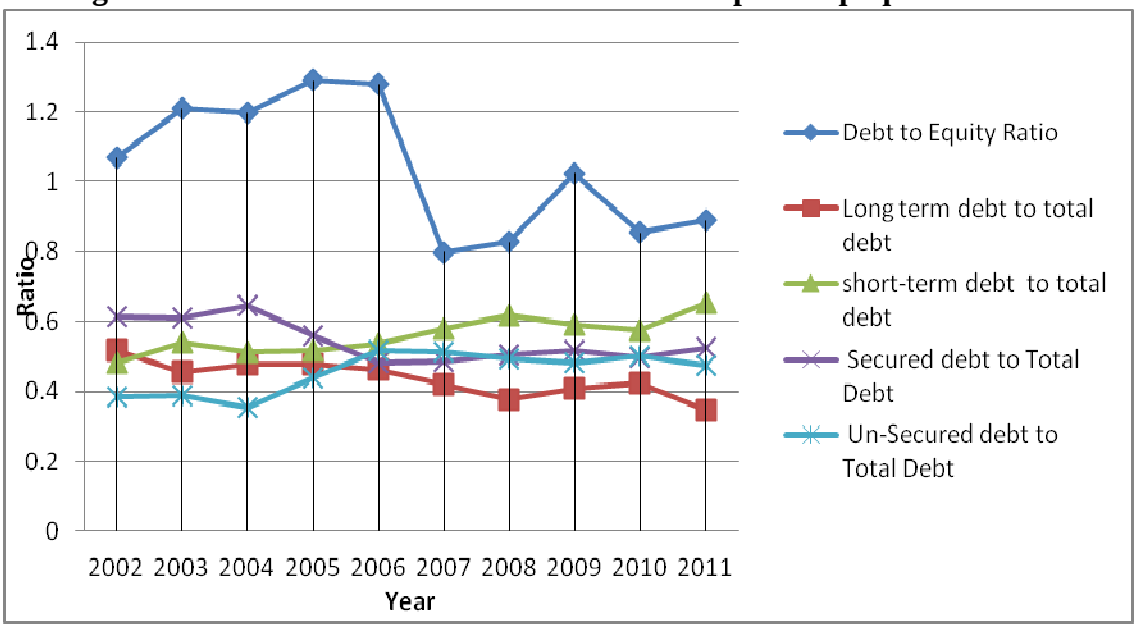


Figure 2.36 Debt structure ratios of transport equipment sector



2.4 Determinants of Debt Capital in Indian Companies

2.4.1 Variables and hypothesis

Based on the above analyzed literature we have identified the possible determinants of debt capital. Following are the elements of debt capital:

- Asset structure:

Agency theory suggests that firms with large fixed assets have comparative advantage in obtaining long-term debt, whereas firms with high sales relative to fixed assets have a comparative advantage in borrowing over shorter periods. Harris and Raviv, (1991) indicate as per the pecking order theory perspective, firms with less fixed assets are more sensitive to informational asymmetries. These firms will thus issue debt rather than equity when they need external financing leading to an expected negative relation between the importance of asset structure and debt capital. In this study, we are taking net fixed assets to total asset (NFATA) as a proxy for Asset structure.

H_1: There is no significant relationship between asset structure and the level of debt capital

H_0: There is a negative relationship between asset structure and the level of debt capital

- Profitability:

Pecking order theory suggests firms will use retained earnings first as investment funds and then move to bonds and new equity only if necessary. Chang (1999) says profitable firms tend to use less debt. There are some recent studies Wald (1999) for developed countries,

Wiwattanakantang (1999) and Booth et al. (2001) for developing countries. Long and Maltiz (1985) find leverage to be positively related to profitability. In this study, profitability is defined as earnings before interest and tax divided by sales (EBITSA). We are expecting a direct or inverse relationship between profitability and debt capital.

H_1: There is no significant relationship between profitability and the level of debt capital

H_0: There is significant relationship between profitability and the level of debt capital

- Debt capacity:

It measures the ability of a firm to pay interest on debt. In other words the number of times the interest charges are covered by funds that is ordinarily available for their payments. We have taken interest coverage ratio as a proxy for measuring the debt capacity (INTCOVER). The study expects a positive relationship between debt capacity and the level of debt capital.

H_1: There is no significant relationship between debt capacity and the level of debt capital

H_0: There is a positive relationship between debt capacity and the level of debt capital

- Non-debt tax shield:

According to Modigliani and Miller (1958), if interest payments on debt are tax-deductible, firms with positive taxable income have an incentive to issue more debt. That is, the main incentive for borrowing is

to take advantage of interest tax shields. In the framework of the trade-off theory, one hypothesizes a negative relationship between leverage and non-debt tax shields. The ratio of depreciation to total assets (DEPTA) has been taken as a measure of non-debt tax shield.

H_1: There is no significant relationship between non-debt tax shields *and the level of debt capital*

H_0: There is a negative relationship between non-debt tax shields *and the level of debt capital*

- Credit worthiness:

It measures the firm's ability to meet the occurrence and non-occurrence of certain contingent liabilities. Net worth, i.e., equity plus reserve (NW) is taken to measure the credit worthiness. The study expects a positive relationship between credit worthiness and debt capital.

H_1: There is no significant relationship between credit worthiness and the level of debt capital

H_0: There is a positive relationship between credit worthiness and the level of debt capital

- Size:

From the theoretical point of view, the effect of size of leverage is ambiguous. As Rajan and Zingales (1995) claim: "Larger firms tend to be more diversified and fail less often, so size computed as the natural logarithm of total sales (LNSA) may be an inverse proxy for the probability of bankruptcy. If so, size should have a positive impact on the supply of debt.

H_1: There is no significant relationship between size and the level of debt capital

H_0: There is a positive relationship between size and the level of debt capital

The study has taken three macroeconomic variables such as economic growth, interest rate and foreign direct investment

- Economic growth:

At what fast the economy is growing. Gross Domestic Product at constant price (GDP) has taken as a proxy for measuring economic growth of debt capital. We are expecting a positive relationship between economic growth and debt capital.

H_1: There is no significant relationship between economic growth and the level of debt capital

H_0: There is a positive relationship between economic growth and the level of debt capital

- Interest rate:

Prime lending rates (PLR) are the proxy for measuring the impact of interest rate on debt capital. We are expecting an inverse relation between interest rate and debt capital.

H_1: There is no significant relationship between interest rate and the level of debt capital

H_0: There is a negative relationship between economic growth and the level of debt capital

- Foreign direct investment (FDI):

Firm opts for external finance for their capital requirements. Indian government allows FDI in several sectors with fixed proportions. A firm or sectors started attracting FDI gives a strong signal of growth. Since the firm that able to attract FDI could avail more debt capital. So we are expecting a direct or inverse relationship between FDI and the level of debt capital.

H_1: There is no significant relationship between FDI and the level of debt capital

H_0: There is a positive relationship between FDI and the level of debt capital

2. 4.2 Model

In estimations process, firstly, we introduce an estimation technique of quantile regression in brief, and then apply it to our dataset. Standard least squares regression techniques provide summary point estimates that calculate the average effect of the independent variables on the 'average company'. However, this focus on the average company may hide important features of the underlying relationship. As Mosteller and Tukey (1977, pp. 266) correctly argued, "What the regression curve gives a grand summary for the averages of the distributions corresponding to the set of *x*'s. We could go further and compute several regression curves corresponding to the various percentage points of the distributions and thus get a more complete picture of the set. Ordinarily, this is not done,

and so regression often gives a rather incomplete picture. Just as the mean gives an incomplete picture of a single distribution, so the regression curve gives a correspondingly incomplete picture for a set of distributions". Quantile regression techniques can therefore help us obtain a more complete picture of the underlying relationship between Liquid ratios and its determinants. In our case, estimation of linear models of quantile regression may be preferable to the usual regression methods for a number of reasons. First of all, we know that the standard least-squares assumption of normally distributed errors does not hold in our database because the values of all variables in our case are non-normal. asset structure (NFATA), profitability (EBITSA), non-debt tax shield (DEPTA), debt capacity (INCOVER) and credit worthiness (NW), follow a skewed as well as leptokurtic distribution (see the evidence in Table 1). While the optimal properties of standard regression estimators are not robust to modest departures from normality, quantile regression results are characteristically robust to outliers and heavy tailed distributions. In fact, the quantile regression solution $\hat{\beta}_0$ is invariant to outliers of the dependent variable that tend to $\pm\infty$ (Buchinsky, 1994). Another advantage is that, while conventional regressions focus on the mean, quantile regressions is able to describe the entire conditional distribution of the dependent variable. In the context of this study, all determinants of debt capital are of interest in their own right, we don't want to dismiss them as outliers, but on the contrary we believe it would be worthwhile to study them in detail. This can be done by calculating coefficient estimates at various quantiles of the conditional distribution. Finally, a quantile

regression approach avoids the restrictive assumption that the error terms are identically distributed at all points of the conditional distribution. Relaxing this assumption allows us to acknowledge company heterogeneity and consider the possibility that estimated slope parameters vary at different quantiles of the conditional distribution of all determents of debt capital.

The quantile regression model, first introduced by Koenker and Bassett (1978), can be written as:

$$y_{it} = x_{it}^{'}\beta_0 + \varepsilon_{\theta it} \text{ with } Quant_{\theta}(y_{it} \mid x_{it}) = x_{it}^{'}\beta_0 \qquad (1)$$

where *i* denotes company, *t* denotes time, y_{it} is the dependent variable, x_{it} is a vector of regressors, β is the vector of parameters to be estimated, and ε is a vector of residuals. $Quant_{\theta}(y_{it} \mid x_{it})$ denotes the θ^{th} conditional quantile of y_{it} given x_{it}. The θ^{th} regression quantile $0 < \theta < 1,$ solves the following problem:

$$\min_{\beta} \frac{1}{n} \left\{ \sum_{i,t:y_{it} \geq x_{it}^{'}\beta} \theta \mid y_{it} - x_{it}^{'}\beta \mid + \sum_{i,t:y_{it} < x_{it}^{'}\beta} (1-\theta) \mid y_{it} - x_{it}^{'}\beta \mid \right\} = \min_{\beta} \frac{1}{n} \sum_{i=1}^{n} \rho_{\theta} \varepsilon_{\theta it} \quad (2)$$

Where $\rho_{\theta}(\cdot)$, which is known as the 'check function', is defined as":

$$\rho_{\theta}(\varepsilon_{\theta it}) = \begin{cases} \theta \varepsilon_{\theta it} & if\ \theta \varepsilon_{\theta it} \geq 0 \\ (\theta - 1)\varepsilon_{\theta it} & if\ \theta \varepsilon_{\theta it} < 0 \end{cases} \qquad (3)$$

Equation (2) is then solved by linear programming methods. As one increases θ continuously from 0 to 1, one traces the entire conditional distribution of y_{it}, conditional on x_{it} (Buchinsky 1998).

Here the study assumes that LnDEBT is the function of LNSA, NW, NFATA, EBITSA, DEPTA, INCOVER, GDP, FDI and PLR which can be, in linear equation form, written as:

$$LnDEBT_{it} = \alpha + \beta_1 LNSA_{it} + \beta_2 NW_{it} + \beta_3 EBITSA_{it} + \beta_4 DEPTA_{it} + \beta_5 NFATA_{it} + \beta_6 INCOVER_{it} + \beta_7 GDP_{it} + \beta_8 FDI_{it} + \beta_9 PLR_{it} + \varepsilon_{it} \quad (4)$$

However, in this model company and time effects are ignored therefore, by incorporating unobserved company effect in the equation (4) we get following equation:

$$LnDEBT_{it} = \alpha + \beta_1 LNSA_{it} + \beta_2 NW_{it} + \beta_3 EBITSA_{it} + \beta_4 DEPTA_{it} + \beta_5 NFATA_{it} + \beta_6 INCOVER_{it} + \beta_7 GDP_{it} + \beta_8 FDI_{it} + \beta_9 PLR_{it} + \varepsilon_{it} \quad (5)$$

Where $u_{it} = \mu_i + \varepsilon_{it}$, with μ_i being companies' unobservable individual effects. The difference between a polled OLS regression and a model considering unobservable individual effects lies precisely in μ_i. When we consider the random effect model the equations 6 and 7 will be same, however, in that case μ_i is presumed to be having the property of zero the individual observation error term ε_{it}, has constant variances σ_ε^2, and independent of the explanatory variables.

Further, due to the advantages (as stated above) of quantile regression estimation technique over OLS, fixed and random effect models in the study, we examined at the 5^{th}, 25^{th}, 50^{th}, 75^{th} and 95^{th} quantiles

respectively. To avoid high correlation between variables selected, we have divided them into two different models

MODEL I

$$Q_{25}(LnDEBT_{it}) = \alpha_{25} + \beta_{.25,1} LNSA_{it} + \beta_{.25,2} NFATA_{it} + \beta_{.25,3} EBITSA_{it} + \beta_{.25,4} INCOVER_{it} + \beta_{.25,5} FDI_{it} + \beta_{.25,6} PLR_{it} + \varepsilon_{.5it}$$

$$Q_{.50}(LnDEBT_{it}) = \alpha_{.50} + \beta_{.50,1} LNSA_{it} + \beta_{.50,2} NFATA_{it} + \beta_{.50,3} EBITSA_{it} + \beta_{.50,4} INCOVER_{it} + \beta_{.50,5} FDI_{it} + \beta_{.50,6} PLR_{it} + \varepsilon_{.5it}$$

$$Q_{.75}(LnDEBT_{it}) = \alpha_{.75} + \beta_{.75,1} LNSAA_{it} + \beta_{.75,2} NFATA_{it} + \beta_{.75,3} EBITSA_{it} + \beta_{.75,4} INCOVER_{it} + \beta_{.75,5} FDI_{it} + \beta_{.75,6} PLR_{it} + \varepsilon_{.5it}$$

$$Q_{.95}(LnDEBT_{it}) = \alpha_{.95} + \beta_{.95,1} LNSA_{it} + \beta_{.95,2} NFATA_{it} + \beta_{.95,3} EBITSA_{it} + \beta_{.95,4} INCOVER_{it} + \beta_{.95,5} FDI_{it} + \beta_{.95,6} PLR_{it} + \varepsilon_{.5it}$$

MODEL II

$$Q_{.05}(LnDEBT_{it}) = \alpha_{.05} + \beta_{.05,1} NW_{it} + \beta_{.05,2} DEPTA_{it} + \beta_{.05,3} EBITSA_{it} + \beta_{.05,4} INCOVER_{it} + \beta_{.05,5} GDP_{it} + \beta_{.05,6} PLR_{it} + \varepsilon_{.5it}$$

$$Q_{25}(LnDEBT_{it}) = \alpha_{25} + \beta_{.25,1} NW_{it} + \beta_{.25,2} DEOPTA_{it} + \beta_{.25,3} EBITSA_{it} + \beta_{.25,4} INCOVER_{it} + \beta_{.25,5} GDP_{it} + \beta_{.25,6} PLR_{it} + \varepsilon_{.5it}$$

$$Q_{.50}(LnDEBT_{it}) = \alpha_{.50} + \beta_{.50,1} NW_{it} + \beta_{.50,2} DEPTA_{it} + \beta_{.50,3} EBITSA_{it} + \beta_{.50,4} INCOVER_{it} + \beta_{.50,5} GDP_{it} + \beta_{.50,6} PLR_{it} + \varepsilon_{.5it}$$

$$Q_{.75}(LnDEBT_{it}) = \alpha_{.75} + \beta_{.75,1} LNSAA_{it} + \beta_{.75,2} NFATA_{it} + \beta_{.75,3} EBITSA_{it} + \beta_{.75,4} INCOVER_{it} + \beta_{.75,5} FDI_{it} + \beta_{.75,6} PLR_{it} + \varepsilon_{.5it}$$

$$Q_{.95}(LnDEBT_{it}) = \alpha_{.95} + \beta_{.95,1} NW_{it} + \beta_{.95,2} DEPTA_{it} + \beta_{.95,3} EBITSA_{it} + \beta_{.95,4} INCOVER_{it} + \beta_{.95,5} GDP_{it} + \beta_{.95,6} PLR_{it} + \varepsilon_{.5it}$$

We used *sqreg* module of STATA 11 for simultaneous quantile regression estimation and obtain an estimate of the entire variance-covariance of the estimators by bootstrapping with 100 bootstrap replications. Simultaneous quantile regression is a robust regression

technique that accounts for the non-normal distribution of error terms and heteroskedasticity (Koenker and Bassett 1978; Koenker and Hallock 2001). Unlike traditional linear models, such as OLS regression, that assume that estimates have a constant effect, simultaneous quantile regression can illustrate if independent variables have non-constant or variable effects across the full distribution of the dependent variable. To examine this, baseline OLS regression models were also executed.

In this chapter, we have attempted to identify the critical factors determines the debt capital of Indian firms. For the purpose of analysis, a panel model has been estimated for the years 2002 to 2011. Further, for analysis, we used a quantile regression model which is relatively new in the present context. This is because by having a complete picture of all quantiles, it is possible to consider several different regression curves that correspond to the various percentage points of the distributions and not only the conditional mean distribution, which neglects the extreme relationship between variables. Quantile regression (Koenker and Bassett 1978; Koenker and Hallock 2001) is a method for fitting a regression line through the conditional quantiles of a distribution. It allows the examination of the relationship between a set of independent variables and the different parts of the distribution of the dependent variable. Quantile regression overcomes some of the disadvantages of the conditional mean framework built upon central tendencies, which tend to lose information on phenomena whose tendencies are toward the tails of a given distribution (Hao and Naiman 2007). The use of the quantile regression approach is also chosen because of the skewed distribution of NFATA,

NW, EBITSA, DEPTA and INCOVER, since in such case the usual assumption of normally distributed error terms is not warranted and could lead to unreliable estimates. Furthermore, companies analyzed are fundamentally heterogeneous and it may make little sense to use regression estimators that implicitly focus on the 'average effect for the average company' by giving summary point estimates of coefficients. Instead, quantile regression techniques are robust to outliers and are able to describe the influence of the regressors over the entire conditional distribution of, NFATA, NW, EBITSA, DEPTA and INCOVER.

2.5 Result and Interpretations

At first we have checked the descriptive statistics of the variables used for the analysis. The table 2.2 shows the detailed descriptive statistics for the variable chosen for the analysis. From the result of descriptive statics it is evident that except GDP and FDI all other variables are either negatively (LNDEBT, LNSA and PLR) or positively (DEPTA, NW, NFATA, EBITSA and INCOVER) skewed. And most of the variables are leptokurtic (NFATA, NW, EBITSA, DEPTA and INCOVER). Moreover, none Jarque-Bera test confirms that none of the variables are normally distributed. In this regard, we have a relay on quantile regression as the most appropriate tool for finding the determinants of debt capital in the Indian corporate sector.

Table 2.2 Descriptive statistics of the variables chosen for the analysis, debt structure of sample companies.

	LnDEBT	LNSA	NW	EBITSA	NFATA	DEPTA	INCOVER	GDP	PLR	FDI
Mean	4.953411	6.792395	2295.521	0.198202	0.431561	0.044928	116.6798	3778882	11.8125	86284.9
Median	5.550864	6.888669	533.09	0.15157	0.383013	0.034633	5.302444	3730500	11.3125	71054.5
Maximum	11.21053	12.70999	151541.7	10.50044	10.26195	1.419831	44718	5202514	14.125	190700
Minimum	-4.60517	-3.21888	-744.52	-4.56386	-4.82143	-0.17857	-2740.32	2570690	8.875	19830
Std. Dev.	2.683264	1.818274	7604.279	0.357723	0.474174	0.065755	1065.688	859075.8	1.718051	62016.6
Skewness	-0.67934	-0.81055	9.723289	12.7065	8.174177	9.777308	27.35988	0.19522	-0.01121	0.30574
Kurtosis	2.933264	5.98259	134.7535	361.9236	151.4834	145.5338	1011.758	1.754743	1.705535	1.485174
Jarque-Bera	247.5005	1541.31	2372346	17316873	2984577	2768393	1.37E+08	227.7909	224.1839	356.9259
Probability	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sum	15900.45	21803.59	7368622	636.2277	1385.311	144.2191	374542.3	1.21E+10	37918.13	2.77E+08
Sum Sq. Dev.	23104.5	10609.34	1.86E+11	410.6423	721.5143	13.87493	3.64E+09	2.37E+15	9472.008	1.23E+13
Observations	3210	3210	3210	3210	3210	3210	3210	3210	3210	3210

Table 2.3 Result of quantile regression analysis of sample companies

Model I	q05			q25			q50			q75			q95		
Variables	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|
LNSA	0.055	0.139	0.689	0.896	0.034	0.000	0.823	0.022	0.000	0.794	0.023	0.000	0.609	0.025	0.000
NFATA	0.010	0.077	0.901	0.122	0.245	0.618	0.123	0.203	0.543	0.208	0.146	0.155	0.072	0.148	0.626
EBITSA	-0.026	0.253	0.918	0.135	0.324	0.676	1.270	0.383	0.001	1.707	0.239	0.000	0.845	0.230	0.000
INCOVER	-7E-05	5E-04	0.887	-3E-03	1.1E-03	0.025	-0.001	5E-04	3E-02	-5E-04	3E-04	5E-02	-5E-05	2E-04	0.816
FDI	-6E-07	1.7E-06	0.708	-6.8E-07	1.5E-06	0.652	1.7E-06	6.3E-07	0.007	2.8E-06	4.7E-07	0.000	2.4E-06	6.6E-07	0.000
PLR	0.007	0.019	0.712	0.012	0.042	0.770	-0.012	0.020	0.552	-0.037	0.015	0.016	-0.083	0.023	0.000
_cons	-0.401	0.866	0.644	-1.874	0.490	0.000	-0.191	0.272	0.482	0.823	0.270	0.002	3.951	0.398	0.000
Pseudo R2	0.0015			0.1891			0.2313			0.2655			0.2815		
Model II															
NW	1E-05	4E-05	8E-01	1E-04	1E-05	0E+00	1E-04	1E-05	0E+00	2E-04	2E-05	0E+00	2E-04	2E-05	0E+00
EBITSA	-0.001	0.028	0.974	0.007	0.424	0.988	-0.175	0.149	0.239	-0.167	0.101	0.097	-0.158	0.143	0.270
DEPTA	0.009	0.060	0.876	-3.723	0.984	0.000	-3.627	1.038	0.000	-3.029	0.646	0.000	-0.459	1.616	0.777
INCOVER	-6E-05	3E-04	8E-01	-2E-03	9E-04	3E-02	-1E-03	4E-04	2E-02	-5E-04	3E-04	8E-02	-4E-05	2E-04	9E-01
GDP	-2.5E-09	1.2E-08	0.832	6.3E-07	1.0E-07	0.000	5.8E-07	4.0E-08	0.000	4.9E-07	4.2E-08	0.000	1.8E-07	4.3E-08	0.000
PLR	3.7E-04	0.004	0.930	0.060	0.049	0.225	0.041	0.023	0.078	0.029	0.017	0.086	-0.007	0.019	0.689
_cons	0.000	0.055	0.994	0.921	0.772	0.233	2.965	0.327	0.000	4.377	0.285	0.000	6.753	0.368	0.000
Pseudo R2	0.0002			0.0793			0.1095			0.1573			0.2622		

2.5.1 Sample companies:

The study has used two different quantile regression models for the analysis at five levels as $0.05^{th,}$ 0.25^{th}, 0.50^{th}, 0.75^{th} and 0.95^{th}. Table 2.3 shows the result of quantile regression analysis of sample companies.

The result shows that none of the variables are showing significance at the lowest quantile 0.05^{th} for both the model. The result of the 0.25^{th} low level of quantile confirms that LNSA, NW, GDP is positively determines the low level of debt capital. However, INCOVER and DEPTA is negatively determined the low level of debt capital.

The median quantile, 0.50^{th} result shows that LNSA, EBITSA, NW, GDP and FDI are directly affecting the average level of debt capital in Indian corporate sector. And INCOVER, DEPTA is negatively determining the average level of debt capital.

However, the high level of quantile results indicates that LNSA, NW, FDI and GDP is positively affecting the high level of debt capital and INCOVER and DEPTA is negatively determine the high level of debt capital.

The result of the highest quantile, 0.95^{th} shows that LNSA, NW, FDI and GDP are positively determine the very high level of debt capital.

PLR is showing an inconsistent result among the model. However, NFATA is having a positive insignificant coefficient among varies the quantiles.

Table 2.4 Result of quantile regression analysis of agriculture sector

Model I	q05			q25			q50			q75			q95		
Variables	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|
LNSA	1.442	0.180	0.000	1.152	0.103	0.000	0.975	0.092	0.000	0.753	0.132	0.000	0.569	0.131	0.000
NFATA	-1.514	1.485	0.310	0.119	0.559	0.832	0.601	0.413	0.147	0.783	0.489	0.112	0.464	0.717	0.518
EBITSA	5.671	2.189	0.010	4.133	1.483	0.006	3.547	1.374	0.011	1.993	1.272	0.119	0.932	1.318	0.480
INCOVER	-0.120	0.024	0.000	-0.106	0.010	0.000	-0.099	0.012	0.000	-0.077	0.013	0.000	-0.057	0.013	0.000
FDI	-6E-06	3E-06	7E-02	1E-06	2E-06	5E-01	2E-06	1E-06	1E-01	5E-06	2E-06	1E-02	7E-06	2E-06	1E-03
PLR	0.031	0.098	0.753	-0.053	0.040	0.186	-0.028	0.030	0.353	-0.005	0.051	0.921	-4E-05	0.067	1.000
_cons	-4.452	2.070	0.033	-2.017	0.810	0.014	-0.947	0.869	0.277	0.562	1.363	0.680	2.437	1.193	0.043
Pseudo R2	0.6839			0.6327			0.5597			0.4947			0.412		
Model II															
NW	2E-03	3E-04	0E+00	2E-03	2E-04	0E+00	1E-03	3E-04	0E+00	2E-03	3E-04	0E+00	2E-03	2E-04	0E+00
EBITSA	1.858	2.062	0.369	2.240	1.436	0.121	2.334	1.048	0.027	1.643	0.759	0.032	1.284	1.040	0.219
DEPTA	0.966	13.211	0.942	-0.432	8.312	0.959	2.703	6.488	0.677	2.810	5.656	0.620	2.062	5.354	0.701
INCOVER	-0.096	0.016	0.000	-0.108	0.016	0.000	-0.100	0.013	0.000	-0.087	0.007	0.000	-0.083	0.008	0.000
GDP	5E-07	5E-07	3E-01	2E-07	2E-07	3E-01	1E-07	2E-07	5E-01	7E-08	1E-07	6E-01	3E-10	1E-07	1E+00
PLR	0.158	0.119	0.188	0.035	0.062	0.573	0.060	0.046	0.193	0.106	0.030	0.001	0.006	0.041	0.879
_cons	-0.724	3.431	0.833	3.553	1.046	0.001	4.056	0.932	0.000	3.941	0.696	0.000	5.870	0.716	0.000
Pseudo R2	0.5606			0.5126			0.4923			0.4972			0.4882		

2.5.2 Agriculture sector:

The table 2.4 shows the result of quantile regression for agriculture sector.

The result of the agriculture sector shows that the lowest level quantile 0.05^{th} LNSA and NW is directly affecting the low level of debt capital. INCOVER and FDI are negatively affecting the lowest level of debt capital.

However in case of low level of quantile 0.25^{th} result indicates that LNSA and NW are positively and INCOVER is negatively influencing the low level of debt capital

The median quantile 0.50^{th} result shows that LNSA, EBITSA, NW and FDI are directly affecting the average level of debt capital and INCOVER is negatively determine the average level of debt capital.

The result of the high level of quantile 0.75^{th} shows that LNSA, NW and FDI are positively determine the high level of debt capital and INCOVER is negatively determine the high level of debt capital in agriculture sector.

The very high level of quantile 0.95^{th} indicates that LNSA, NW and FDI is directly affect the very high level of debt capital and INCOVER is negatively determine the level of debt capital

PLR and EBITSA are showing an inconsistent result among the model. However, NFATA and DEPTA is having an insignificant among the various quantiles

Table 2.5 Result of quantile regression analysis of capital goods sector

Model I	q05			q25			q50			q75			q95		
Variables	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|
LNSA	0.053	0.281	0.851	0.324	0.145	0.026	0.654	0.131	0.000	0.769	0.057	0.000	0.608	0.080	0.000
NFATA	1.806	1.849	0.329	4.024	0.874	0.000	2.099	0.775	0.007	1.749	0.462	0.000	2.530	0.826	0.002
EBITSA	0.588	4.329	0.892	2.670	1.183	0.025	1.744	1.152	0.131	2.471	0.829	0.003	1.316	0.900	0.145
INCOVER	-0.005	0.006	0.358	-0.005	0.006	0.424	-0.003	0.006	0.642	-0.001	0.003	0.781	-0.001	0.002	0.627
FDI	-2E-06	5E-06	8E-01	-1E-05	4E-06	8E-03	7E-07	4E-06	9E-01	2E-06	1E-06	2E-01	4E-06	2E-06	1E-01
PLR	-0.064	0.158	0.685	0.162	0.122	0.185	-0.088	0.114	0.442	-0.059	0.048	0.219	-0.086	0.066	0.191
_cons	-0.194	3.249	0.952	-2.746	1.532	0.074	0.167	1.485	0.910	0.088	0.683	0.898	2.029	0.935	0.031
Pseudo R2	0.0513			0.13			0.1204			0.204			0.3182		
Model II															
NW	3E-04	3E-03	9E-01	4E-04	2E-04	7E-02	2E-04	2E-04	2E-01	6E-04	2E-04	1E-03	7E-04	8E-05	0E+00
EBITSA	0.066	2.464	0.979	-1.017	2.314	0.661	0.391	1.607	0.808	-0.593	0.518	0.253	-0.291	0.617	0.637
DEPTA	2.453	5.284	0.643	1.040	9.768	0.915	-2.504	6.570	0.703	-8.241	5.366	0.125	0.541	4.709	0.909
INCOVER	-0.007	0.005	0.163	-0.001	0.005	0.783	-0.002	0.005	0.680	-0.001	0.003	0.750	-0.001	0.002	0.482
GDP	-4E-08	5E-07	9E-01	-9E-07	3E-07	3E-03	1E-07	3E-07	7E-01	6E-08	1E-07	7E-01	2E-07	7E-08	5E-03
PLR	-0.010	0.121	0.931	0.007	0.187	0.969	-0.143	0.138	0.300	-0.044	0.054	0.410	0.100	0.044	0.023
_cons	0.186	2.753	0.946	4.555	2.579	0.078	5.347	1.833	0.004	5.866	1.084	0.000	4.238	0.583	0.000
Pseudo R2	0.0318			0.0664			0.0514			0.1126			0.2743		

2.5.3 Capital goods sector:

The table 2.5 shows the result of quantile regression for the capital goods sector.

At the lowest quantile 0.5^{th} none of the variables are showing significant for the both the models. The result at low level of quantile 0.25^{th} shows that LNSA, NFATA, NW are positively determine the level of debt capital and FDI and GDP is negatively determine the low level of debt capital.

The median quantile, 0.50^{th} result shows that the average level of debt capital is directly relate to LNSA and NFATA other variables are not showing significance.

Quantile, 0.75^{th} result indicates that high level of debt capital is positively determined by LNSA, NFATA and NW other variables don't have any impact.

The highest level of quantile, 0.95^{th} shows that variables LNSA, NFATA, NW and GDP are directly affect high level of debt capital. Other variable has no significant impact.

The variables EBIT and PLR have inconsistent result among the models and DEPTA is not showing significant result among the quantiles.

Table 2.6 Result of quantile regression analysis of chemical and petrochemicals sector

Model I	q05			q25			q50			q75			q95		
Variables	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|
LNSA	1.771	0.468	0.000	0.966	0.256	0.000	0.837	0.304	0.007	0.857	0.205	0.000	0.572	0.276	0.040
NFATA	1.212	1.379	0.381	1.172	0.729	0.111	0.176	0.871	0.840	-0.109	0.640	0.865	-0.940	0.724	0.197
EBITSA	8.415	2.900	0.005	4.020	1.572	0.012	3.560	1.727	0.042	0.018	1.278	0.989	0.457	1.171	0.697
INCOVER	-0.076	0.025	0.002	-0.052	0.017	0.003	-0.050	0.018	0.008	-0.014	0.022	0.508	-0.011	0.019	0.564
FDI	2E-08	3E-06	1E+00	-2E-06	3E-06	4E-01	-2E-07	3E-06	9E-01	-5E-07	2E-06	8E-01	-6E-07	2E-06	8E-01
PLR	-0.178	0.133	0.183	-0.028	0.073	0.699	-0.091	0.083	0.273	-0.026	0.055	0.634	0.033	0.064	0.610
_cons	-7.206	3.885	0.066	-1.792	1.922	0.354	0.698	2.375	0.769	0.921	1.808	0.611	3.061	2.264	0.179
Pseudo R2	0.6035			0.4494			0.2906			0.235			0.3672		
Model II															
NW	7E-04	2E-04	3E-03	6E-04	2E-04	3E-03	7E-04	2E-04	0E+00	5E-04	2E-04	1E-03	2E-04	2E-04	2E-01
EBITSA	6.935	2.678	0.011	4.190	1.875	0.028	-0.058	1.483	0.969	-0.009	0.944	0.992	0.194	1.061	0.856
DEPTA	-30.146	20.391	0.142	-0.516	7.556	0.946	-4.842	4.538	0.288	-12.346	5.655	0.031	-26.915	8.137	0.001
INCOVER	-0.055	0.022	0.012	-0.061	0.016	0.000	-0.035	0.018	0.057	-0.017	0.016	0.290	-0.014	0.012	0.230
GDP	-3E-07	4E-07	5E-01	1E-07	1E-07	5E-01	1E-08	1E-07	9E-01	-7E-09	1E-07	1E+00	-1E-07	1E-07	2E-01
PLR	-0.269	0.215	0.212	-0.053	0.086	0.537	0.013	0.068	0.847	-0.067	0.061	0.271	-0.022	0.060	0.713
_cons	8.784	3.778	0.022	5.058	1.290	0.000	5.583	0.843	0.000	7.558	0.912	0.000	8.987	1.174	0.000
Pseudo R2	0.5763			0.4419			0.3438			0.2899			0.4027		

2.5.4 Chemical & petrochemical sector:

The table 2.6 shows the result of quantile regression analysis of chemical & petrochemical sector.

The very low level of debt capital, quantile 0.5^{th} is directly determined by LNSA, EBITSA and NW and inversely determined by INCOVER.

The low level of quantile 0.25^{th} result also shows that LNSA, EBITSA and NW positively and INCOVER is negatively determine the low level of debt capital.

The median quantile, 0.50^{th} result shows that LNSA and NW positively determine the average level of debt capital and INCOVER is negatively determine the average level of debt capital.

The high level of quantile, 0.75^{th} result shows that LNSA and NW positively and DEPTA is negatively determine the high level of debt capital.

The very high level of debt capital, quantile 0.95^{th} is positively determined by LNSA and negatively by DEPTA.

Other variables are not showing significant impact on the level of debt capital

Table 2.7 Result of quantile regression analysis of consumer durable sector

Model I	q05			q25			q50			q75			q95		
Variables	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|
LNSA	0.571	0.311	0.071	0.704	0.173	0.000	0.727	0.314	0.023	0.212	0.422	0.617	0.271	0.314	0.391
NFATA	-1.866	2.100	0.377	-0.820	0.472	0.086	-0.821	0.639	0.203	-0.880	0.813	0.283	-0.115	1.603	0.943
EBITSA	2.899	5.269	0.584	2.536	3.963	0.524	2.467	4.797	0.609	0.341	4.720	0.943	4.526	6.201	0.468
INCOVER	-0.256	0.091	0.006	-0.133	0.053	0.015	-0.113	0.036	0.002	-0.106	0.045	0.021	-0.062	0.050	0.225
FDI	-5E-07	4E-06	9E-01	-3E-06	2E-06	2E-01	-1E-06	4E-06	8E-01	9E-06	6E-06	1E-01	3E-06	8E-06	7E-01
PLR	0.154	0.131	0.244	0.093	0.057	0.109	-0.046	0.085	0.588	-0.072	0.140	0.608	-0.058	0.147	0.693
_cons	0.233	2.225	0.917	-0.125	1.336	0.926	1.496	2.279	0.513	5.538	3.385	0.106	6.181	2.726	0.026
Pseudo R2	0.6335			0.465			0.6568			0.3024			0.3712		
Model II															
NW	6E-04	1E-04	0E+00	6E-04	8E-05	0E+00	5E-04	7E-05	0E+00	5E-04	1E-04	0E+00	5E-04	1E-04	2E-03
EBITSA	-1.255	4.127	0.762	-0.413	3.720	0.912	-0.611	3.241	0.851	-0.969	3.536	0.785	-1.446	3.582	0.688
DEPTA	-22.148	5.317	0.000	-19.830	4.837	0.000	-17.710	4.325	0.000	-18.368	5.588	0.002	-22.616	7.384	0.003
INCOVER	-0.128	0.053	0.019	-0.084	0.040	0.038	-0.072	0.031	0.024	-0.046	0.028	0.109	-0.036	0.023	0.129
GDP	-3E-08	3E-07	9E-01	7E-08	2E-07	7E-01	3E-07	2E-07	8E-02	2E-07	2E-07	4E-01	-1E-07	3E-07	7E-01
PLR	0.519	0.149	0.001	0.122	0.082	0.139	0.147	0.061	0.019	0.057	0.076	0.451	-0.014	0.087	0.868
_cons	-0.785	1.464	0.593	4.111	0.907	0.000	3.268	0.711	0.000	5.206	1.426	0.000	7.906	1.495	0.000
Pseudo R2	0.6832			0.5347			0.538			0.5699			0.6364		

2.5.5 Consumer durables sector:

The table 2.7 shows the result of quantile regression analysis of the consumer durables sector.

The result of lowest quantile 0.05^{th} shows that LNSA and NW are directly and INCOVER and DEPTA is inversely affecting the very low level of debt capital.

The quantile, 0.25^{th} result confirms that LNSA and NW positively determine the low level of debt capital and NFATA, DEPTA and INCOVER are negatively determine the low level of debt capital

The median quantile 0.50^{th} result shows that LNSA, NW and GDP positively determine the average level of debt capital and INCOVER and DEPTA is negatively determine the level of debt capital.

The quantile 0.75^{th} result shows that the high level of debt capital is directly affected by NW and inversely affected by DEPTA.

The quantile 0.95^{th} also show the same result as quantile 0.75^{th} .NW is directly affecting the very high level of debt capital and DEPTA is inversely affecting the very high level of debt capital.

EBITSA, FDI doesn't have any significant impact on the various levels of debt capital. PLR is not showing consistent result among the models

Table 2.8 Result of quantile regression analysis of diversified sector

Model I	q05			q25			q50			q75			q95		
Variables	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|
LNSA	0.720	0.327	0.031	0.720	0.327	0.031	0.646	0.146	0.000	0.555	0.089	0.000	0.487	0.232	0.039
NFATA	-0.321	0.453	0.480	-0.102	0.348	0.769	-0.223	0.293	0.450	-0.240	0.201	0.236	-0.358	0.458	0.437
EBITSA	3.363	0.733	0.000	2.602	0.673	0.000	2.627	0.616	0.000	2.064	0.413	0.000	1.798	1.863	0.338
INCOVER	-0.046	0.015	0.002	-0.027	0.018	0.143	-0.018	0.014	0.205	-0.018	0.009	0.059	-0.011	0.015	0.480
FDI	3E-06	4E-06	4E-01	7E-06	3E-06	3E-02	5E-06	2E-06	4E-02	8E-06	2E-06	0E+00	8E-06	5E-06	1E-01
PLR	0.071	0.134	0.600	0.015	0.130	0.909	-0.049	0.100	0.623	0.034	0.061	0.582	0.062	0.079	0.436
_cons	-1.314	3.067	0.670	0.652	2.378	0.785	1.620	1.791	0.369	1.607	0.972	0.102	2.166	1.711	0.210
Pseudo R2	0.6482			0.534			0.5136			0.5438			0.4653		
Model II															
NW	1E-04	4E-04	8E-01	6E-04	2E-04	0E+00	6E-04	2E-04	0E+00	2E-04	1E-04	1E-01	1E-04	9E-05	2E-01
EBITSA	2.720	0.880	0.003	2.410	0.374	0.000	1.689	0.480	0.001	0.205	0.426	0.631	0.183	0.348	0.601
DEPTA	-5.937	2.010	0.004	-3.189	2.805	0.259	-1.264	2.041	0.538	-2.170	2.709	0.426	-2.305	2.566	0.372
INCOVER	-0.022	0.016	0.175	-0.018	0.011	0.104	-0.016	0.008	0.059	-0.019	0.011	0.082	-0.010	0.011	0.358
GDP	6E-08	5E-07	9E-01	1E-07	2E-07	6E-01	2E-07	2E-07	3E-01	6E-07	2E-07	1E-03	9E-07	1E-07	0E+00
PLR	0.130	0.156	0.407	-0.013	0.108	0.904	0.055	0.107	0.606	0.141	0.089	0.118	0.120	0.075	0.113
_cons	2.697	2.028	0.188	4.227	1.231	0.001	3.562	1.225	0.005	2.864	0.971	0.004	2.464	0.814	0.003
Pseudo R2	0.652			0.5439			0.4735			0.47			0.4602		

2.5.6 Diversified sector:

The table 2.8 shows the result of quantile regression analysis of Diversified sector.

The lowest quantile 0.05^{th} result shows that LNSA and EBITSA directly affecting the lowest level of debt capital. Moreover, DEPTA is inversely affecting the lowest level of debt capital.

The low level quantile 0.25^{th} result confirms that LNSA, EBITSA and FDI are directly determining the low level of debt capital.

The median quantile, 0.50^{th} result shows that LNSA, EBITSA, NW and FDI are positively determine the average level of debt capital

The quantile 0.75^{th} result shows that high level of debt capital is directly determined by LNSA, FDI and GDP. Likewise INCOVER is inversely affecting the high level of debt capital.

The quantile 0.95^{th} result shows that very high level of debt capital is directly relates to LNSA and GDP.

NFATA is having negative insignificant coefficient among the quantiles. And PLR is having inconsistent result among the model.

Table 2.9 Result of quantile regression analysis of FMCG sector

Model I	q05			q25			q50			q75			q95		
Variables	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|
LNSA	0.559	0.187	0.003	0.912	0.106	0.000	1.033	0.096	0.000	0.793	0.083	0.000	0.788	0.128	0.000
NFATA	-2.425	1.357	0.075	-3.445	0.682	0.000	-3.520	0.903	0.000	-2.029	0.386	0.000	-1.365	0.598	0.024
EBITSA	-5.607	3.409	0.102	-11.038	2.221	0.000	-5.964	1.712	0.001	-1.588	1.084	0.144	-1.623	1.632	0.321
INCOVER	-3E-05	6E-05	6E-01	-3E-04	8E-05	0E+00	-5E-04	9E-05	0E+00	-5E-04	1E-04	0E+00	-4E-04	7E-05	0E+00
FDI	-8E-06	4E-06	6E-02	1E-06	3E-06	7E-01	-4E-06	3E-06	2E-01	2E-06	2E-06	3E-01	5E-06	3E-06	4E-02
PLR	0.118	0.126	0.352	0.013	0.104	0.902	-0.040	0.118	0.736	-0.011	0.074	0.884	0.116	0.075	0.123
_cons	-2.498	1.881	0.186	-0.849	1.394	0.543	0.410	1.439	0.776	1.126	0.956	0.240	-0.006	1.463	0.997
Pseudo R2	0.0999			0.3206			0.2967			0.2835			0.341		
Model II															
NW	3E-04	1E-04	8E-03	3E-04	2E-04	6E-02	2E-04	2E-04	5E-01	4E-04	2E-04	9E-02	1E-04	3E-04	8E-01
EBITSA	-0.911	4.082	0.824	-9.593	3.830	0.013	-3.581	4.121	0.386	-3.502	2.130	0.102	-0.425	2.146	0.843
DEPTA	-1.801	5.477	0.743	-5.236	4.518	0.248	-9.586	2.670	0.000	-7.051	1.891	0.000	-3.194	2.282	0.163
INCOVER	-1E-05	6E-05	8E-01	-3E-04	1E-04	1E-02	-4E-04	9E-05	0E+00	-5E-04	7E-05	0E+00	-5E-04	7E-05	0E+00
GDP	-2E-07	4E-07	7E-01	4E-07	4E-07	3E-01	5E-07	2E-07	5E-03	5E-07	1E-07	0E+00	8E-07	4E-07	3E-02
PLR	0.108	0.174	0.534	0.112	0.147	0.447	-0.126	0.152	0.407	0.100	0.069	0.150	0.066	0.111	0.553
_cons	-0.694	2.291	0.762	0.748	2.304	0.746	4.780	2.002	0.018	3.223	0.929	0.001	3.274	1.364	0.017
Pseudo R2	0.0323			0.1706			0.1727			0.1808			0.2177		

2.5.7 FMCG sector:

The table 2.9 shows the result of quantile regression analysis of the FMCG sector.

The lowest quantile 0.05^{th} result shows that LNSA, NW and FDI are directly affecting the lowest level of debt capital. And NFATA is inversely affecting the lowest level of debt capital.

The low level quantile 0.25^{th} result confirms that LNSA and NW are directly determining the low level of debt capital. However EBITSA, DEPTA and INCOVER are inversely affecting the low level of debt capital.

The median quantile, 0.50^{th} result shows that LNSA and FDI are positively determine the average level of debt capital. And NFATA, DEPTA and INCOVER are negatively determining the average level of debt capital.

The quantile 0.75^{th} result shows that high level of debt capital is directly determined by LNSA, NW and GDP. Likewise NFATA, INCOVER, and DEPTA are inversely affecting the high level of debt capital.

The quantile 0.95^{th} result shows that very high level of debt capital is positively relates to LNSA, FDI and GDP and negatively relates to INCOVER.

PLR is having inconsistent result among the model.

Table 2.10 Result of quantile regression analysis of healthcare sector

Model I	q05			q25			q50			q75			q95		
Variables	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|
LNSA	0.081	0.389	0.835	0.811	0.409	0.049	0.863	0.116	0.000	0.874	0.078	0.000	0.702	0.118	0.000
NFATA	1.172	0.373	0.002	0.258	0.409	0.529	-0.363	0.103	0.001	-0.628	0.089	0.000	-0.452	0.169	0.008
EBITSA	-2.332	1.829	0.203	0.228	1.795	0.899	-0.023	0.932	0.981	-0.119	0.650	0.854	-0.181	0.472	0.702
INCOVER	-2E-03	2E-03	3E-01	-5E-03	2E-03	3E-02	-2E-03	2E-03	1E-01	-1E-03	4E-04	0E+00	-1E-03	1E-04	0E+00
FDI	-7E-07	4E-06	9E-01	1E-06	6E-06	8E-01	2E-06	2E-06	3E-01	3E-06	1E-06	4E-03	4E-06	2E-06	2E-02
PLR	0.265	0.113	0.020	0.185	0.193	0.338	0.020	0.048	0.686	0.052	0.045	0.252	0.038	0.047	0.425
_cons	-2.624	2.860	0.360	-3.737	2.526	0.140	-0.418	0.860	0.627	-0.178	0.611	0.771	1.774	0.957	0.065
Pseudo R2	0.1315			0.1641			0.2207			0.2514			0.2838		
Model II															
NW	2E-04	3E-04	7E-01	7E-04	3E-04	2E-02	5E-04	2E-04	3E-03	4E-04	2E-04	2E-02	3E-04	1E-04	4E-02
EBITSA	-2.408	1.718	0.162	-0.507	1.394	0.716	-0.586	1.201	0.626	-0.524	1.019	0.607	-0.465	0.646	0.472
DEPTA	8.763	2.977	0.004	-1.857	2.815	0.510	-4.753	1.950	0.015	-4.131	1.956	0.036	-2.495	1.484	0.094
INCOVER	-2E-03	2E-03	4E-01	-5E-03	3E-03	7E-02	-2E-03	2E-03	1E-01	-1E-03	8E-04	7E-02	-1E-03	3E-04	0E+00
GDP	-3E-09	3E-07	1E+00	1E-07	4E-07	8E-01	7E-07	2E-07	1E-03	5E-07	2E-07	6E-03	5E-07	1E-07	0E+00
PLR	0.267	0.104	0.011	0.099	0.164	0.547	0.123	0.061	0.047	0.077	0.056	0.169	0.139	0.040	0.001
_cons	-2.316	1.722	0.180	1.898	2.285	0.407	1.366	1.186	0.251	3.568	0.963	0.000	3.614	0.712	0.000
Pseudo R2	0.1235			0.1633			0.1864			0.1836			0.2433		

2.5.8 Healthcare sector:

The table 2.10 shows the result of quantile regression analysis of the healthcare sector.

The quantile, 0.5^{th} very low level of debt capital is directly determined by NFATA, DEPTA and PLR.

The low level of quantile 0.25^{th} result also shows that LNSA, and NW positively and INCOVER is negatively determine the low level of debt capital.

The median quantile, 0.50^{th} result shows that LNSA, GDP and NW positively determine the average level of debt capital. NFATA and DEPTA are negatively determining the average level of debt capital.

The high level of quantile, 0.75^{th} result shows that LNSA, NW, FDI and GDP are positively and DEPTA, NFATA and INCOVER is negatively determine the high level of debt capital.

The very high level of debt capital, quantile 0.95^{th} is positively determined by LNSA, NW, FDI and GDP. Negatively affected by DEPTA, NFATA, INCOVER

EBITSA is having a negative insignificant coefficient among the quantiles.

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Table 2.11 Result of quantile regression analysis of housing related sector

Model I	q05			q25			q50			q75			q95		
Variables	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|
LNSA	1.322	0.228	0.000	0.800	0.095	0.000	0.845	0.047	0.000	0.749	0.077	0.000	0.691	0.077	0.000
NFATA	-0.133	0.771	0.863	0.394	0.297	0.185	0.326	0.165	0.050	-0.127	0.241	0.599	-1.345	0.436	0.002
EBITSA	0.277	1.610	0.863	1.441	0.677	0.034	1.882	0.413	0.000	1.267	0.506	0.013	0.433	0.568	0.447
INCOVER	-0.023	0.028	0.414	-0.009	0.011	0.426	-0.006	0.005	0.211	-0.005	0.003	0.115	-0.002	0.003	0.524
FDI	-8E-06	8E-06	3E-01	2E-06	2E-06	2E-01	1E-06	1E-06	4E-01	2E-06	1E-06	2E-01	2E-06	2E-06	5E-01
PLR	0.039	0.172	0.819	-0.006	0.038	0.868	-0.048	0.028	0.081	-0.066	0.030	0.027	-0.111	0.057	0.054
_cons	-4.096	2.082	0.050	-0.201	0.681	0.768	0.509	0.445	0.253	2.078	0.714	0.004	4.548	0.934	0.000
Pseudo R2	0.4309			0.5278			0.5115			0.4548			0.4433		
Model II															
NW	5E-04	2E-04	4E-03	2E-04	4E-05	0E+00	3E-04	5E-05	0E+00	4E-04	1E-04	0E+00	5E-04	2E-04	1E-03
EBITSA	0.563	0.692	0.417	0.343	0.593	0.563	-0.498	0.493	0.313	-0.141	0.579	0.807	1.308	0.783	0.096
DEPTA	16.195	7.239	0.026	6.335	4.640	0.173	6.665	3.866	0.086	5.147	4.165	0.217	-0.900	2.564	0.726
INCOVER	-0.009	0.012	0.457	-0.011	0.006	0.058	-0.007	0.003	0.045	-0.003	0.003	0.292	-0.004	0.002	0.068
GDP	1E-06	7E-07	2E-01	1E-06	1E-07	0E+00	8E-07	1E-07	0E+00	4E-07	2E-07	8E-03	3E-08	8E-08	7E-01
PLR	-0.244	0.297	0.413	0.133	0.080	0.096	0.097	0.034	0.005	0.035	0.053	0.506	-0.010	0.032	0.748
_cons	-0.051	3.836	0.989	-2.028	1.282	0.115	1.654	0.662	0.013	4.238	1.110	0.000	6.847	0.620	0.000
Pseudo R2	0.1859			0.2347			0.2412			0.2451			0.3445		

2.5.9 Housing related sector:

The table 2.11 shows the result of quantile regression analysis of the housing related sector.

The quantile, 0.5^{th} very low level of debt capital is directly determined by LNSA, DEPTA and NW.

The quantile 0.25^{th} result also shows that LNSA, GDP and NW positively and determine the low level of debt capital.

The median quantile, 0.50^{th} result shows that LNSA, NFATA, DEPTA, GDP and NW positively determine the average level of debt capital.

The high level of quantile, 0.75^{th} result shows that LNSA, NW and GDP are positively determine the high level of debt capital.

The very high level of debt capital, quantile 0.95^{th} is positively determined by LNSA and NW and negatively affected by NFATA.

EBITSA is having a positive insignificant coefficient among the quantiles.

Table 2.12 Result of quantile regression analysis of information technology sector

Model I	q05			q25			q50			q75			q95		
Variables	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|
LNSA	0.262	0.166	0.115	0.065	0.154	0.674	0.525	0.110	0.000	0.466	0.133	0.001	0.469	0.076	0.000
NFATA	0.713	1.012	0.482	-0.307	1.274	0.810	-1.458	1.482	0.326	-0.993	1.510	0.511	0.742	1.272	0.561
EBITSA	0.845	0.804	0.294	0.481	1.137	0.673	0.330	0.952	0.729	0.416	1.109	0.708	1.956	1.068	0.068
INCOVER	-2E-04	2E-04	5E-01	-4E-04	4E-04	4E-01	-3E-04	6E-04	7E-01	-1E-05	5E-04	1E+00	-7E-05	4E-04	9E-01
FDI	-2E-06	3E-06	4E-01	1E-05	7E-06	4E-02	1E-05	5E-06	1E-02	1E-05	4E-06	0E+00	1E-05	4E-06	0E+00
PLR	-0.119	0.112	0.290	0.019	0.208	0.928	-0.180	0.113	0.113	-0.185	0.127	0.147	-0.048	0.098	0.624
_cons	-1.015	1.703	0.552	-0.886	2.241	0.693	1.414	1.356	0.298	2.880	1.748	0.101	1.810	1.618	0.265
Pseudo R2	0.0732			0.0277			0.1649			0.1849			0.3038		
Model II															
NW	2E-05	1E-04	8E-01	-4E-05	2E-04	8E-01	6E-05	2E-04	7E-01	1E-04	1E-04	1E-01	2E-04	8E-05	3E-02
EBITSA	0.674	0.516	0.193	0.572	1.248	0.647	0.180	1.257	0.886	0.031	0.431	0.943	2.031	1.042	0.052
DEPTA	-9.333	5.731	0.105	-4.859	6.843	0.478	-15.328	7.993	0.056	-13.029	4.364	0.003	-6.068	4.476	0.177
INCOVER	-5E-05	4E-04	9E-01	-7E-05	6E-04	9E-01	-3E-04	6E-04	6E-01	-1E-05	6E-04	1E+00	-8E-05	5E-04	9E-01
GDP	2E-07	2E-07	3E-01	5E-07	5E-07	4E-01	2E-06	3E-07	0E+00	9E-07	2E-07	0E+00	8E-07	2E-07	0E+00
PLR	0.031	0.110	0.778	0.028	0.200	0.887	0.069	0.135	0.611	-0.022	0.078	0.775	0.019	0.083	0.822
_cons	-1.593	1.442	0.270	-1.485	2.329	0.524	-2.962	2.137	0.167	1.881	1.029	0.069	2.226	1.258	0.078
Pseudo R2	0.0699			0.0155			0.1283			0.1803			0.2988		

2.5.10 Information technology:

The table 2.12 shows the result of quantile regression analysis of the information technology sector.

The result shows that none of the variables are showing significance at the lowest quantile 0.05^{th} for both the model. The result of the 0.25^{th} low level of quantile confirms that FDI is positively determines the level of debt capital. However, other variables are not showing any kind of significance.

The median quantile, 0.50^{th} result shows that LNSA, GDP and FDI are directly affecting the average level of debt capital. And DEPTA is negatively determining the average level of debt capital.

However, the high level of quantile, 0.75^{th} results also indicates that LNSA, GDP and FDI are directly affecting the high level of debt capital. And DEPTA is negatively determining the high level of debt capital. .

The result of the highest quantile, 0.95^{th} shows that LNSA, EBITSA, NW, FDI and GDP are positively determine the very high level of debt capital.

PLR is showing an inconsistent result among the model. However, NFATA is having a positive insignificant coefficient among varies the quantiles.

Table 2.13 Result of quantile regression analysis of media and publishing sector

Model I	q05			q25			q50			q75			q95		
Variables	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|
LNSA	-1.250	1.222	0.310	0.483	0.390	0.220	0.561	0.218	0.012	0.613	0.230	0.010	0.079	0.445	0.860
NFATA	-7.932	4.825	0.105	-2.213	1.861	0.239	-1.425	1.363	0.300	-2.036	0.922	0.031	-4.286	1.670	0.013
EBITSA	0.749	2.769	0.788	0.709	1.383	0.610	0.301	0.765	0.695	0.374	1.009	0.712	-0.431	1.491	0.773
INCOVER	-0.002	0.015	0.889	-0.008	0.012	0.514	-0.008	0.006	0.188	-0.009	0.004	0.042	-0.010	0.001	0.000
FDI	2E-05	2E-05	3E-01	-7E-07	6E-06	9E-01	4E-07	4E-06	9E-01	5E-06	4E-06	2E-01	1E-05	4E-06	2E-03
PLR	-0.021	0.449	0.963	0.083	0.250	0.739	0.155	0.148	0.300	0.061	0.143	0.672	-0.103	0.167	0.537
_cons	7.960	7.300	0.280	0.760	3.164	0.811	-0.156	2.235	0.945	1.387	2.448	0.573	7.552	4.043	0.066
Pseudo R2	0.1013			0.3521			0.3386			0.3681			0.3566		
Model II															
NW	-1E-03	9E-04	9E-02	-8E-05	6E-04	9E-01	5E-04	4E-04	2E-01	3E-04	2E-04	2E-01	2E-04	2E-04	3E-01
EBITSA	0.834	1.887	0.660	0.876	1.756	0.620	0.642	1.362	0.639	0.928	1.033	0.373	0.985	0.695	0.161
DEPTA	-50.082	14.864	0.001	-23.631	17.307	0.177	-16.950	11.089	0.131	-2.969	9.828	0.764	-5.567	5.719	0.334
INCOVER	-0.007	0.011	0.525	-0.007	0.010	0.477	-0.008	0.007	0.301	-0.009	0.006	0.121	-0.010	0.006	0.106
GDP	8E-07	6E-07	2E-01	9E-07	5E-07	1E-01	1E-06	5E-07	5E-02	7E-07	4E-07	6E-02	1E-06	2E-07	0E+00
PLR	0.491	0.301	0.108	0.138	0.166	0.410	0.086	0.133	0.520	0.022	0.162	0.892	0.065	0.109	0.553
_cons	-4.184	4.487	0.355	-0.729	2.166	0.737	0.196	2.457	0.937	2.266	2.501	0.368	0.801	1.222	0.515
Pseudo R2	0.3158			0.3866			0.3236			0.3308			0.4147		

2.5.11 Media & publishing sector:

The table 2.13 shows the result of quantile regression analysis of the media and publishing sector.

The result shows that at the lowest quantile 0.05^{th} NW and DEPTA are inversely relates to the very low level of debt capital.

The result of the 0.25^{th} low level of quantile confirms that variables are not showing any kind of significance for both the model.

The median quantile, 0.50^{th} result shows that LNSA and GDP are directly affecting the average level of debt capital

The high level of quantile, 0.75^{th} results indicates that LNSA and GDP are directly affecting the high level of debt capital in Indian corporate sector. And NFATA is negatively determining the high level of debt capital. .

The result of the highest quantile, 0.95^{th} shows that FDI and GDP are positively determine the very high level of debt capital. NFATA is negatively determine the very high level of debt capital

INCOVER and EBITSA not showing any kind of significance for the entire quantiles and PLR are result are inconsistent among the models.

Table 2.14 Result of quantile regression analysis of metal, metal products and mining sector

Model I	q05			q25			q50			q75			q95		
Variables	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|
LNSA	0.676	0.253	0.008	1.171	0.064	0.000	0.907	0.048	0.000	0.915	0.047	0.000	0.882	0.082	0.000
NFATA	1.819	1.516	0.231	0.491	0.485	0.313	0.724	0.361	0.046	0.651	0.349	0.063	0.079	0.744	0.915
EBITSA	-10.280	2.354	0.000	-9.842	1.747	0.000	-2.187	1.093	0.046	-0.446	0.516	0.388	0.001	1.037	0.999
INCOVER	-0.004	0.006	0.512	-0.007	0.005	0.103	-0.008	0.005	0.127	-0.002	0.004	0.704	0.001	0.003	0.819
FDI	3E-06	8E-06	7E-01	-8E-07	3E-06	8E-01	3E-06	1E-06	4E-02	2E-06	8E-07	2E-02	8E-07	3E-06	8E-01
PLR	0.377	0.257	0.144	0.010	0.067	0.884	-0.029	0.045	0.518	-0.020	0.032	0.536	-0.048	0.059	0.418
_cons	-5.627	3.357	0.095	-1.646	0.943	0.082	0.197	0.585	0.736	0.166	0.423	0.696	1.772	0.984	0.073
Pseudo R2	0.275			0.3895			0.3685			0.4036			0.4145		
Model II															
NW	1E-04	2E-04	4E-01	1E-04	2E-05	0E+00	1E-04	2E-05	0E+00	1E-04	2E-05	0E+00	1E-04	3E-05	0E+00
EBITSA	-9.352	2.703	0.001	-8.159	1.491	0.000	-5.494	1.933	0.005	-2.713	1.561	0.083	-1.767	1.198	0.142
DEPTA	7.636	28.192	0.787	48.173	15.873	0.003	33.319	9.000	0.000	31.366	8.134	0.000	31.460	9.080	0.001
INCOVER	-7E-03	6E-03	3E-01	-8E-03	3E-03	8E-03	-5E-03	3E-03	1E-01	2E-05	3E-03	1E+00	6E-04	2E-03	7E-01
GDP	3E-07	8E-07	7E-01	1E-06	3E-07	5E-03	6E-07	2E-07	4E-03	4E-07	2E-07	3E-02	4E-07	3E-07	1E-01
PLR	0.445	0.373	0.234	0.204	0.096	0.034	0.144	0.077	0.063	0.081	0.061	0.190	-0.118	0.095	0.217
_cons	-2.786	4.885	0.569	-1.183	1.889	0.532	1.909	1.393	0.172	3.809	1.583	0.017	7.052	1.440	0.000
Pseudo R2	0.1733			0.2709			0.2216			0.2252			0.2425		

2.5.12 Metal, metal products and mining sector:

The table 2.14 shows the result of quantile regression analysis of the metal, metal products and mining sector.

The quantile, 0.5^{th} very low level of debt capital is directly relates to LNSA and inversely relates to DEPTA

The quantile 0.25^{th} result also shows that LNSA, DEPTA, GDP and NW positively determine the low level of debt capital. EBITSA is negatively determining the low level of debt capital.

The median quantile, 0.50^{th} result shows that LNSA, NFATA, DEPTA, GDP, FDI and NW positively determine the average level of debt capital. And EBITSA is negatively determine the average level of debt capital

The high level of quantile, 0.75^{th} result shows that LNSA, NFATA, NW, DEPTA, FDI and GDP are positively determine the high level of debt capital.

The very high level of debt capital, quantile 0.95^{th} is positively determined by LNSA, DEPTA and NW.

Table 2.15 Result of quantile regression analysis of miscellaneous sector

Model I	q05			q25			q50			q75			q95		
Variables	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|
LNSA	1.373	0.337	0.000	1.152	0.155	0.000	0.965	0.101	0.000	0.890	0.102	0.000	0.908	0.114	0.000
NFATA	3.660	1.098	0.001	2.042	0.620	0.001	2.341	0.494	0.000	1.352	0.674	0.047	1.477	1.333	0.270
EBITSA	7.268	3.132	0.022	6.828	1.691	0.000	4.642	1.234	0.000	5.102	1.110	0.000	3.667	1.520	0.017
INCOVER	-0.119	0.040	0.004	-0.055	0.024	0.023	-0.035	0.011	0.002	-0.037	0.007	0.000	-0.031	0.008	0.000
FDI	3E-07	8E-06	1E+00	3E-06	3E-06	3E-01	7E-06	2E-06	4E-03	5E-06	2E-06	4E-03	5E-06	3E-06	7E-02
PLR	-0.082	0.243	0.735	0.077	0.099	0.437	0.022	0.043	0.618	-0.017	0.048	0.727	-0.012	0.053	0.827
_cons	-6.684	3.596	0.066	-5.555	1.907	0.004	-3.361	1.147	0.004	-1.348	1.121	0.232	-1.051	0.917	0.254
Pseudo R2	0.4306			0.5514			0.5418			0.537			0.474		
Model II															
NW	2E-03	8E-04	2E-02	1E-03	3E-04	1E-03	1E-03	3E-04	0E+00	1E-03	3E-04	0E+00	4E-04	3E-04	3E-01
EBITSA	5.244	2.747	0.059	4.083	2.047	0.048	1.690	1.538	0.274	2.484	1.852	0.182	0.362	3.238	0.911
DEPTA	5.438	9.015	0.548	-17.575	11.394	0.126	-3.803	9.695	0.696	-4.177	11.028	0.706	4.726	11.310	0.677
INCOVER	-0.078	0.053	0.140	-0.073	0.023	0.002	-0.040	0.019	0.037	-0.041	0.011	0.000	-0.031	0.008	0.000
GDP	1E-06	7E-07	1E-01	1E-07	4E-07	8E-01	5E-07	2E-07	3E-02	4E-07	2E-07	5E-02	3E-07	2E-07	1E-01
PLR	0.690	0.264	0.010	0.110	0.097	0.261	0.111	0.077	0.151	-0.049	0.089	0.582	-0.006	0.099	0.949
_cons	-11.462	4.976	0.023	2.993	1.921	0.122	1.620	1.205	0.181	4.689	1.025	0.000	5.849	1.537	0.000
Pseudo R2	0.3425			0.4523			0.3825			0.3368			0.2481		

2.5.13 Miscellaneous sector:

. The table 2.15 shows the result of quantile regression analysis of the metal, metal products and mining sector.

The quantile, 0.5^{th} very low level of debt capital is directly relates to LNSA, NFATA, EBITSA and NW.

The quantile 0.25^{th} result also shows that LNSA, NFATA, EBITSA, DEPTA and NW positively determine the low level of debt capital. INCOVER is negatively determining the low level of debt capital.

The median quantile, 0.50^{th} result shows that LNSA, NFATA, GDP, FDI and NW positively determine the average level of debt capital. And INCOVER is negatively determine the average level of debt capital

The high level of quantile, 0.75^{th} result also shows that LNSA, NFATA, GDP, FDI and NW positively determine the average level of debt capital. And INCOVER is negatively determine the average level of debt capital

The very high level of debt capital, quantile 0.95^{th} is positively determined by LNSA and FDI, negatively by INCOVER.

Table 2.16 Result of quantile regression analysis of oil and gas sector

Model I	q05			q25			q50			q75			q95		
Variables	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|
LNSA	1.547	0.184	0.000	0.977	0.093	0.000	0.955	0.080	0.000	0.732	0.083	0.000	0.530	0.048	0.000
NFATA	4.406	1.454	0.003	0.568	0.923	0.539	0.804	0.794	0.313	-0.464	0.903	0.607	-2.169	0.512	0.000
EBITSA	6.110	1.259	0.000	2.302	1.299	0.078	2.100	1.001	0.037	1.697	1.376	0.219	-0.993	0.637	0.121
INCOVER	-5E-03	7E-03	4E-01	-7E-04	4E-03	9E-01	-6E-04	8E-04	5E-01	-1E-03	4E-04	1E-02	-1E-03	4E-04	1E-02
FDI	-2E-06	4E-06	7E-01	-2E-06	3E-06	7E-01	4E-06	2E-06	4E-02	2E-06	2E-06	4E-01	2E-06	2E-06	2E-01
PLR	0.012	0.203	0.954	0.026	0.089	0.770	-0.021	0.047	0.655	0.002	0.068	0.972	-0.102	0.061	0.093
_cons	-12.358	3.456	0.000	-3.062	1.775	0.086	-2.050	1.620	0.207	1.446	1.650	0.382	6.923	1.011	0.000
Pseudo R2	0.4048			0.4347			0.4704			0.4412			0.4203		
Model II															
NW	7E-05	2E-05	0E+00	6E-05	2E-05	1E-03	6E-05	1E-05	0E+00	6E-05	1E-05	0E+00	6E-05	9E-06	0E+00
EBITSA	-0.411	2.192	0.852	-7.323	1.523	0.000	-6.064	0.956	0.000	-4.661	0.670	0.000	-2.879	0.458	0.000
DEPTA	5.939	13.622	0.663	-16.838	15.040	0.264	-10.419	6.185	0.094	-7.336	4.342	0.093	-8.804	3.066	0.005
INCOVER	1E-03	4E-03	8E-01	-8E-04	2E-03	7E-01	-2E-03	6E-04	9E-03	-2E-03	4E-04	0E+00	-2E-03	3E-04	0E+00
GDP	9E-09	7E-07	1E+00	7E-07	3E-07	4E-02	2E-07	3E-07	6E-01	3E-07	2E-07	1E-01	3E-07	1E-07	2E-02
PLR	0.235	0.271	0.387	0.153	0.162	0.345	-0.021	0.104	0.838	-0.028	0.083	0.736	-0.047	0.059	0.429
_cons	-2.594	2.990	0.387	2.891	3.293	0.381	8.061	2.161	0.000	8.037	1.484	0.000	8.805	0.597	0.000
Pseudo R2	1724			0.2134			0.3043			0.3651			0.4185		

2.5.14 Oil & gas sector:

The table 2.16 shows the result of quantile regression analysis of the oil and gas sector.

The quantile, 0.5^{th} very low level of debt capital is directly relates to LNSA, NFATA and NW.

The quantile 0.25^{th} result also shows that LNSA, GDP and NW positively determine the low level of debt capital.

The median quantile, 0.50^{th} result shows that LNSA, FDI and NW positively determine the average level of debt capital. And DEPTA is negatively determine the average level of debt capital

The high level of quantile, 0.75^{th} result shows that LNSA and NW positively determine the high level of debt capital. However, DEPTA and INCOVER are negatively determine the high level of debt capital

The very high level of debt capital, quantile 0.95^{th} is positively determined by LNSA, NW and GDP, and negatively by INCOVER, NFATA and DEPTA.

Table 2.17 Result of quantile regression analysis of power sector

Model I	q05			q25			q50			q75			q95		
Variables	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|
LNSA	0.780	0.369	0.036	1.039	0.132	0.000	0.794	0.114	0.000	0.741	0.085	0.000	0.209	0.101	0.039
NFATA	4.643	1.729	0.008	1.196	0.572	0.038	0.620	0.367	0.093	0.213	0.585	0.716	0.526	0.629	0.404
EBITSA	0.656	0.837	0.434	1.529	0.776	0.050	1.307	0.824	0.114	1.837	0.860	0.034	-0.532	0.734	0.469
INCOVER	-0.101	0.057	0.078	-0.081	0.043	0.062	-0.016	0.025	0.534	-0.016	0.013	0.237	-0.012	0.008	0.163
FDI	-2E-06	4E-06	6E-01	2E-06	2E-06	4E-01	1E-06	2E-06	5E-01	1E-06	2E-06	6E-01	4E-06	2E-06	9E-03
PLR	-0.310	0.204	0.130	-0.005	0.058	0.931	-0.073	0.055	0.189	-0.049	0.064	0.451	-0.055	0.054	0.304
_cons	1.085	2.413	0.654	-1.519	1.521	0.319	1.731	1.395	0.217	2.376	1.496	0.114	8.388	1.182	0.000
Pseudo R2	0.4648			4160			0.365			0.3032			0.2568		
Model II															
NW	1E-04	1E-05	0E+00	1E-04	2E-05	0E+00	1E-04	4E-05	8E-03	2E-04	4E-05	0E+00	1E-04	5E-05	4E-03
EBITSA	-0.03	0.80	0.97	0.66	0.98	0.50	0.03	0.86	0.98	-0.36	0.42	0.39	0.98	0.56	0.08
DEPTA	95.83	14.59	0.00	52.40	15.93	0.00	27.78	13.61	0.04	10.68	7.08	0.13	0.97	4.53	0.83
INCOVER	-0.02	0.02	0.51	-0.04	0.03	0.12	-0.01	0.03	0.61	-0.01	0.02	0.58	-0.01	0.00	0.08
GDP	4E-07	3E-07	2E-01	4E-07	3E-07	2E-01	5E-07	3E-07	1E-01	9E-08	2E-07	7E-01	1E-08	1E-07	9E-01
PLR	-0.106	0.160	0.508	0.017	0.141	0.902	-0.037	0.108	0.733	-0.043	0.066	0.512	-0.021	0.072	0.773
_cons	0.058	2.668	0.983	2.014	2.114	0.342	4.385	2.224	0.050	7.245	1.228	0.000	7.807	0.826	0.000
Pseudo R2	0.451			0.3412			0.2614			0.2906			0.3751		

2.5.15 Power sector:

The table 2.17 shows the result of quantile regression analysis of power sector.

The result shows that at the lowest quantile 0.05^{th} LNSA, NFATA, NW and DEPTA are directly relates to the very low level of debt capital.

The result of the 0.25^{th} low level of quantile also confirms that LNSA, NFATA, NW and DEPTA are directly relates the low level of debt capital

The median quantile, 0.50^{th} result also shows that LNSA, NFATA, NW and DEPTA are directly affecting the average level of debt capital

The high level of quantile, 0.75^{th} results indicates that LNSA and NW are directly affecting the high level of debt capital

The result of the highest quantile, 0.95^{th} shows that LNSA and FDI are positively determine the very high level of debt capital.

INCOVER and EBITSA not showing any kind of significance for the entire quantiles and PLR are result are inconsistent among the models.

Table 2.18 Result of quantile regression analysis of telecom sector

Model I	q05			q25			q50			q75			q95		
Variables	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|
LNSA	0.000	0.188	1.000	1.222	0.363	0.001	0.945	0.124	0.000	0.817	0.203	0.000	0.397	0.214	0.067
NFATA	0.000	3.698	1.000	1.705	1.393	0.224	1.034	0.557	0.066	0.448	0.437	0.308	0.541	0.362	0.139
EBITSA	0.000	2.480	1.000	-2.219	1.797	0.220	-1.658	1.102	0.136	-1.131	0.615	0.069	-0.024	0.568	0.967
INCOVER	0.000	0.005	1.000	0.000	0.006	0.942	-0.001	0.004	0.790	-0.002	0.004	0.573	-0.003	0.004	0.367
FDI	0E+00	1E-05	1E+00	-1E-05	1E-05	3E-01	-1E-06	4E-06	7E-01	1E-06	4E-06	7E-01	3E-06	2E-06	1E-01
PLR	0.000	0.210	1.000	-0.102	0.328	0.755	-0.039	0.093	0.676	-0.024	0.087	0.785	-0.055	0.065	0.401
_cons	0.000	2.880	1.000	-2.307	3.821	0.547	-0.334	1.270	0.793	1.246	1.781	0.486	5.126	1.827	0.006
Pseudo R2	0.0000			0.2467			0.32			0.2997			0.2811		
Model II															
NW	1E-05	5E-05	8E-01	-1E-04	1E-04	3E-01	6E-05	7E-05	4E-01	9E-05	5E-05	5E-02	5E-05	4E-05	3E-01
EBITSA	0.036	1.609	0.982	-2.568	2.293	0.265	-0.706	1.171	0.548	-0.325	0.334	0.333	0.452	0.269	0.095
DEPTA	-5.616	16.020	0.727	18.012	10.467	0.088	14.364	4.037	0.001	8.477	3.303	0.012	10.153	3.636	0.006
INCOVER	-3E-04	1E-03	8E-01	-6E-05	6E-03	1E+00	-3E-03	6E-03	7E-01	-3E-03	6E-03	6E-01	-4E-03	6E-03	5E-01
GDP	4E-08	2E-07	9E-01	8E-07	1E-06	4E-01	8E-07	2E-07	1E-03	5E-07	3E-07	1E-01	4E-07	2E-07	2E-02
PLR	0.025	0.112	0.827	-0.062	0.544	0.909	0.109	0.135	0.421	0.016	0.096	0.867	-0.008	0.077	0.917
_cons	-0.270	1.408	0.848	-0.403	6.838	0.953	0.517	2.082	0.804	4.474	1.985	0.026	5.849	0.913	0.000
Pseudo R2	0.0007			0.1052			0.1592			0.1834			0.2352		

2.5.16 Telecom sector:

The table 2.18 shows the result of quantile regression analysis of the telecom sector.

The result shows that none of the variables are showing significance at the lowest quantile 0.05^{th} for both the model. The result of the 0.25^{th} low level of quantile confirms that LNSA and DEPTA are positively determines the level of debt capital. However, other variables are not showing any kind of significance.

The median quantile, 0.50^{th} result shows that LNSA, NFATA, DEPTA and GDP are positively determine the average level of debt capital.

The high level of quantile, 0.75^{th} result shows that LNSA, DEPTA and NW are positively determine the high level of debt capital.

The very high level of debt capital, quantile 0.95^{th} is positively determined by LNSA,GDP, FDI and DEPTA.

Table 2.19 Result of quantile regression analysis of textile sector

Model I	q05			q25			q50			q75			q95		
Variables	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|
LNSA	1.404	0.105	0.000	1.203	0.075	0.000	1.270	0.103	0.000	1.289	0.160	0.000	0.819	0.320	0.012
NFATA	-1.152	0.298	0.000	-1.084	0.282	0.000	-1.279	0.313	0.000	-1.603	0.386	0.000	-1.685	1.256	0.183
EBITSA	2.581	1.399	0.068	2.181	1.399	0.122	2.440	1.412	0.087	2.364	1.212	0.054	3.716	1.878	0.051
INCOVER	-0.128	0.022	0.000	-0.104	0.025	0.000	-0.105	0.023	0.000	-0.091	0.018	0.000	-0.077	0.023	0.001
FDI	1E-06	1E-06	3E-01	3E-06	1E-06	2E-02	2E-06	1E-06	1E-01	3E-07	1E-06	8E-01	1E-06	3E-06	7E-01
PLR	0.022	0.040	0.590	0.042	0.042	0.315	0.050	0.029	0.083	0.036	0.034	0.289	-0.028	0.061	0.649
_cons	-3.601	0.857	0.000	-2.247	0.708	0.002	-2.405	0.775	0.003	-1.890	1.319	0.155	2.487	2.649	0.350
Pseudo R2	0.8310			0.7049			0.6415			5577			0.4928		
Model II															
NW	6E-04	2E-04	9E-03	4E-04	1E-04	2E-02	5E-04	8E-05	0E+00	5E-04	7E-05	0E+00	4E-04	8E-05	0E+00
EBITSA	14.949	5.098	0.004	2.320	2.088	0.269	3.535	1.263	0.006	3.858	1.416	0.008	1.747	0.999	0.084
DEPTA	8.691	11.413	0.448	-11.774	5.087	0.023	-9.147	4.113	0.029	-9.661	6.703	0.153	-16.395	4.097	0.000
INCOVER	-0.335	0.073	0.000	-0.113	0.041	0.007	-0.130	0.025	0.000	-0.131	0.023	0.000	-0.104	0.016	0.000
GDP	1E-06	5E-07	1E-02	4E-07	9E-08	0E+00	3E-07	9E-08	1E-03	3E-07	1E-07	2E-02	4E-07	8E-08	0E+00
PLR	0.368	0.157	0.021	-0.011	0.054	0.845	0.038	0.036	0.297	0.018	0.060	0.763	0.034	0.037	0.349
_cons	-5.605	3.683	0.131	5.477	1.040	0.000	5.110	0.687	0.000	5.767	1.121	0.000	6.258	0.612	0.000
Pseudo R2	0.4738			0.4108			0.4517			0.4179			0.5634		

2.5.17 Textile sector:

The table 2.19 shows the result of quantile regression analysis of textile sector.

The result shows that at the lowest quantile 0.05^{th} LNSA, EBITSA, NW and GDP are directly relates to the very low level of debt capital. NFATA and INCOVER are inversely relates to the very low level of debt capital.

The result of the 0.25^{th} low level of quantile also confirms that LNSA, NW, FDI and GDP are directly relates the low level of debt capital NFATA, DEPTA and INCOVER are inversely relates to the low level of debt capital.

The median quantile, 0.50^{th} result also shows that LNSA, EBITSA, NW and GDP are directly affecting the average level of debt capital. NFATA, DEPTA and INCOVER are inversely relates to the average level of debt capital.

The high level of quantile, 0.75^{th} results indicates that LNSA, EBITSA, GDP and NW are directly affecting the high level of debt capital. NFATA and INCOVER are inversely relates to the average level of debt capital

The result of the highest quantile, 0.95^{th} shows that LNSA, NW, EBITSA and GDP are positively determine the very high level of debt capital. INCOVER and DEPTA are negatively determining the very high level of debt capital.

Table 2.20 Result of quantile regression analysis for transport equipment sector

Model I	q05			q25			q50			q75			q95		
Variables	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|
LNSA	0.854	0.176	0.000	0.662	0.114	0.000	0.635	0.075	0.000	0.568	0.088	0.000	0.560	0.063	0.000
NFATA	1.089	1.162	0.349	0.877	1.281	0.494	-0.463	0.794	0.560	-1.538	0.776	0.049	-0.973	0.359	0.007
EBITSA	5.188	4.142	0.212	3.071	2.210	0.166	2.928	1.368	0.033	1.743	1.248	0.164	1.907	0.762	0.013
INCOVER	-0.013	0.005	0.015	-0.008	0.004	0.061	-0.004	0.002	0.015	-0.004	0.001	0.000	-0.004	0.000	0.000
FDI	7E-07	4E-06	9E-01	4E-06	2E-06	3E-02	3E-06	1E-06	7E-03	4E-06	2E-06	1E-02	6E-06	1E-06	0E+00
PLR	0.257	0.141	0.071	0.047	0.096	0.626	0.015	0.045	0.742	-0.130	0.068	0.056	-0.006	0.047	0.904
_cons	-5.863	2.306	0.012	-1.070	2.157	0.621	0.876	1.275	0.493	4.238	1.407	0.003	3.071	0.867	0.000
Pseudo R2	0.3288			0.2569			0.2652			0.2515			0.4154		
Model II															
NW	2E-04	8E-05	3E-02	2E-04	5E-05	0E+00	2E-04	6E-05	1E-03	3E-04	5E-05	0E+00	2E-04	8E-05	2E-03
EBITSA	3.897	3.570	0.276	-0.632	1.395	0.651	-0.449	0.737	0.543	-0.095	0.454	0.835	-0.719	0.758	0.344
DEPTA	8.808	5.807	0.131	-7.955	3.187	0.013	-14.399	2.682	0.000	-9.536	3.136	0.003	-9.274	4.823	0.056
INCOVER	-1E-02	3E-03	0E+00	-4E-03	4E-03	2E-01	-2E-03	1E-03	5E-02	-3E-03	4E-04	0E+00	-3E-03	2E-04	0E+00
GDP	8E-07	5E-07	1E-01	1E-07	2E-07	6E-01	2E-07	9E-08	6E-02	2E-07	9E-08	2E-02	3E-07	1E-07	5E-03
PLR	0.334	0.167	0.046	0.159	0.070	0.024	0.011	0.040	0.792	-0.008	0.032	0.790	-0.019	0.051	0.709
_cons	-3.770	2.262	0.097	3.429	0.985	0.001	6.054	0.699	0.000	6.256	0.580	0.000	6.730	0.808	0.000
Pseudo R2	0.2168			0.2091			0.2547			0.3163			0.4577		

2.5.18 Transport equipment sector:

The table 2.20 shows the result of quantile regression analysis of Transport equipment sector.

The result shows that at the lowest quantile 0.05^{th} LNSA, NW and PLR are directly relates to the very low level of debt capital. And INCOVER is inversely relates to the very low level of debt capital

The result of the 0.25^{th} low level of quantile also confirms that LNSA, FDI and NW are directly relates the low level of debt capital. DEPTA is inversely relates to the low level of debt capital.

The median quantile, 0.50^{th} result also shows that LNSA, FDI, NW and GDP are directly affecting the average level of debt capital. INCOVER and DEPTA are inversely affecting the average level of debt capital

The high level of quantile, 0.75^{th} results indicates that LNSA, NW, FDI and GDP are directly affecting the high level of debt capital. NFATA, INCOVER and DEPTA are inversely affecting the high level of debt capital

The result of the highest quantile, 0.95^{th} shows also that LNSA, NW, FDI and GDP are directly affecting the very high level of debt capital. NFATA, INCOVER and DEPTA are inversely affecting the very high level of debt capital

2.6 Findings

The study has examined the trend of debt structure taking the average total debt of sample companies as a whole as well as average total debt of a particular sector in absolute terms. Similarly for secured debt, unsecured debt, long-term debt and short-term debt. The findings are summarised below.

The sectors such as agriculture, capital goods, consumer durables, FMCG, healthcare, housing related, metal, metal products and mining, miscellaneous, oil and gas, power, telecom, textile and transport equipment shows that total debt has an upward trend. However media and publishing, information technology, diversified and chemical and petrochemical sector show a declining trend towards the end of the study period (after 2009). The total sample indicates that total debt has an upward trend throughout the study period.

Turning to secured debts, agriculture, capital goods, consumer durables, FMCG, healthcare, housing related, information technology, media and publishing, metal, metal products and mining, miscellaneous, power, telecom, textile and transport equipment sectors indicates an upward trend. However, chemical and petrochemicals sector shows a declining trend straight from the beginning, but sectors like Diversified, miscellaneous, oil and gas, diversified and a chemical and petrochemical sector shows a declining trend towards the end of the study period (after 2009). Overall samples indicate that secured has an upward trend throughout the study period.

The sectors such as capital goods, consumer durables, FMCG, healthcare, housing related, metal, metal products and mining, miscellaneous, oil and gas, power, telecom and transport equipment shows that unsecured debt has an upward trend. However the textile sector shows a slight decline trend straight from the beginning, but sectors, agriculture, chemical and petrochemical, diversified, media and publishing, information technology, and a sector show a declining trend towards the end of the study period (after 2009). Overall samples indicate that unsecured debt has an upward trend throughout the study period.

Again the sectors such as agriculture, Capital goods, consumer durables, FMCG, healthcare, housing related, information technology, metal, metal products and mining, miscellaneous, oil and gas, power, telecom, textile and transport equipment shows that long-term debt has an upward trend. Overall samples indicate that long-term debt has an upward trend throughout the study period.

It is interesting to note that the short-term debt of the sample taken as a whole has an upward trend throughout the study period. The sectors such as agriculture, Capital goods, consumer durables, FMCG, healthcare, housing related, metal, metal products and mining, miscellaneous, oil and gas, power, telecom, textile and transport equipment shows that short-term debt has an upward trend. However media and publishing, diversified and chemical and petrochemical, information technology sector show a declining trend towards the end of the study period (after 2009).

To understand the proportion of the various types of debt we have calculated the major debt ratios such as debt to equity ratio, long-term debt to total debt, short-term debt to total debt, secured debt to total debt and unsecured debt to total debt.

The debt equity ratio of the sectors like agriculture, capital goods, chemical and petrochemicals, consumer durables, FMCG, housing related, metal, metal products and mining, oil and gas, power and telecom shows a declining trend during the study period. At the same time miscellaneous, media and publishing and information technology, it shows an upward trend. However diversified, healthcare, textile and transport equipment show several up and downs in different period and the end of the period it shows a decline trend. Overall the sample confirms a declining trend.

Long-term debt to total debt ratio of the sectors such as the chemical and petrochemicals diversified, consumer durables, metal, metal products and mining, and transport equipment shows a decline trend. At the same time capital goods, housing related, miscellaneous, and it shows an upward trend. However, agriculture, FMCG, healthcare, information technology, media and publishing, oil and, gas, power textile and telecom shows not much change in the ratio at different period. Overall the sample confirms that they're not much movement for long-term debt to total debt. The ratio kept almost stable throughout the study period.

Short-term debts to total debt of the sectors like capital goods, FMCG and miscellaneous shows a declining trend. At the same time chemical and

petrochemicals, transport equipment and metal, metal products and mining shows an upward trend. However, agriculture diversified, consumer durables, healthcare, housing related, media & publishing, oil and gas, power, textile and telecom shows the ratio is more or less stable at different period. But in case of information technology the ratio shows up and downs. Overall the sample confirms that there is not much movement for short-term debt to total debt. The ratio kept almost stable throughout the study period.

Secured debt to total debt of the sectors such as capital goods, chemical and petrochemicals, diversified, FMCG, information technology, metal, metal products and mining, miscellaneous and transport equipment show a declining trend. At the same time housing related and power it shows a slight upward trend. However, agriculture, consumer durables, healthcare, media and publishing, oil and gas, textile and telecom shows not much change in the ratio at different period. Overall the sample confirms that the ratio having a slight declining trend throughout the study period.

Sectors such as chemical and petrochemicals, diversified, information technology, metal, metal products and mining, miscellaneous, transport equipment and oil and gas shows an upward trend in the case of unsecured debt to total debt. . However, agriculture, capital goods, consumer durables, FMCG healthcare and media and publishing show up and downs in the ration during the study period and towards the end it shows a declining trend. At the same time housing related power, textile and telecom show the ratio is more or less stable at different period. Overall the sample confirms that unsecured debt to total debt shows an upward trend.

Overall all types of debt have been grown up significantly during the study period. However the proportion of growth in debt compared to equity is less. It shows the underdevelopment of the debt market in India. Or may be managers are not willing to take risks. After analysing the trend the study examines the determinants of debt capital using quantile regression techniques. Table 2.21 shows the sector wise findings at all levels of quantile.

Table 2.21 Determinants of debt capital: sector wise findings

Sectors/ Quantile	Sig	Quantile 0.05	Quantile 0.25	Quantile 0.50	Quantile 0.75	Quantile 0.95
Agriculture	+ve	Size, Creditworthiness	Size, Creditworthiness	Size, Profitability, Creditworthiness, FDI	Size, Creditworthiness,FDI	Size, Creditworthiness, FDI
	–ve	Debt capacity, FDI	Debt capacity	Debt capacity	Debt capacity	Debt capacity
Capital Goods	+ve	NA	Size, Asset structure Creditworthiness,	Size, Asset structure	Size, Asset structure Creditworthiness,	Size, Asset structure Creditworthiness Economic growth,
	–ve	NA	Economic growth	NA	NA	NA
Chemical & Petrochemical	+ve	Size, Creditworthiness, Profitability	Size, Profitability, Creditworthiness,	Size, Creditworthiness,	Size, Creditworthiness,	Size,
	–ve	NA	Debt capacity	Debt capacity	Non debt tax shield	Non debt tax shield
Consumer Durables	+ve	Size, Creditworthiness	Size, Creditworthiness	, Size, Creditworthiness, Economic growth	, Creditworthiness,	, Creditworthiness ,
	–ve	Non debt tax shield , Debt capacity	Asset structure Non debt tax shield Debt capacity	Non debt tax shield	Non debt tax shield	Non debt tax shield
Diversified	+ve	Size, Profitability,	Size, FDI, Profitability	Size, FDI, Creditworthiness, Profitability	Size, FDI, Economic growth	Size ,Economic growth
	–	Non debt tax	NA,	NA	Debt capacity	NA

	ve	shield				
FMCG	+ve	Size, Creditworthiness , FDI	Size, Creditworthiness,	Size FDI	Size Creditworthiness, Economic growth	Size FDI, Economic growth
	–ve	Asset structure	Profitability Non debt tax shield, Debt capacity	Asset structure, Debt capacity, Non debt tax shield	Asset structure, Debt capacity, Non debt tax shield	Debt capacity
Healthcare	+ve	Asset structure, Non debt tax shield, Interest rate	Size, Creditworthiness,	Size, Creditworthiness, Economic growth	Size, FDI, Creditworthiness, Economic growth	Size, FDI, Creditworthiness, Economic growth
	–ve	Non debt tax shield	Debt capacity	Asset structure, Non debt tax shield	Asset structure, Non debt tax shield, Debt capacity	Asset structure, Non debt tax shield, Debt capacity
Housing Related	+ve	Size, Creditworthiness, Non debt tax shield,	Size, Creditworthiness, Economic growth	Size, Asset structure Creditworthiness, Non debt tax shield, Economic growth, FDI,	Size, Creditworthiness, Economic growth	Size, Creditworthiness,
	–ve	NA	NA	NA	NA	Asset structure,
Information Technology	+ve	NA	FDI	Size, FDI, Economic growth	Size, FDI, Economic growth	Size, FDI, Creditworthiness, Economic growth, Profitability,
	–ve	NA	NA	Non debt tax shield	Non debt tax shield	NA
Media & publishing	+ve	NA	NA	Size, Economic growth	Size, Economic growth	Economic growth, FDI
	–ve	Creditworthiness, Non debt tax shield	NA	NA	Asset structure,	Asset structure,
Metal, Metal Products & Mining	+ve	Size	Size, , Non debt tax shield, Economic growth Creditworthiness	Size, Economic growth ,Non debt tax shield, Asset structure, Creditworthiness,	Size, Non debt tax shield, Economic growth , Asset structure, Creditworthiness, FDI	Size, Non debt tax shield, Creditworthiness,
	–ve	Non debt tax shield	Profitability	Profitability	NA	Asset structure
Miscellaneous	+ve	Size, Asset structure, Profitability, Creditworthiness	Size, Asset structure, Profitability, Creditworthiness, Non debt tax shield,	Size, Asset structure, Creditworthiness, FDI, Economic growth	Size, Asset structure, FDI, Creditworthiness, Economic growth	Size, FDI

	– ve	NA	Debt capacity	Debt capacity	Debt capacity	Debt capacity
Oil & Gas	+ ve	Size , Creditworthiness, Asset structure	Size , Creditworthiness, Economic growth	Size , Creditworthiness, Economic growth	Size , Creditworthiness,	Size , Creditworthiness, Economic growth
	– ve	NA	NA	Non debt tax shield	Non debt tax shield, Debt capacity	Non debt tax shield, Debt capacity Asset structure,
Power	+ ve	Size , Asset structure Non debt tax shield, Creditworthiness,	Size , Asset structure Non debt tax shield, Creditworthiness,,	Size , Asset structure Non debt tax shield, Creditworthiness	Size Creditworthiness,	Size , FDI
	– ve	NA	NA	NA	NA	NA
Telecom	+ ve	NA	Size, Non debt tax shield,	Size, Asset structure, Non debt tax shield, Economic growth	Size, Creditworthiness , Non debt tax shield	Size, Non debt tax shield, Economic growth, FDI
	– ve	NA	NA	NA	NA	NA
Textile	+ ve	Size, Economic growth Profitability , Creditworthiness,	Size, Creditworthiness, Economic growth , FDI	Size, Profitability, Creditworthiness, Economic growth	Size, Creditworthiness, Profitability, Economic growth	Size, Creditworthiness, Profitability, Economic growth
	– ve	Asset structure, Debt capacity	Asset structure, Debt capacity, Non debt tax shield,	Asset structure, Debt capacity, Non debt tax shield,	Asset structure, Debt capacity	Asset structure, Debt capacity
Transport Equipments	+ ve	Size, Creditworthiness, Interest rate	Size , FDI, Creditworthiness,	Size , FDI, Creditworthiness, Economic growth	Size , FDI, Creditworthiness, Economic growth	Size , FDI, Creditworthiness, Economic growth
	– ve	Debt capacity	Non debt tax shield	Debt capacity, Non debt tax shield	Asset structure, Non debt tax shield, Debt capacity	Asset structure, Non debt tax shield, Debt capacity

From the overall analysis we can say that the quantile 0.05^{th} the lowest quantile doesn't explained any significant relation. However, in the sector wise analysis lowest quantile explained the significant relationship among the independent and depended variable for most of the sectors.

The firms which are having low level (quantile 0.25^{th}) of debt capital is directly related to size, creditworthiness, economic growth and inversely related to non-debt tax shield, debt capacity. Thus we can conclude that for this quantile Indian firms are following pecking order theory. According to the pecking order theory profitable firms generally borrow less; not because they have low target debt ratios but they don't need outside money. Less profitable firms issue debt because they do not have internal fund sufficient for their capital investment.

From the result of median quantile, 0.50^{th} the study conclude that the average level of debt capital is directly relates to size, creditworthiness, economic growth and FDI. However, it is inversely relates to debt capacity and non-debt tax shield.

The firm, which has a high level (quantile 0.75) of debt capital is also directly related to size, creditworthiness, FDI, economic growth and inversely related to debt capacity and non-debt tax shield. So we can conclude firms having good amount of sales and has sufficient internal cash flow and retained earnings will go for high amount of debt capital.

The firm, which has a very high level (quantile 0.95) of debt capital, is directly related to size, creditworthiness, FDI and economic growth. Thus, the firm having high amount of sales and sufficient retained earnings will go for very high debt. So in general the level of debt capital is directly related to size, creditworthiness and inversely related to Debt capacity and non-debt

tax shield. Moreover, it is direly related to the macroeconomic variable like FDI and economic growth.

All the results show expected sign for the variables. However, the variable debt capacity is having negative sign which not predicted by the study. In this context we conclude that firms which are having enough debt capacity are not going for debt and vice versa.

2. 7 Chapter Summary

This chapter examines the debt capital structure, and its trend in overall sample as well as in sector wise from the year 2002- 2011. It also verifies the various determines of debt capital in Indian companies. From the collected data we have defined the debt structure as the proportion of secured and unsecured in the total debt or the proportion long-term or short-term debt. For the analysing the trend of debt structure the study has used simple line charts. The line charts strongly indicates that the total debt, secured debt, unsecured debt, long-term and short-term debt has been increased significantly during the study period for the sector as well as for the total sample collected. For knowing the various determinants of debt capital the study has firstly identify the variables from the past literature, then uses quantile regression tool for identifying the variables. size, creditworthiness, foreign direct investment and economic growth are directly determining the level of debt capital in Indian companies. And debt capacity and non-debt tax shield is negatively affecting the level of debt capital. However, these

determinants are varying significantly depending on the quantile and sectors (see table 2.23).

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CHAPTER III

DEBT CHOICE

3.1 Introduction

Debt capital is the capital borrowed from external sources. According to the requirements, firms used to borrow money from various external sources such as banks, public, government, companies or other financial institutions. Choosing a specific source of debt capital depends predominantly on the cost of debt capital. Ownership structure of a firm (Lin. Chen et al. 2013), as well as the discretion of the Management (Denis and Mihov, 2003) also has an influence on the selection debt capital. Creditworthiness of a firm has also determents choice of debt capital. Firms with high credit quality will opt from public sources; medium credit quality will opt from banks and lowest credit quality firms will go for non-bank private lenders (Denis and Mihov, 2003), (Shirasu and Xu, 2007). Moreover the kind of economic exposure will also influence the long-term debt financing choice of the firms (Goswami-Shrikhande, 2001).

Because of under-developed equity markets, the corporate debt market in India has been important. In India, firms borrow using five types of debt instruments. These are: (1) short- term borrowings from commercial banks;(2) long-term borrowings from term-lending institutions, which we will call institutional borrowings; (3) borrowings in the form of debentures which are corporate bonds that in some (not in all) cases are converted to shares after a specific lock-in period; (4) fixed deposits, which are deposits that yield a specified rate of interest over a given period of time from the market; and finally (5) a residual category called 'other borrowing' which includes trade credit and other funds accessed from the inter-corporate market (Majumdar and Sen, 2007).

The four major types of debt can be classified according to whether the debt is monitored or arm's length. Bank borrowings and institutional borrowings can be classified as monitored debt and debentures and fixed deposits can be classified as arm's-length debt (Majumdar and Sen, 2007). Both credit and bond markets have existed in India for a long time. Modern banking began in India in the eighteenth century with the founding of the English Agency House in Calcutta and Bombay, followed in quick succession by the establishment of three Presidency banks (Banerjee et al., 2004).

With the introduction of limited liability in 1860, private banks began to appear. Joint stock banks came into being in the beginning of the twentieth century. Commercial banking grew very rapidly in the colonial period (Roy, 2000). After a period of social control of banking between 1969 and 1991, there were extensive reforms in the Indian financial sector, allowing banks to

set interest rates on their own and to lend to firms and households without significant restrictions on whom they lend to (Sen and Vaidya, 1997).[4]

With respect to institutional borrowing, these are essentially provided by term-lending institutions and are mainly long-term loans that are secured on the assets bought with these loans. Term-lending institutions were established, de-novo, by the government after independence. For example, the Industrial Finance Corporation of India was set up in 1948, and the Industrial Development Bank of India in 1964. These are the two major suppliers of long-term loans to Indian industry.

There are a number of government owned long-term lenders, such as the Industrial Investment Bank of India, the Small Industries Development Bank of India and the Shipping Credit and Investment Corporation of India. For the agriculture sector, two institutions, the Agricultural Finance Corporation and Agricultural Refinance Corporation were set up. They were merged to form the National Bank for Agriculture and Rural Development. Similarly, a National Housing Bank was set up as was an Export-Import Bank of India. Also, the state owned Life Insurance Corporation of India and the operating subsidiaries of the state owned General Insurance Company possess substantial surplus liquidity with which they provide funds to companies.

A major quasi private-sector financial institution, the Industrial Credit and Investment Corporation of India; was established in 1955. In establishing this unit, the government's support was paramount. Eventually, the government holdings in this financial institution were over eighty percent

through a variety of indirect means. Thus, as in the case with commercial banks, government-owned term-lending institutions have a long history of lending to the Indian corporate sector, dating back to the late 1940s.

The Indian capital market also dates back to the colonial period to the establishment of the first stock market in India in Bombay in 1857. During the colonial period, many Indian firms tried to popularize debentures as a source of financing successfully (Roy, 2000). Since independence, in line with the Indian government's policies, there was strict control on the pricing and new issues of capital, including corporate bonds. This was done via the office of the Controller of Capital Issues, a unit in the Department of Economic Affairs of the Ministry of Finance. The Controller of Capital Issues controlled the quantity and price of both debt and equity that companies could issue (Marathe, 1989).

In 1991, the pricing of new issues was freed along with a relaxation of the restrictions on firms to approach the capital market for funds. In 1992, the government allowed Indian firms with good track records to issue debentures in foreign capital markets. In the post-1991 period, there was a strong growth in the bond market with the introduction of many new and innovative types of bonds (Sen and Vaidya, 1997). The issuance of bonds and fixed deposits became an important mechanism for raising external funds for many Indian firms during this period, with the share of capital market-based instruments in total funds, increasing from 17.3 per cent in the period 1985-86 to 1990-91 to 22.3 per cent in the period 1991-92 to 2000-01 (Reserve Bank of India, 2003). There are two important features of the Indian equity

ownership structure. First, foreign ownership is important in India. Even though foreign firms account for a handful of the number of firms in the corporate demography of India, they account for almost a third of India's industrial output in value (Athreye and Kapur, 2001).

The second feature of equity ownership in India relevant to the empirical analysis is the state's important role as sole or part owner of firms in India. Similar to commercial banks and other financial intermediaries, there is extensive government ownership of industrial firms in India. Firms with government ownership, engage in a myriad range of activities either simply because of mandates or because the availability of soft funds from the state allowing them to experiment in a variety of businesses.

3.2 Types of Debt Capital

Term loans: a business loan repayable according to a specified schedule is a term loan. It is generally repayable more than one year and less than ten years. Usually term loans are availed from banks or any other financial institutions. All term loans are secured more over the term loans have to be amortized according to a predetermined schedule.

Debenture: a debenture is a marketable legal contract whereby the company promises to pay its owner, a specified rate of interest for a defined period of time and to repay the principal at the specific date of maturity. Debentures are usually secured by a charge on the immovable properties of the company. Debentures can be classified as: *non- convertible debenture-*

the debenture which cannot be converted into o equity shares and will be redeemed at the end of the maturity period. *Fully-convertible debenture*- these debentures can be converted into equity shares over a specified period of time. *Partly convertible debenture*- a portion of these debentures can be converted into equity shares over a specified period of time.

Hire purchase: it is a mode of financing the price of the goods to be sold at a future date. In a hire purchase transaction, the goods are let on hire, the purchase price is to be paid in instalments and the hirer is allowed for an option to purchase the goods by paying all the instalments.

Deferred credit: Income that is received in advance of it being earned, but not immediately reported as income. Typically, this is done on income that is not fully earned and, consequently, has yet to be matched with a related expense. Such items include consulting fees, subscription fees and any other revenue stream that is intricately tied to future promises. For example, a book club might defer income from a two-year membership plan until all the costs of procurement and shipping are assessed. Also known as deferred revenue or deferred income.

Cash credit: Under the cash credit agreement, the customer is permitted to borrow up to a pre-fixed limit called the cash credit limit. The customer is charged interest only on the amount actually utilized.

Packing credit: it is a loan or advance granted or any other credit provided by a bank to an exporter for financing the purchase, processing, manufacturing or packing of goods prior to shipment, on the basis of letter of

credit opened in his favour or in favour of some other person, by an overseas buyer or a confirmed and irrevocable order for the export of goods from the producing country or any other evidence of an order for export from that country having been placed on the exporter or some other person, unless lodgement of export orders or letter of credit with the bank has been waived

Bills discounted: under this arrangement, the bank provides financing to the customers either by outright purchase or discounting the bills arising out of the sale of finished goods.

Public deposits: this refers to any deposits of money from the public with a firm at a specified rate of interest for a stipulated period with the provision for renewal.

Bonds: a bond is a certificate promising to pay its holder a specified sum of money at a stated date, called the maturity date, and interest at a stated rate until the maturity date.

Commercial paper: it is a short-term unsecured promissory note, generally issued by large companies. It can be issued for maturities between a minimum of 15 days to a maximum of one year and in denominations of Rs 5 lakh or multiples thereof.

Accrued interest: A term used to describe an accrual accounting method when the interest that is either payable or receivable has been recognized, but not yet paid or received. Accrued interest occurs as a result of the difference in timing of cash flows and the measurement of these cash flows.

Deferred liabilities: deferred liability is money that a company receives from a customer as prepayment for some good or service. A deferred liability is listed on a balance sheet as a liability until the good or service is delivered. This is because the company would have to return the money if it does not keep its end of the bargain as promised. A deferred liability is also called a deferred credit or deferred revenue.

Deferred tax: An account on a company's balance sheet that is a result of temporary differences between the company's accounting and tax carrying values, the anticipated and enacted income tax rate, and estimated taxes payable for the current year. This liability may or may not be realized during any given year, which makes the deferred status appropriate.

The study broadly classified the debt into two parts secured and unsecured debt. The majority of the sample companies selected in India is having both secured as well as unsecured debt. The various components under secured debt are Convertible debenture, Non- convertible Debenture, Term loan from institutions, Term loan from bank, Loans from others, deferred credit /hire purchase, Browning from GOV, Cash Credit /Packing Credit / Bills Discounted, Working capital advance, Interest accrued and due and other Secured debt. The various components under unsecured debt are loan from group of companies, debentures / bonds, accrued interest, loan from the bank, loan from institutions, advances, loans from GOI and PSU, deferred liabilities, deferred tax, commercial paper, other unsecured loans, and deposits etc.

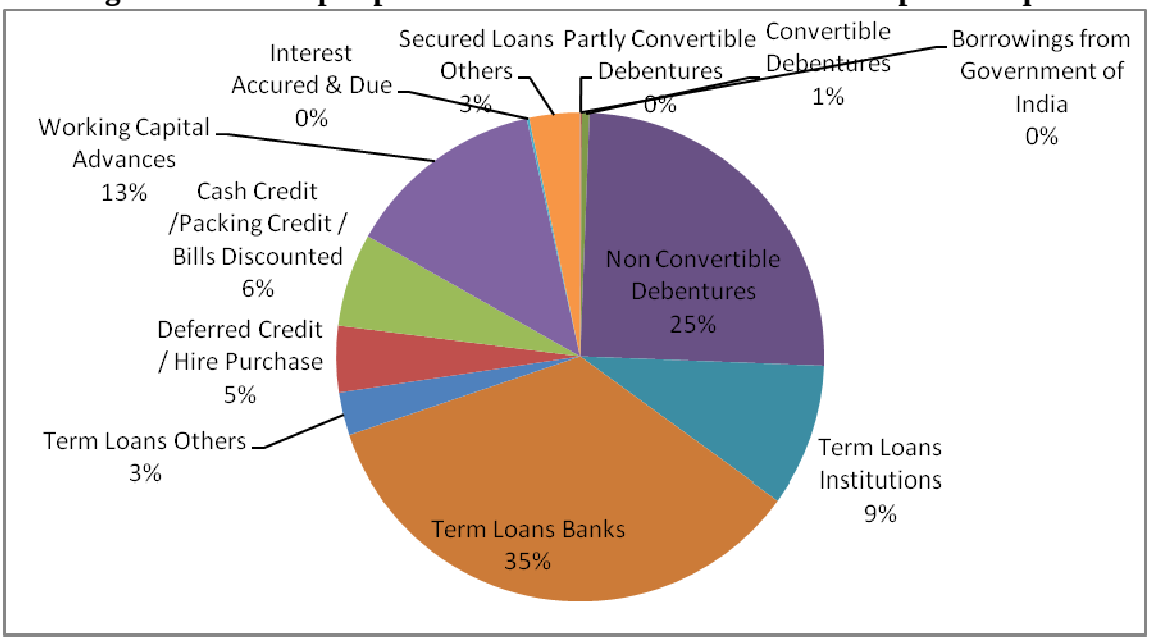
3.3 The proportions of Secured and Unsecured debts

With the help of pie chat we are examining the various sources from which Indian firm borrowing capital under secured and unsecured debt. The detailed proportion of various debt capital chosen by different firms under different sectors are discussed below

3.3.1 Sample companies:

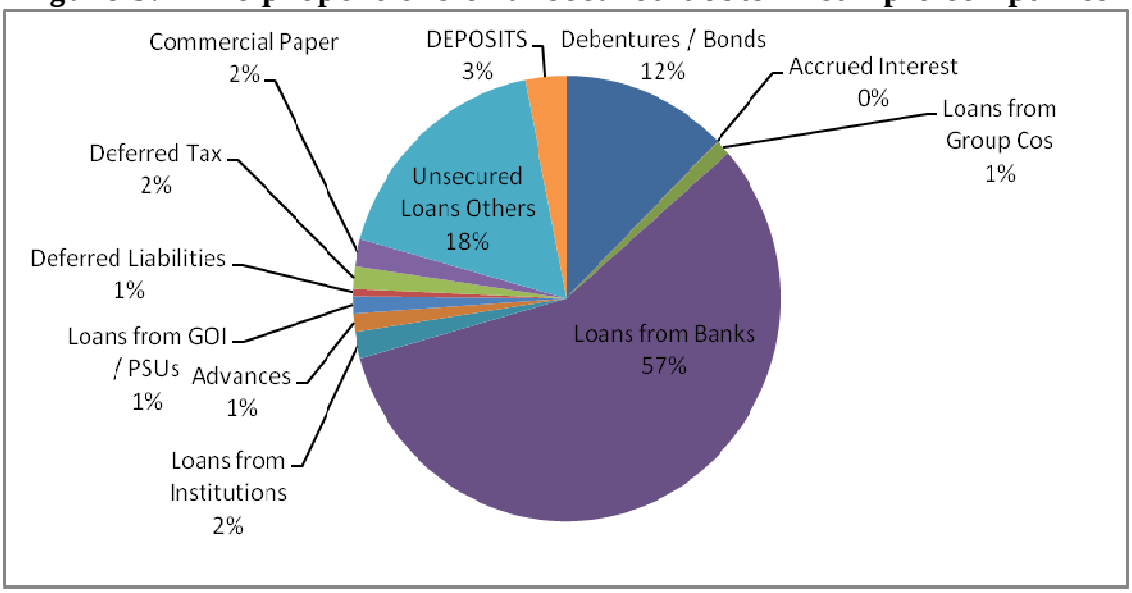
The table 3.1 shows the secured debt of sample companies. A total of 321 listed companies were selected for the study. 78% of the total secured debts are financed through long-term sources. They are: term loan from banks 35%, non-convertible debentures 25%, term loan from institutions 9%, deferred credit/ hire purchase 5%, term loan from others 3%, convertible debenture 1%. The contribution from short-term debts are working capital advance 13%, cash credit/packing credit/ bills discounted 6%, secured loan from others 3%.

Figure 3.1 The proportions of secured debts in sample companies



Note: the percentage is calculated using ten year average (2002-2011)

Figure 3.2 The proportions of unsecured debts in sample companies



Note: the percentage is calculated using ten year average (2002-2011)

The table 3.2 shows the distribution of unsecured debt of sample companies. Under the unsecured debt 15% are long-term in nature. Those are debenture/ bonds, 12% and deposits 3%. The rest is short-term in nature. The various short-term debts are loans from bank 57%, an unsecured loan from

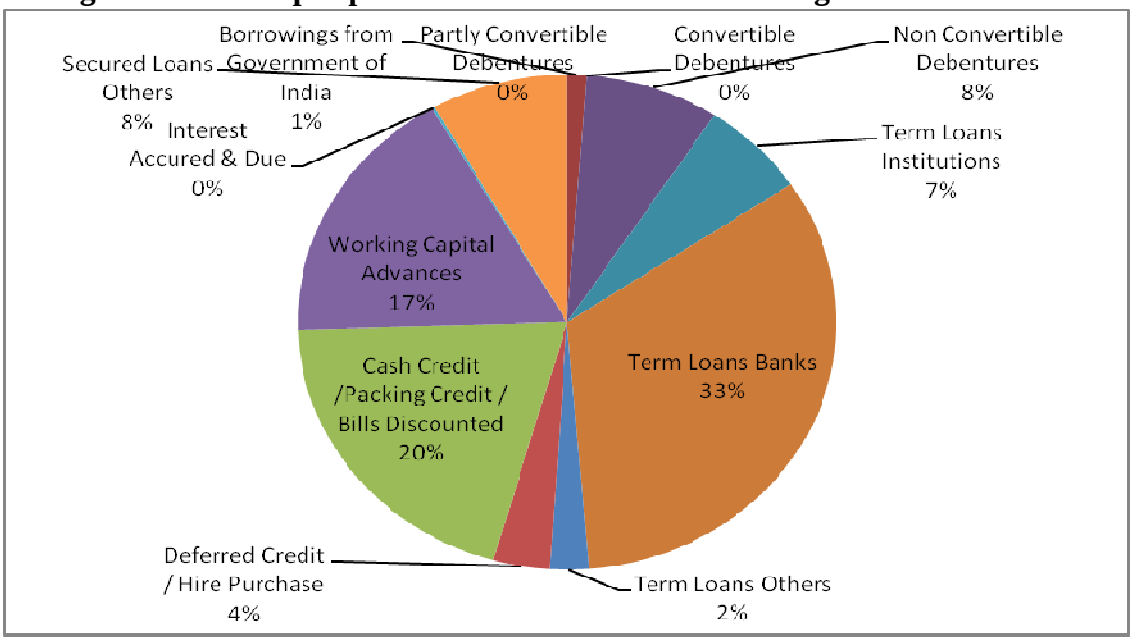
others 18%. Commercial paper, loan from institutions and deferred tax are 2% each. Deferred liability, loan from GPI/PSU and advances are 1% each.

3.3.2 Agriculture sector:

Agriculture sector consists of 18 companies. From the figure 3.3 shows the distribution of different long-term as well as short-term secured debt used by the firm in agriculture sector. 46% of the total secured debt consists of short-term debt. Cash credit /packing credit / bills discounted accounted for 20%, working capital advance is 17%, secured loans from others 8% and borrowing from the government of India 1% of the total secured debt. 54% of the total secured debt stands for long-term debt. 33% of the total long-term debts are term loans from banks. 8% of the total secured accounts for debenture. Term loans from institutions are 7%, deferred credit/ hire purchase is 4% and term loan from others is 2%.

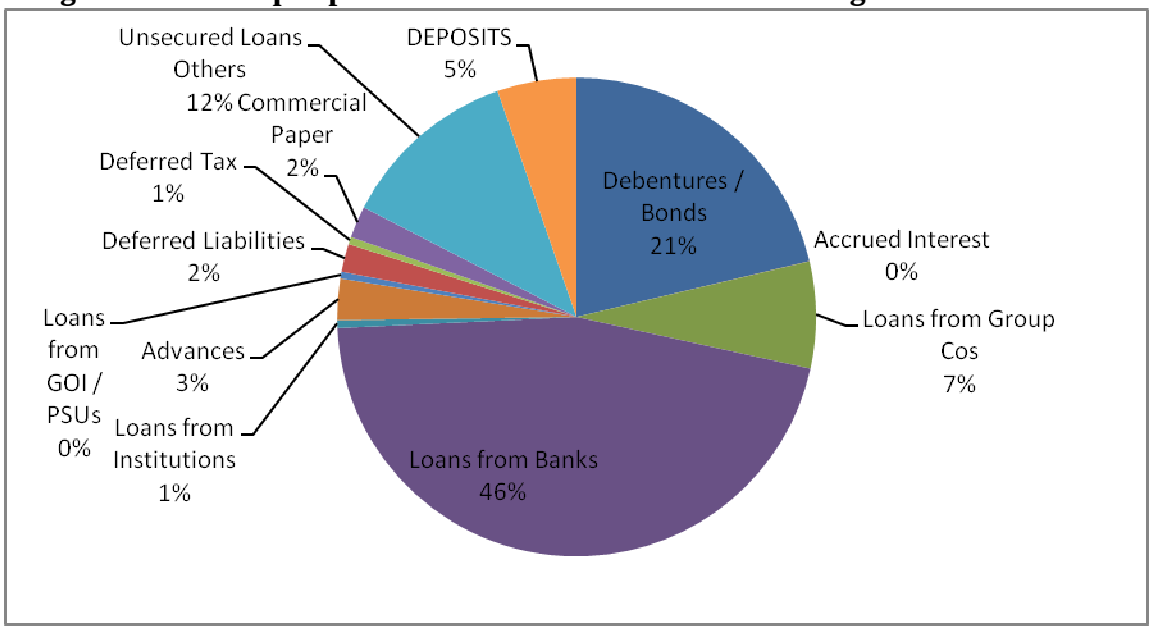
26% of the total unsecured debt financed through long-term sources such as Debenture/ bonds 21% and deposits 5%. The rest accounts for short-term sources.46% of the total unsecured debt consists of loan from bank, unsecured loan from others 12%, advances 3%, commercial paper and deferred liability 2% each, loan from institutions and deferred tax 1% each. The figure 3.4 shows the distribution of unsecured debt in the agriculture sector.

Figure 3.3 The proportions of secured debt in agriculture sector



Note: the percentage is calculated using ten year average (2002-2011)

Figure 3.4 The proportions of unsecured debts in agriculture sector



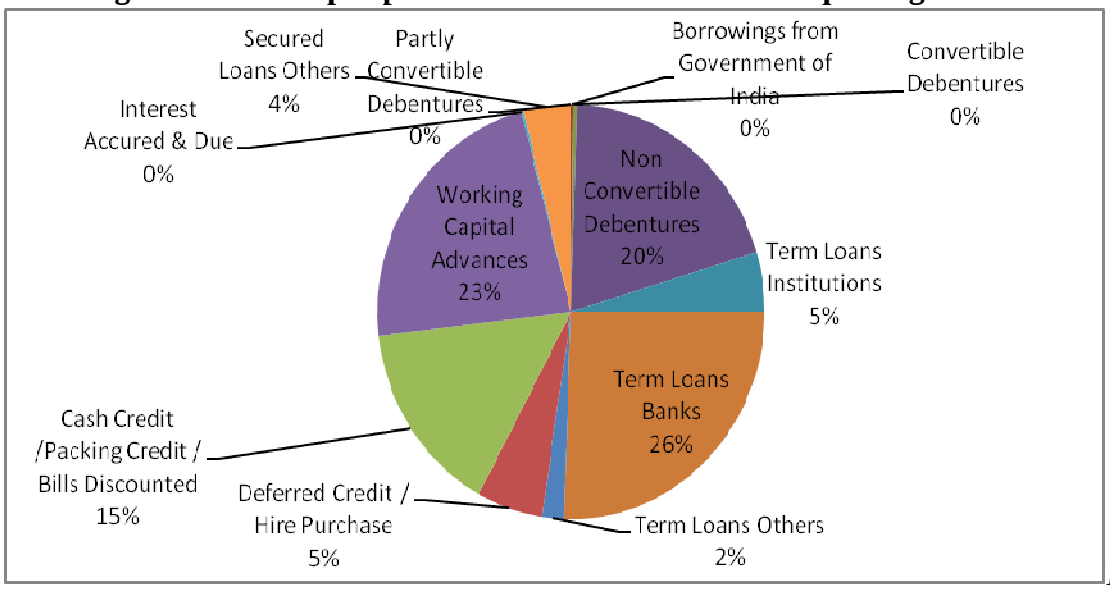
Note: the percentage is calculated using ten year average (2002-2011)

3. 3.3 Capital goods sector:

This sector consists of 39 companies. 58% of the total unsecured debts are long-term debt and the remaining unsecured debt is short-term in nature.

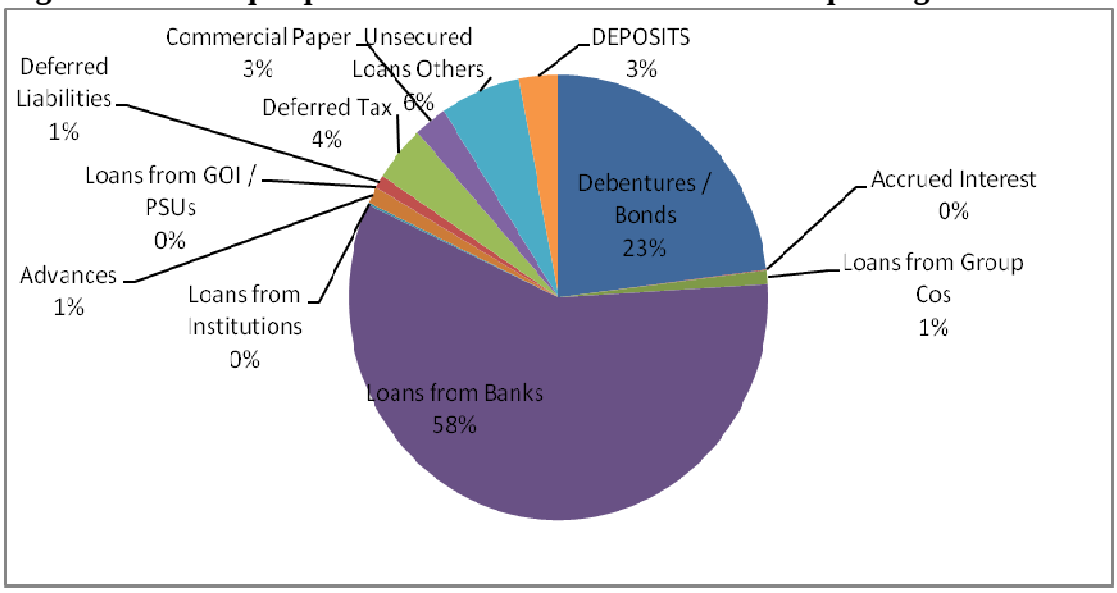
The long-term sources used by the sectors are Term loan from bank is accounted for 26%, non-convertible debenture 20% and term loan from institutions is 5%, deferred credit/hire purchase 5% and term loan from others 2%.

Figure 3.5 The proportions secured debt in capital goods sector



Note: the percentage is calculated using ten year average (2002-2011)

Figure 3.6 The proportions of unsecured debt in capital goods sector



Note: the percentage is calculated using ten year average (2002-2011)

The short-term sources are working capital advance 23%, cash credit/packing credit/ bills discounted contribute 15% and secured loans from other is 4% of the total secured debt. Figure 3.5 shows the distribution of secured debt in the capital goods sector.

The figure 3.6 shows the distribution of unsecured debt under the capital goods sector. 26% of the unsecured debt accounts for long-term debt. The long-term debts are debenture / bonds, 23% and deposits 3%. 74 % of the unsecured debt financed through short-term sources. The short-term sources used by the sectors are Loans from bank accounts for the 58%, unsecured loans from others 6%, deferred tax 4%, commercial paper 3%, loans from group of companies, deferred liabilities and advances 1% each.

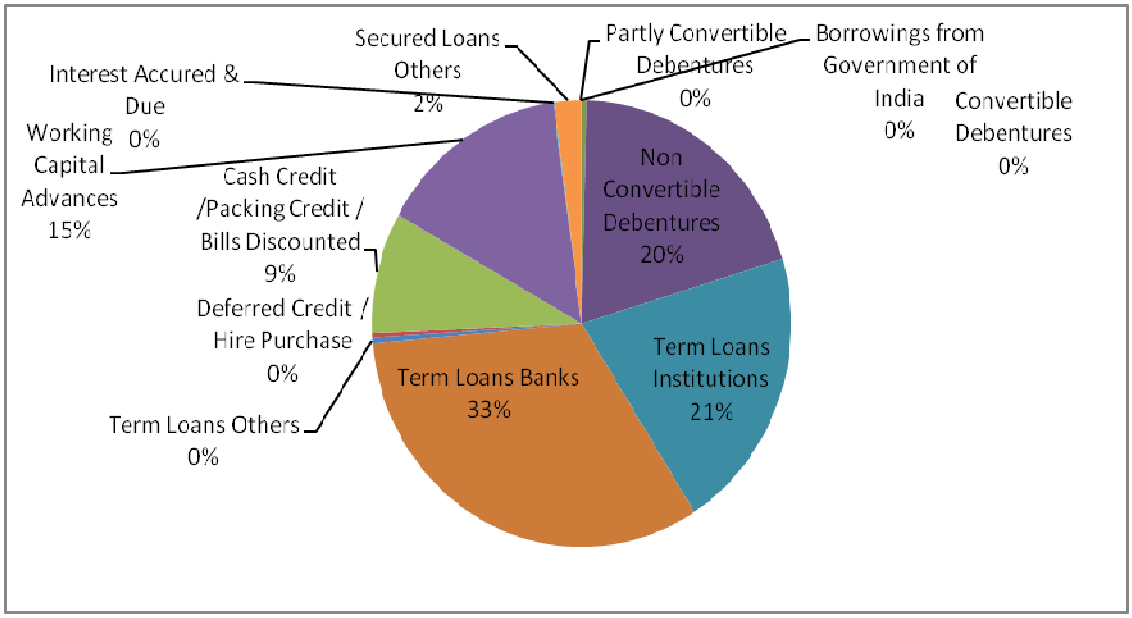
3.3.4 Chemical and petrochemicals sector:

This sector consists of 11 companies. The figure 3.7 shows the detailed distribution of secured debt of Chemical & petrochemicals sector. 74 % of the secured debts are long-term. The long-term loan consists of term loan from bank is 33%, term loan from institutions is 21% and non-convertible debenture is 20%. Short-term debt accounts 26% of the total secured debt. The Working capital advance is 15%, cash credit/ packing credit/bills discounted is 9% and other secured loans 2%.

Under unsecured debt 22% accounts for long-term debt. The long-term debts are debenture/ bonds, 18% and deposits 4%. Short-term debt accounts 78% of the total unsecured debt. Loan from banks accounts for 63%,

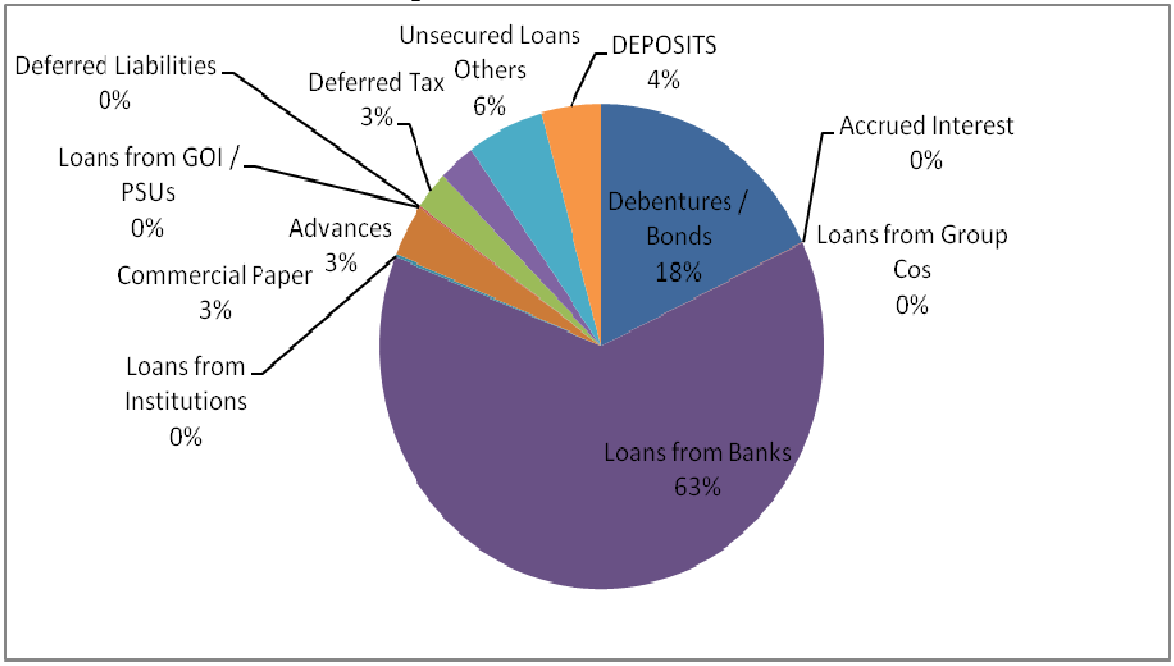
unsecured loans 6%. Commercial paper, deferred tax, and advances contribute 3% each. The figure 3.8 shows the distribution of unsecured debt in chemical & petrochemical sector.

Figure 3.7 The proportions of secured debt in chemical & petrochemicals sector



Note: the percentage is calculated using ten year average (2002-2011)

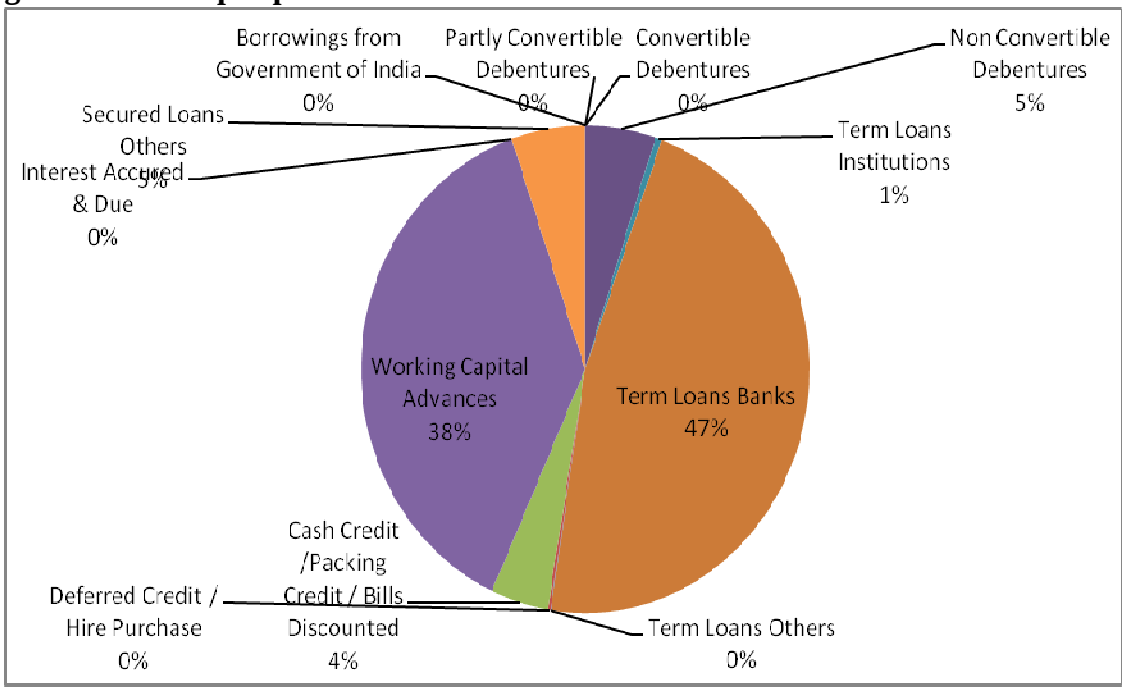
Figure 3.8 The proportions of unsecured debt in chemical & petrochemicals sector



Note: the percentage is calculated using ten year average (2002-2011)

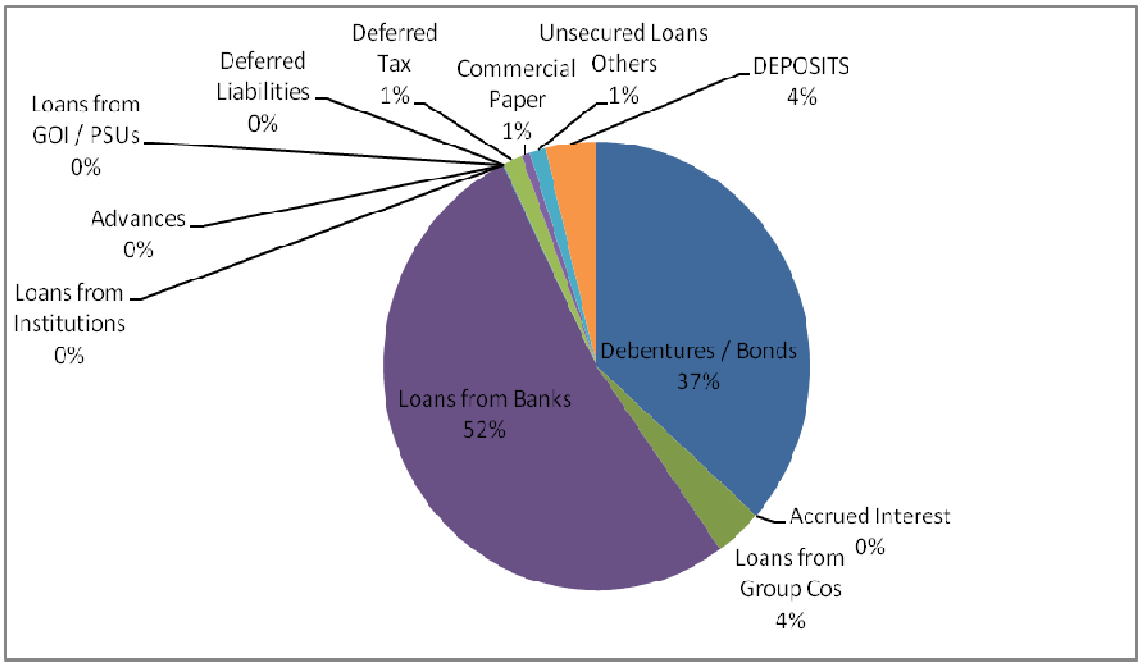
3.3.5 Consumer Durables sector:

Figure 3.9 The proportions of secured debts in consumer durables sector



Note: the percentage is calculated using ten year average (2002-2011)

Figure 3.10 The proportion of unsecured debt in consumer durables sector



Note: the percentage is calculated using ten year average (2002-2011)

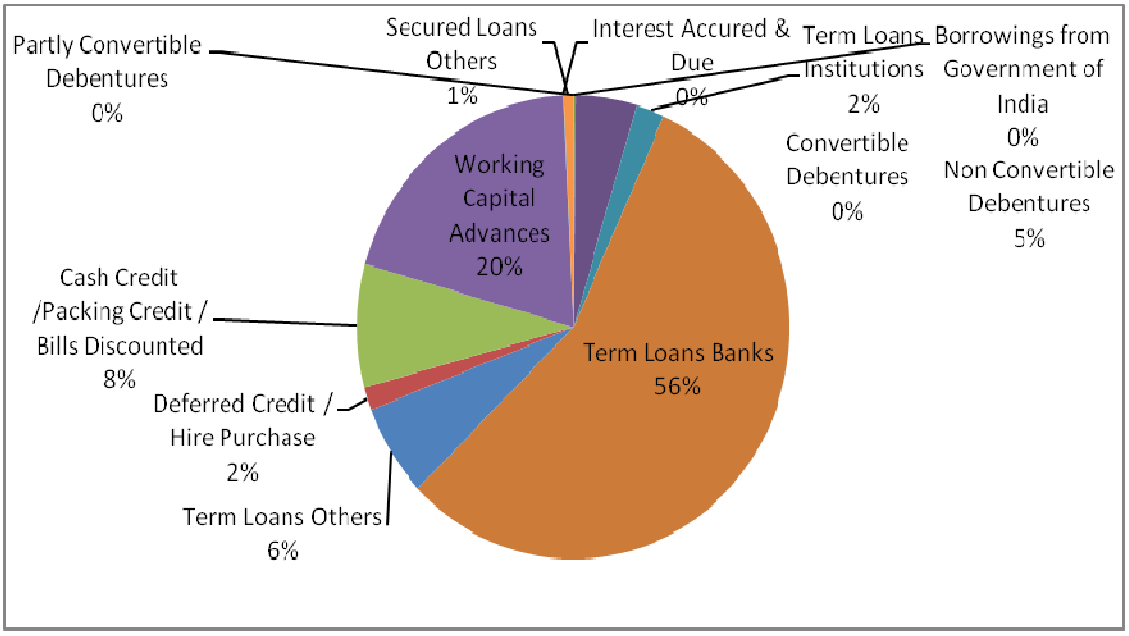
This sector consists of only 8 companies. 53% of the total secured debt accounts for long-term debt. Under this term loan from bank stands for 47%, debenture 5% and term loan from institutions 1%. The short-term debts are working capital advance 38%. Secured loans from others 5% and cash credit/packing credit/bills discounted 4%. The figure 3.9 shows the detailed list of distributions of secured debt.

The figure 3.10 shows the subdivision of unsecured debt among the consumer durable sector. 41% of the total unsecured debt holds by long-term sources. Out of this debenture/ bonds, accounts for 37% and deposit 3%. Short-term debt consists of 59% of the total unsecured debt. They are term loan from bank 52%. Loans from group of companies hold 4%. Commercial paper, unsecured loan from others and deferred tax 1% each.

3.3.6 Diversified sector:

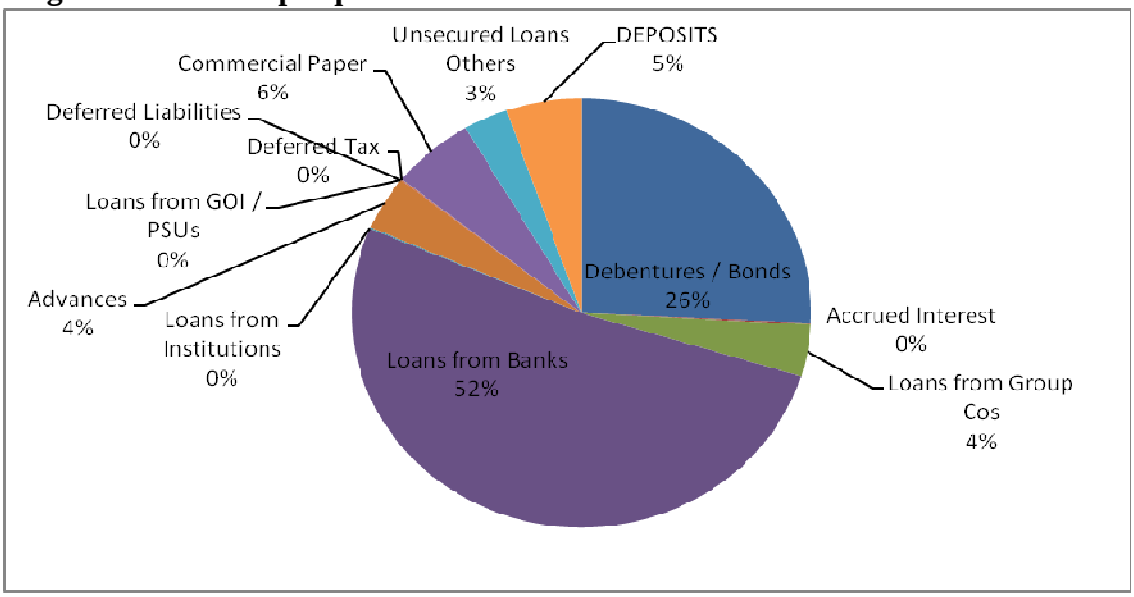
A total of 8 companies are there in the diversified sector. 71% of the total secured debt consists of long-term debt under this term loan from bank accounts for 56 %, term loan from others 6%, non-convertible debenture 5%, term loan from institutions and deferred credit/ hire purchase 2% each.. Short- term debt consists of 29% of the total secured debt. The working capital advance is 20%, cash, credit/packing credit/ bills discounted consists of 8% and secured loans from others 1%. The Figure 3.11 shows the distribution of secured debt of diversified sector.

Figure 3.11 The proportions of secured debts in diversified sector



Note: the percentage is calculated using ten year average (2002-2011)

Figure 3.12 The proportions of unsecured debts in diversified sector

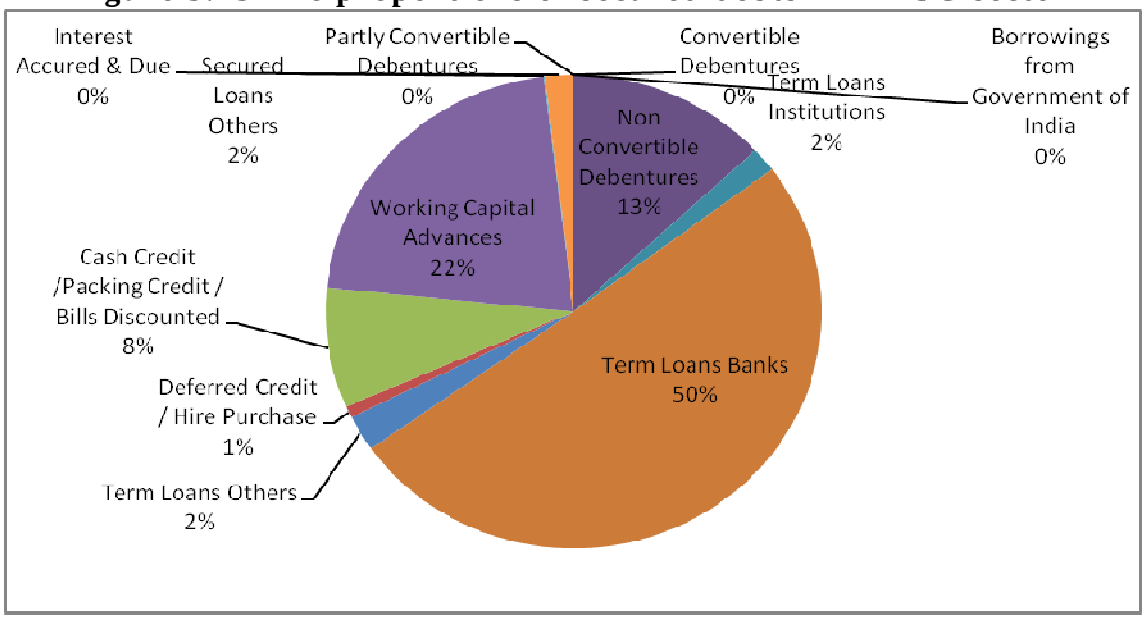


Note: the percentage is calculated using ten year average (2002-2011)

Under the unsecured debt 31% is covered by long-term debt, they are debenture/ bonds 26% and deposits 5%. Under short-term debt loan from bank is 52%, commercial paper 6%, advances 4% and unsecured loan from others 3%. The figure 3.12 displays the distribution of unsecured debt in the diversified sector.

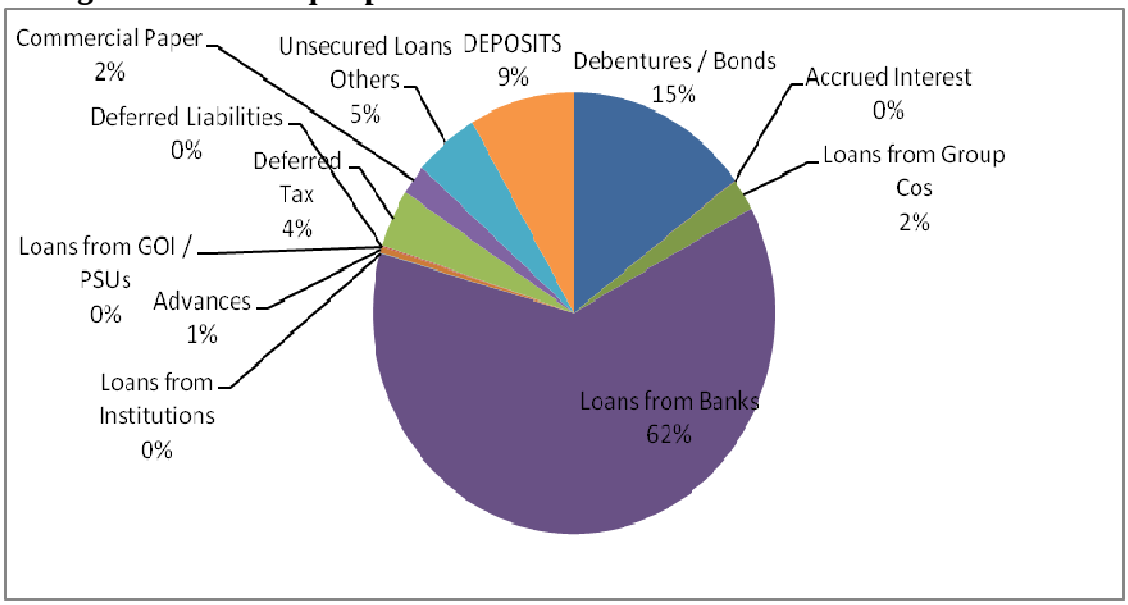
3.3.7 FMCG sector:

Figure 3.13 The proportions of secured debts in FMCG sector



Note: the percentage is calculated using ten year average (2002-2011)

Figure 3.14 The proportions of unsecured debts in FMCG sector



Note: the percentage is calculated using ten year average (2002-2011)

Under FMCG sector, there are 22 companies. The figure 3.13 shows the distribution of secured debt in FMCG sector. 68% of the total secured debt

under FMCG sector is financed through long-term sources such as Term loan from bank 50%, Non- convertible debenture 13%, term loan from institutions and term loan from others 2% each, deferred credit/ higher purchase is 1%. Short- term sources, mainly financed through; working capital advances 22%, cash credit/packing credit/bills discounted 8% and secured loans from others 2%.

The figure 3.14 shows the distribution of unsecured debt in FMCG sector. 23% of the total unsecured debt is financed through long-term debt. They are Debenture/ bonds 15%. And deposits are 8%. Under short-term debt; loan from bank 62%, unsecured loan others is 5%, and deferred tax is 4%, commercial paper 2%, loan from group of companies 2% and advances 1%.

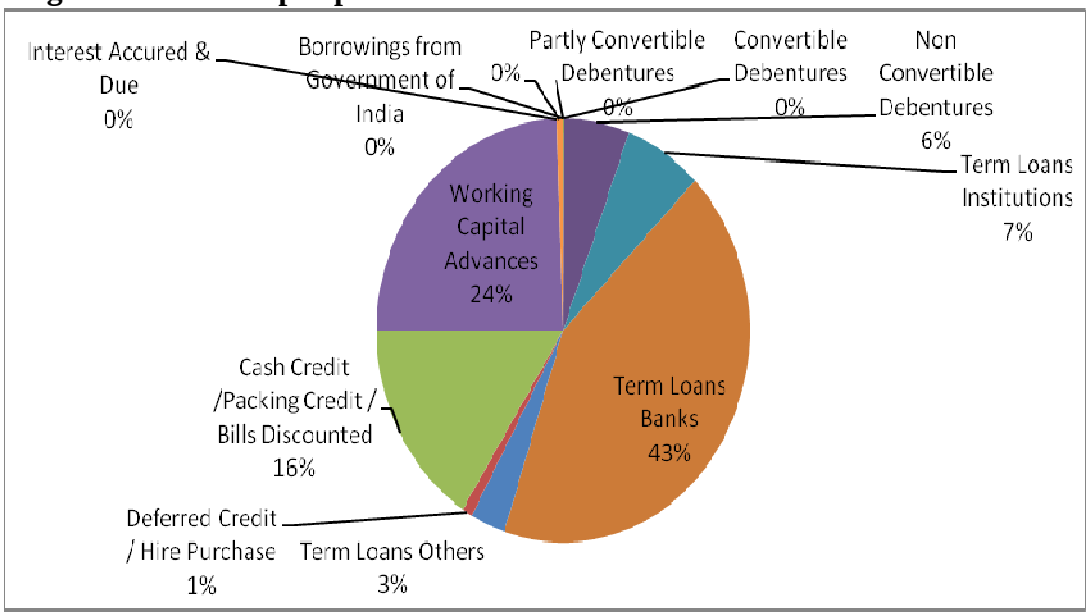
3.3.8 Healthcare sector:

Healthcare sector consists of 29 companies. 60% of the total secured debts are long-term in nature. Under the long-term debt; term loan from bank accounts for 43%, term loan from institutions 7%, non-convertible debenture 6%, term loan from others 3% and deferred credit/ higher purchase 1%. Under short-term debt; working capital advances stand 24%, cash credit/ packing credit/ bills discounted is 16%. The figure 3.15 shows the distribution of secured debt in the healthcare sector.

Under unsecured debt 57% are long –term in nature and rest is short-term. Under long-term debenture/ bonds is 56% and deposits 1%. Under short- term debt; loan from banks 36%, unsecured loan from others 3%,

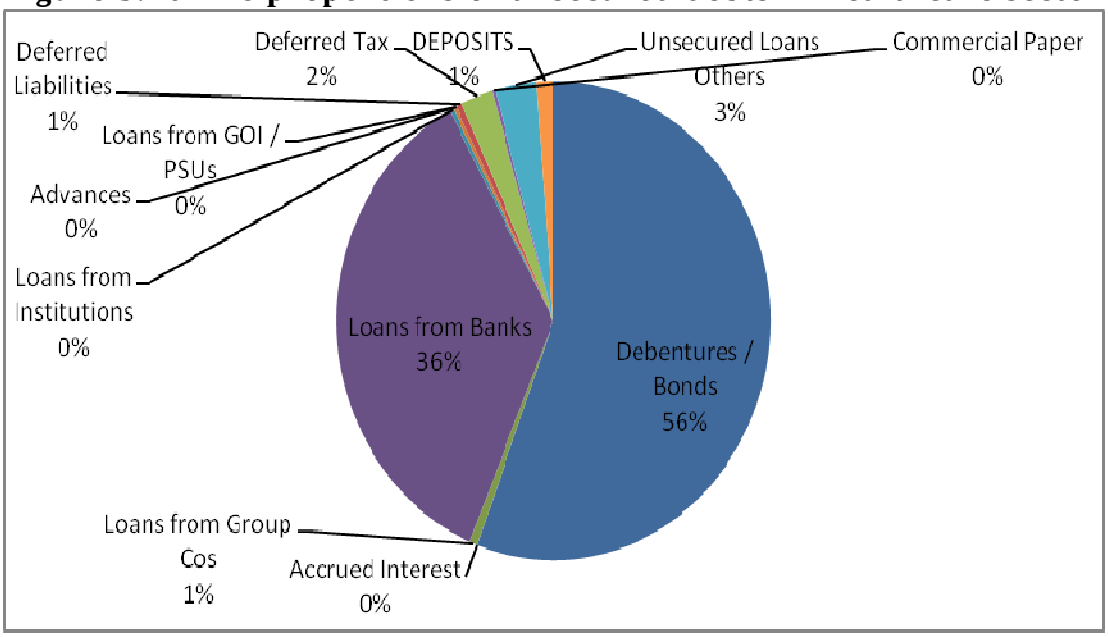
deferred tax 2%, and deferred liability 1% and loan from group of companies 1%. The figure 3.16 shows the distribution of total unsecured debt under healthcare sector.

Figure 3.15 The proportions of secured debts in healthcare sector



Note:the percentage is calculated using ten year average (2002-2011)

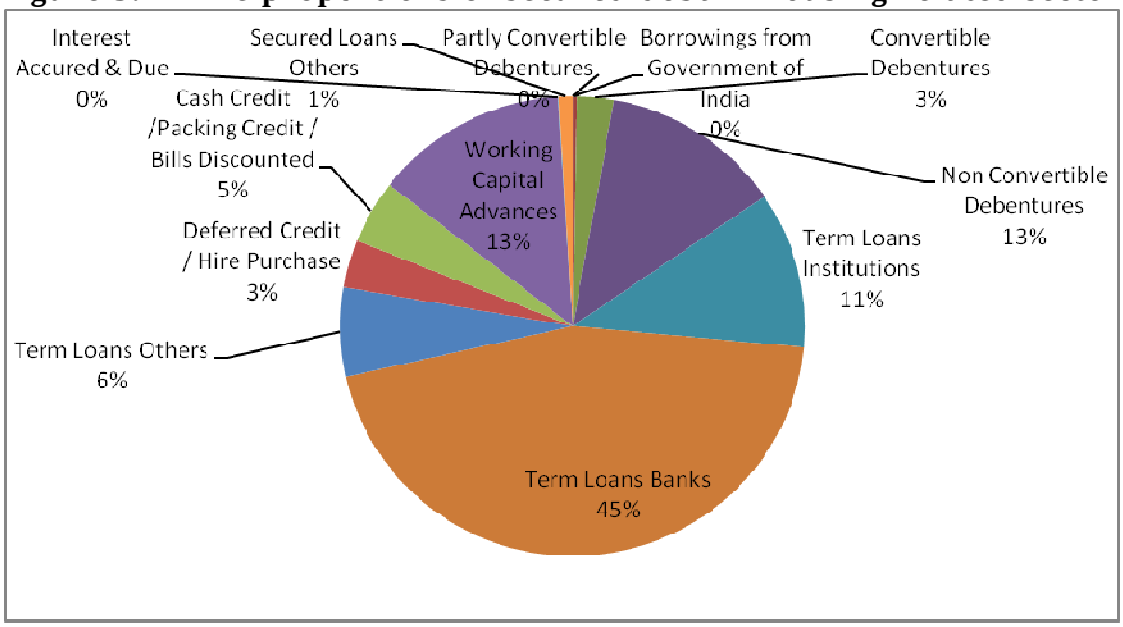
Figure 3.16 The proportions of unsecured debts in healthcare sector



Note:the percentage is calculated using ten year average (2002-2011)

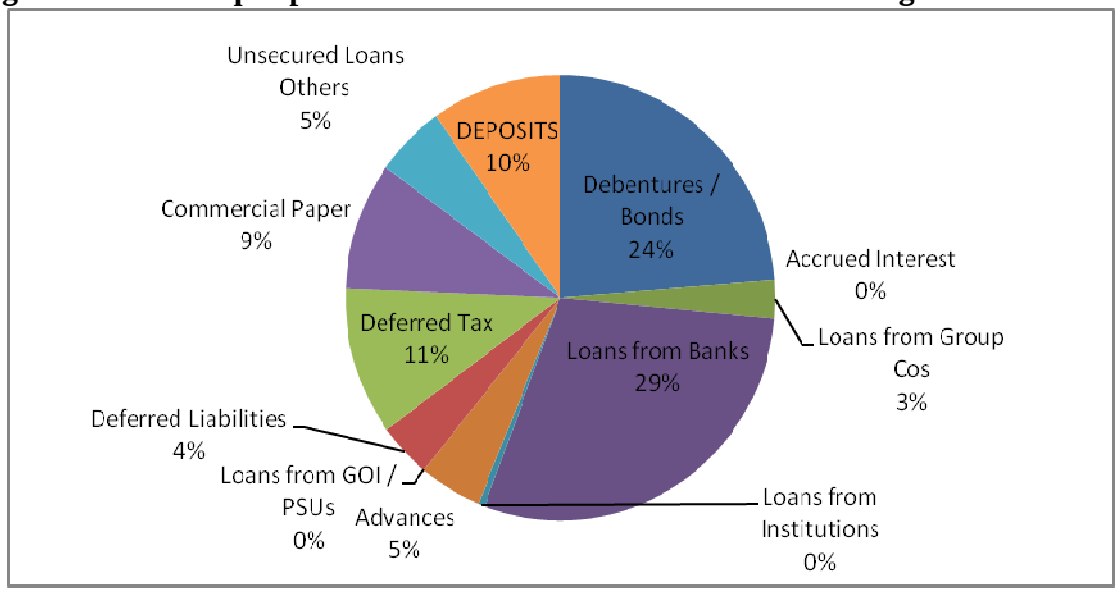
3.3.9 Housing related sector:

Figure 3.17 The proportions of secured debt in housing related sector



Note: the percentage is calculated using ten year average (2002-2011)

Figure 3.18 The proportions of unsecured debts in housing related sector



Note:the percentage is calculated using ten year average (2002-2011)

This sector consists of 36 companies. Total 81% of the secured debt is covered by long-term debt. And rest short- term debt. Under long-term debt 45% consists of term loan from bank, non- convertible debenture 13%, term

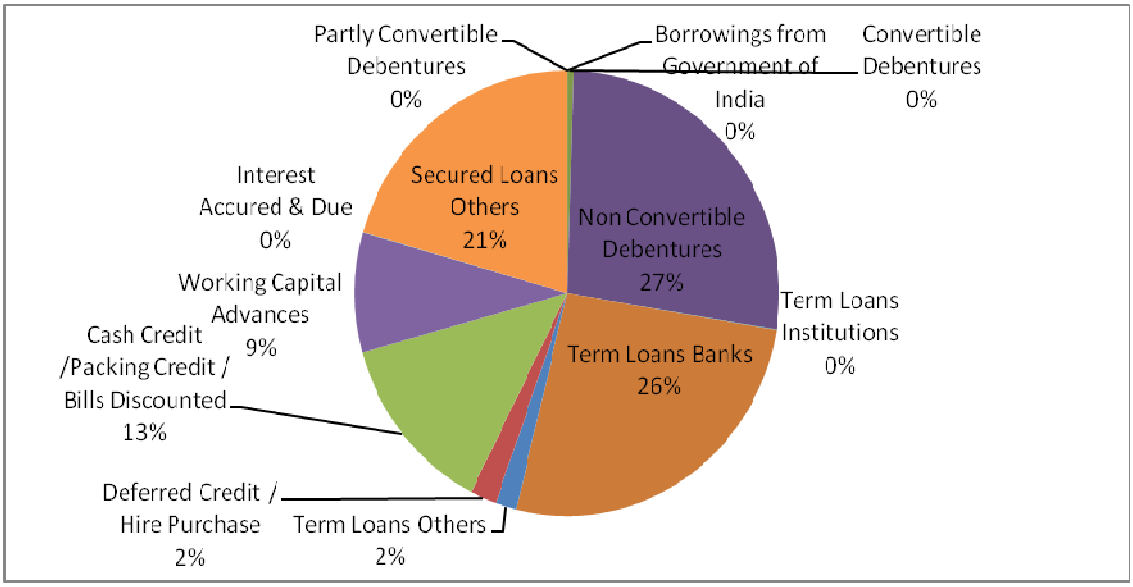
loan from institutions 11%, term loan from others 6% convertible debenture and deferred credit/ higher purchase 3% each. Under short- term sources they have opted working capital advances 13%, cash credit/ packing credit/ bills discounted 5%, and secured loan from others 1%. The figure 3.17 shows the distribution of secured debt under housing related sector.

Under unsecured debt 34% are long-term debt and the rest 66% consists of short- term debt. Under long-term debt debenture / bonds, accounts 24% and deposits 10%. Under short-term debt; loans from bank 29%, deferred tax 11%, commercial paper 9%. Unsecured loan from others and advances 5% each, deferred liability 4% and loan from group of companies 3%. The figure 3.18 shows the distribution of unsecured debt in housing related sector.

3.3.10 Information Technology:

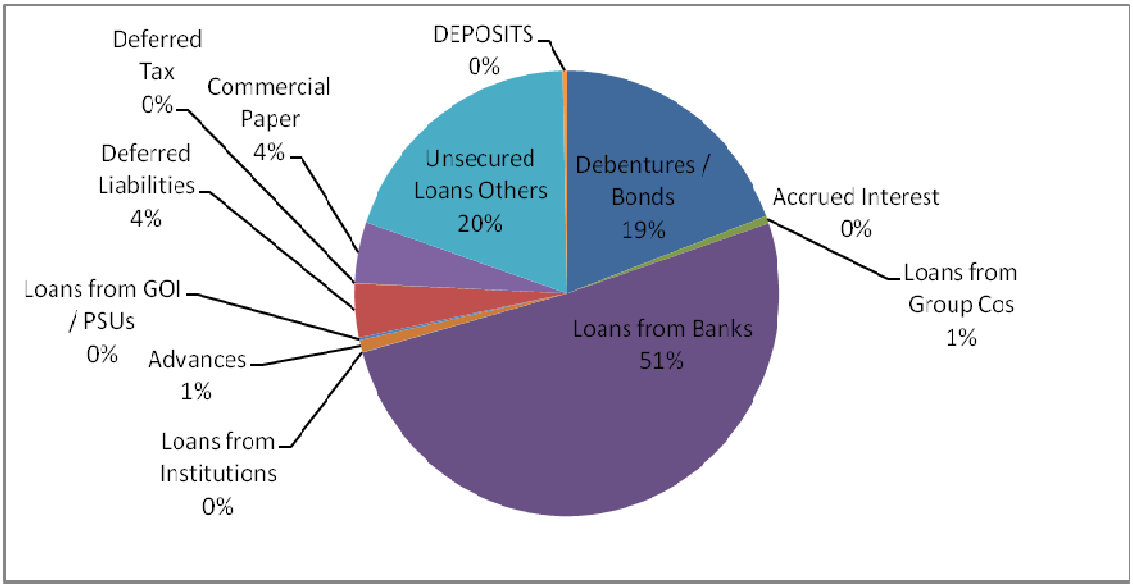
This sector consists of 24 companies. 57% of the total secured debt is financed through long-term sources and the rest is through short-term sources. The various long-term sources' contribution is term loan from bank 26%, non-convertible debenture 27%, and term loan from other and deferred credit / hire purchase 2% each. The various short-term sources used are secured loan from others 21%, cash credit /packing credit/ bills discounted 13% working capital advance 9%, and The figure 3.19 shows the distribution of information technology sector.

Figure 3.19 the proportions of secured debt in information technology sector



Note: the percentage is calculated using ten year average (2002-2011)

Figure 3.20 The proportions of unsecured debts in information technology sector



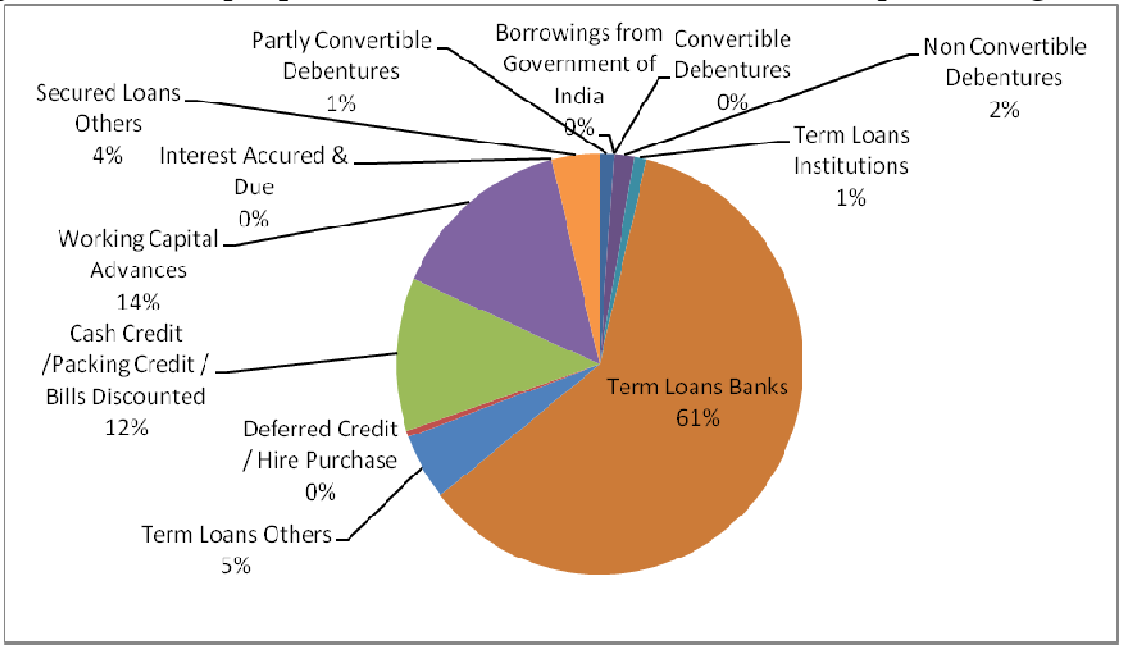
Note: the percentage is calculated using ten year average (2002-2011)

19% of the total unsecured debt is debenture/ bonds that are long-term in nature. 51% of the unsecured debt is loans from bank, 20% are unsecured loan from others, commercial paper and deferred liabilities 4% each, advances and loan from group companies 1% each are short-term in nature.

The figure 3.20 shows the distribution of unsecured debt under the information technology sector.

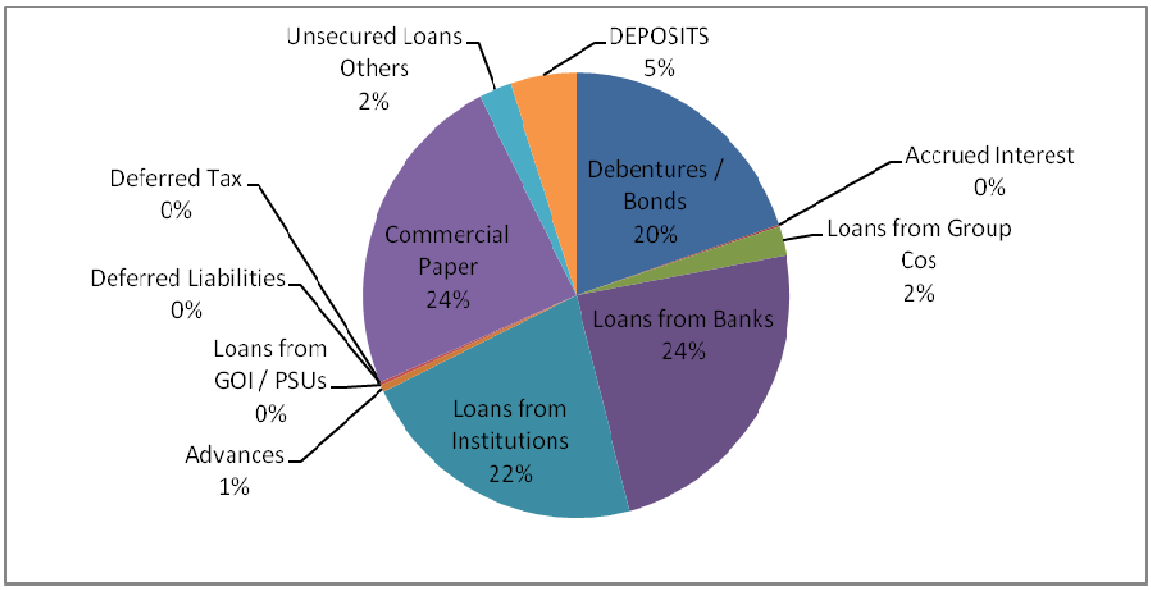
3.3.11 Media & publishing sector:

Figure 3.21 The proportions of secured debts in media& publishing sector



Note: the percentage is calculated using ten year average (2002-2011)

Figure 3.22 The proportions of unsecured debts in media& publishing sector



Note: the percentage is calculated using ten year average (2002-2011)

This sector represents eight companies. 70% of the total unsecured debt is financed through long-term sources. Such as term loan from bank 61%, term loan from others 5%, non-convertible debenture 2%, partly convertible debenture and term loan from institution 1% each. 30% of the total unsecured debts are short-term in nature, it consists of working capital advance 14%, cash credit/ packing credit/ bills discounted 12% and secured loan from others is 4%. The table 3.21 shows the distribution of secured debt in media & publishing sector.

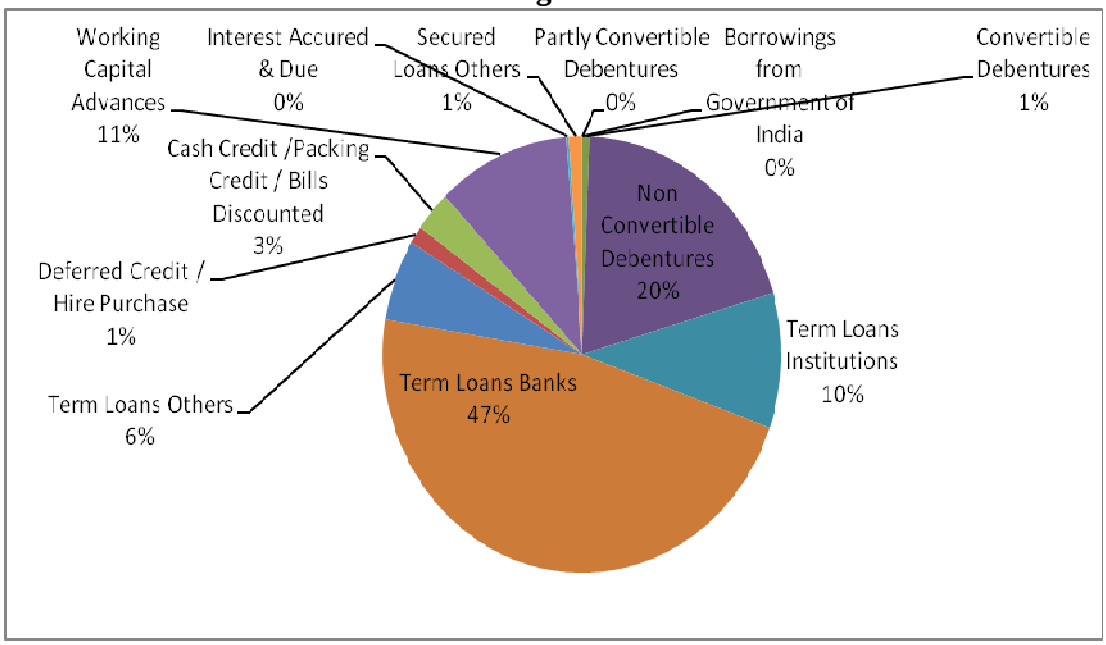
25% of the total unsecured debts are long-term in nature. Long-term debt consists of debenture/ bonds 20% and deposits 5%. 75% of the total unsecured debt accounts for short-term in nature. The various short–term debts are; commercial paper and loan from bank 24% each and loan from institutions 22%. Unsecured loan from others and loan from group of companies 2% each and advances 1%. The figure 3.22 shows that the distribution of unsecured debt under media and publishing sector.

3.3.12 Metal, metal products & mining sector:

A total of 26 companies are representing this sector. 85% of the total secured debts are financed through long-term sources. The various long-term source and contribution to the total secured debt are term loan 47%, non-convertible debenture 20%, and term loan from institutions 10%, term loan from others 6% deferred credit/ higher purchase and convertible debenture 1% each. Only 15% of the total secured consists of short-term debt. the major short- term debt are working capital advances 11% , cash credit/

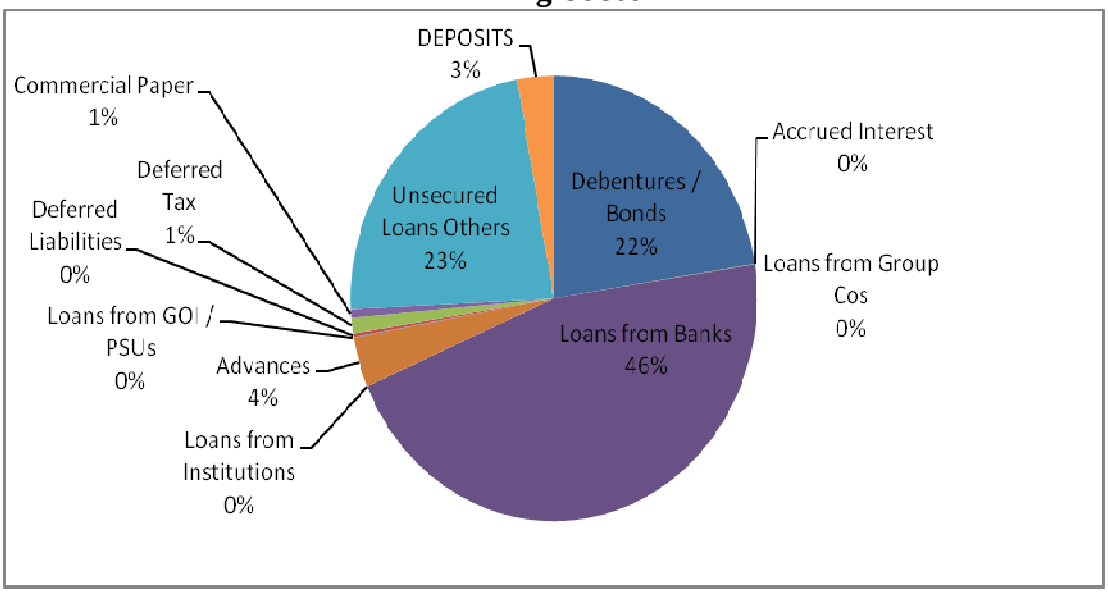
packing credit/ bills discounted 3% and secured loan from others 1% .The figure 3.23 shows the distribution of secured debt in metal, metal products & mining sector.

Figure 3.23 The proportions of secured debt in metal, metal products & mining sector



Note:the percentage is calculated using ten year average (2002-2011)

Figure 3.24 The proportions of unsecured debt in metal, metal products & mining sector

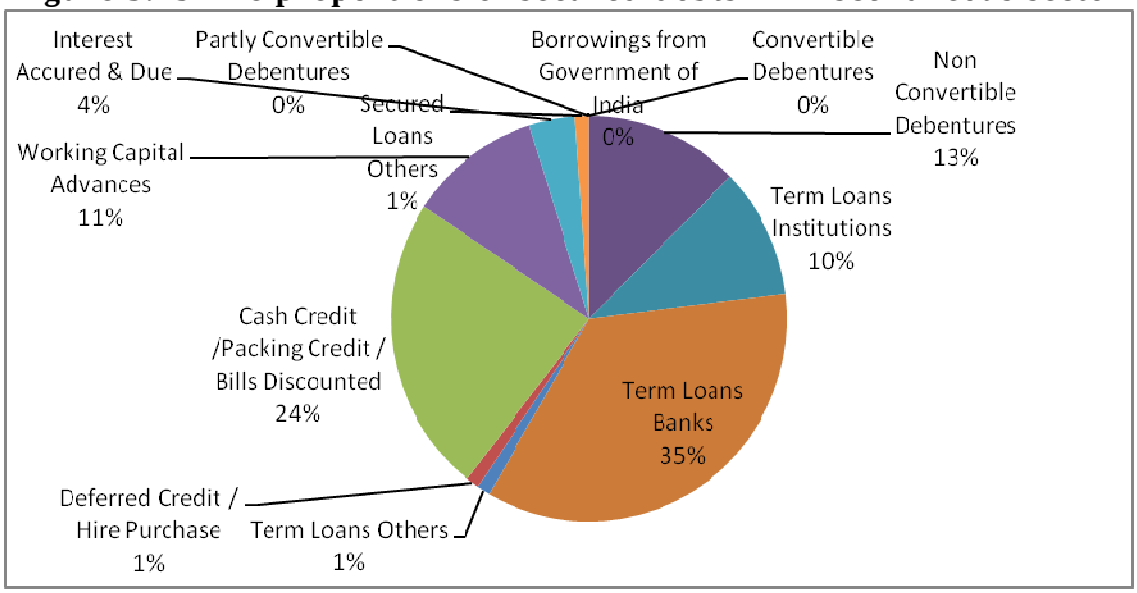


Note:the percentage is calculated using ten year average (2002-2011)

The figure 3.24 shows the distribution of unsecured debt in metal, metal products & mining sector. 25 % of the total unsecured debts are long-term in nature. It consists of debenture/ bonds, 22% and deposits 3%. Under the short-term debt; loan from bank contributes 46%, unsecured loan from others 23%, advance 4%. Commercial paper, deferred tax stands 1% each.

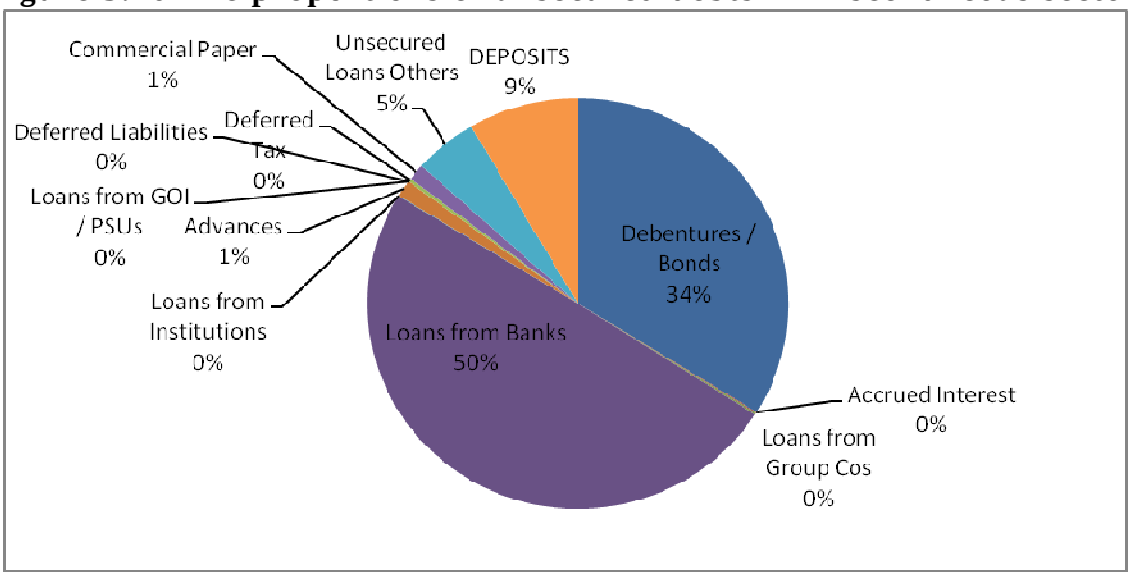
3.3.13 Miscellaneous sector:

Figure 3.25 The proportions of secured debts in miscellaneous sector



Note: the percentage is calculated using ten year average (2002-2011)

Figure 3.26 The proportions of unsecured debts in miscellaneous sector



Note: the percentage is calculated using ten year average (2002-2011)

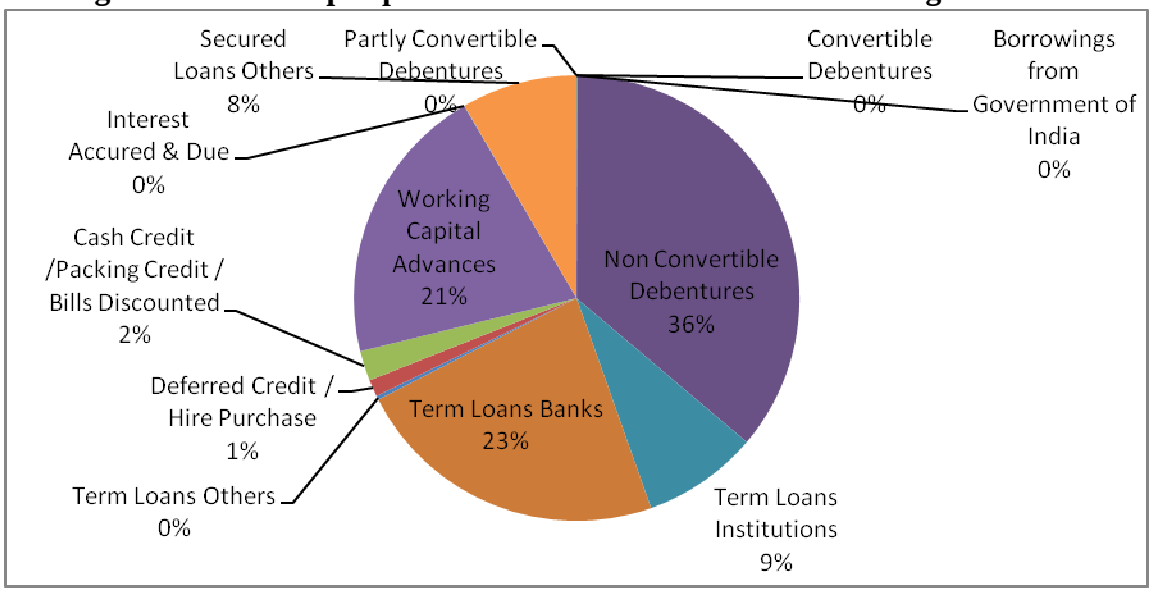
This sector consists of 12 companies the figure 3.25 shows the distribution of secured debt in miscellaneous sector. 60% of the secured debts are covered by long-term debt. They are; term loan from bank 35%, non-convertible debenture 13%, term loan from institutions 10% term loan from others and deferred credit/ higher purchase each accounts 1%. Under short-term debt; cash credit/ packing credit/bills discounted 24%, working capital advance 11%, interest accrued & due 4% and secured loan from others 1%.

43% of the total unsecured debts are financed through long-term sources. The long-term sources are debenture/bonds 34% and deposits 9%. 57% of the unsecured debts are short- term in nature. The various short-term sources are loans from bank 50%, unsecured loans from others 5%, and commercial paper 1%. The figure 3.26 shows the distribution of total unsecured debt in miscellaneous sector.

3.3.14 Oil & gas sector:

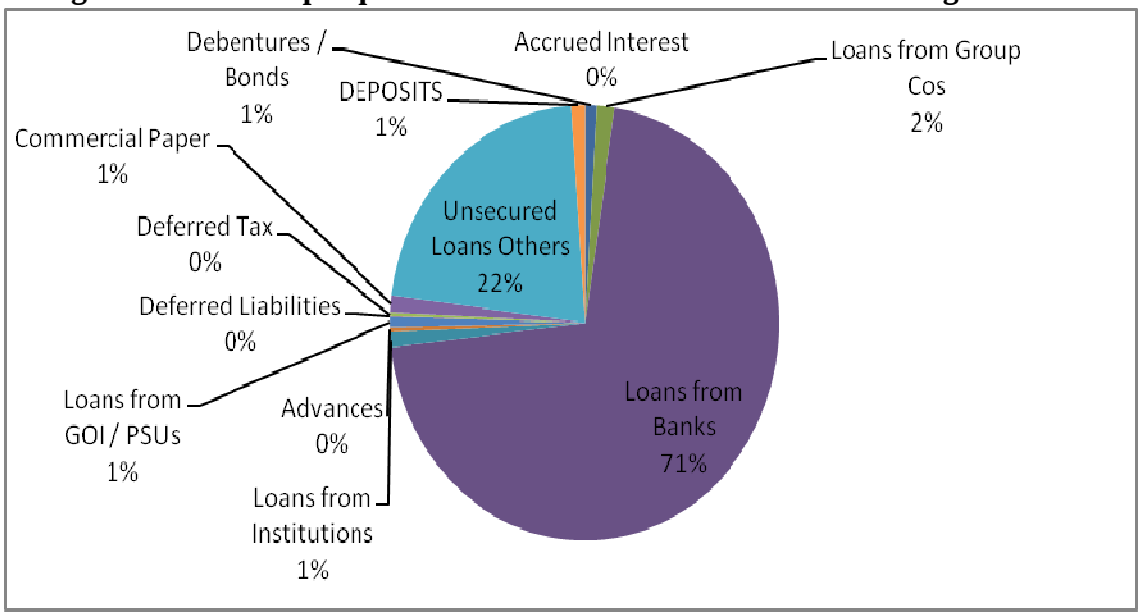
A total of 20 companies are representing this sector. The figure 3.27 shows the distribution of secured debt in oil & gas sector. 69% of the total secured debt consists of long-term debt such as term loan from bank 23%, non-convertible debenture 36% term loan from institutions 9% and deferred credit/ higher purchase 1%. The various short-term sources statistics are working capital advance 21%, secured loan from others 8% and cash credit/ packing credit/bills discounted is 2%.

Figure 3.27 The proportions of secured debts in oil &gas sector



Note: the percentage is calculated using ten year average (2002-2011)

Figure 3.28 The proportions of unsecured debts in oil &gas sector



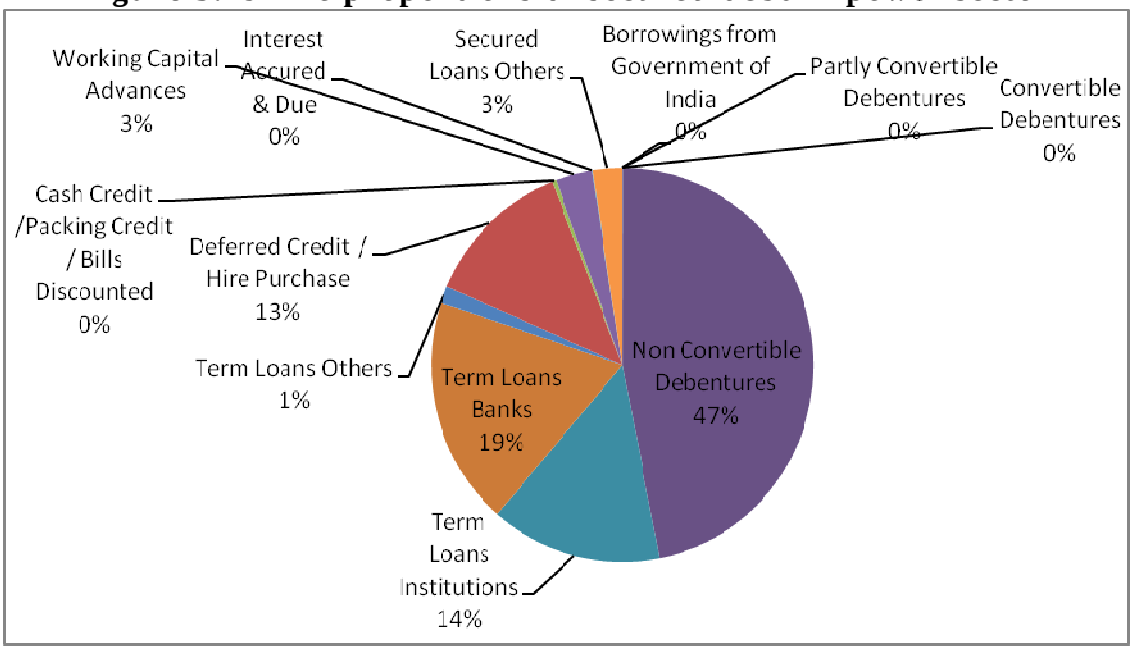
Note: the percentage is calculated using ten year average (2002-2011)

The figure 3.28 shows the distribution of unsecured debt under Oil & gas sector. Long- term debts represent only 2% of the total unsecured debt. Debenture/ bonds and deposits contribute 1% each. The rest 98% represents by short-term sources. The various short-term sources contribution are loans

from banks 71%, unsecured loan from others 22% and loan from institutions, commercial paper and loan from GOI/PSU each contribute 1%.

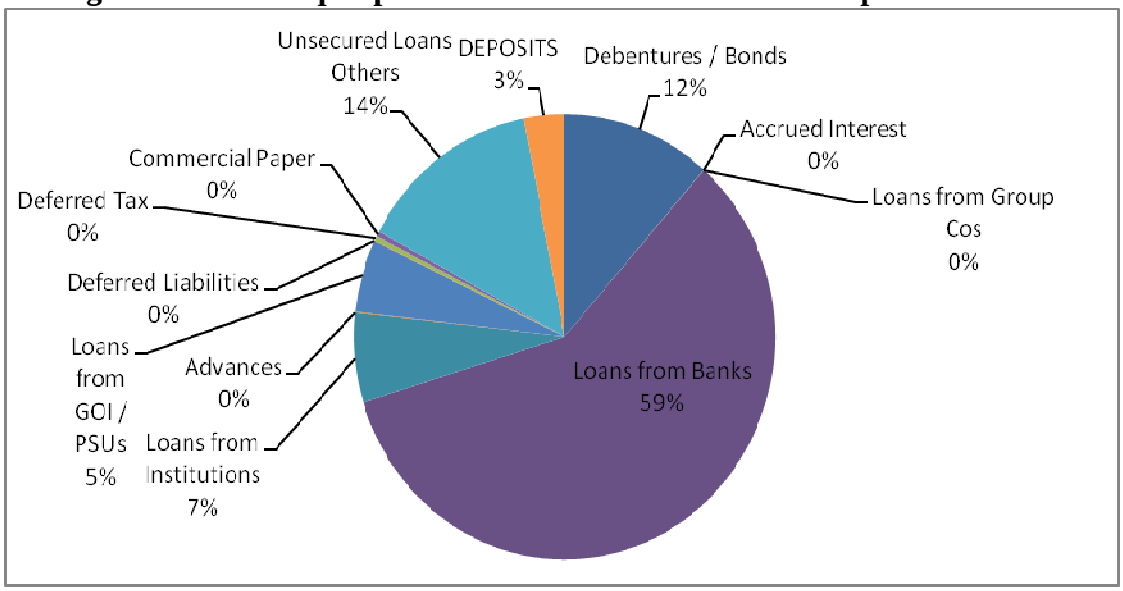
3.3.15 Power sector:

Figure 3.29 The proportions of secured debt in power sector



Note: the percentage is calculated using ten year average (2002-2011)

Figure 3.30 The proportions of unsecured debt in power sector



Note: the percentage is calculated using ten year average (2002-2011)

There are 18 companies' represents this sector. The figure 3.29 shows the total secured debt in power sector. Under secured debt long-term debt constitutes 94% and the remaining short-term debt. Non-convertible debenture 47%, term loan from bank 19% , deferred credit/ higher purchase 13%, term loan from institutions 14% and term loan from others 1% are the contribution from long-term debt. Short-term debts are working capital advance 3% and secured loan from others 3%. 15% of the unsecured debts are long-term in nature. Debenture/ bonds 12% and deposits 3% are the long-term sources used by the sector.

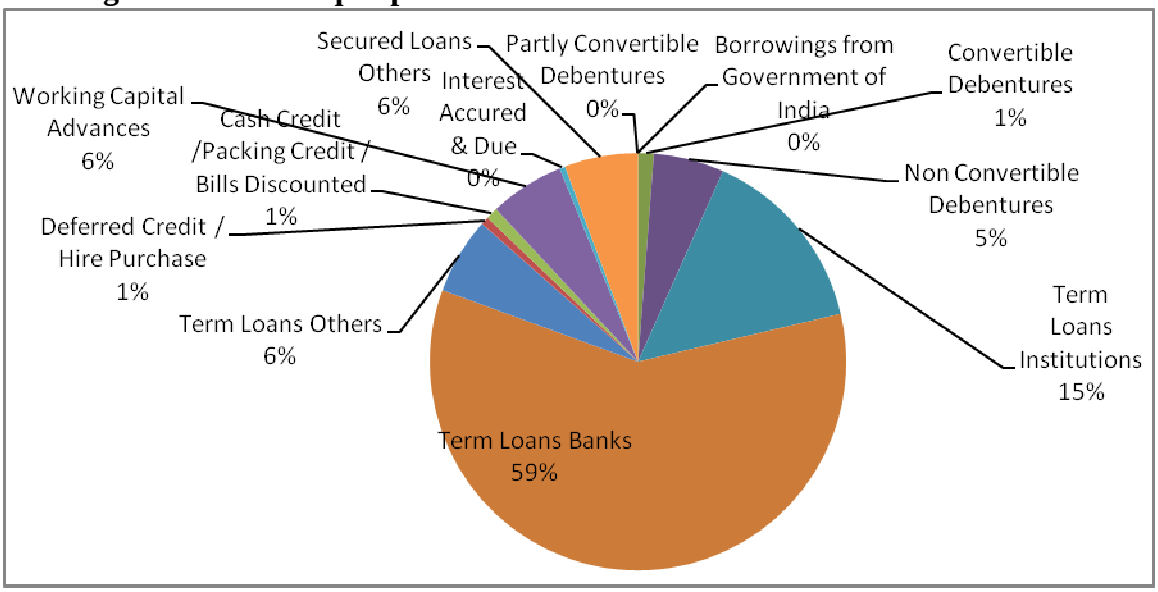
The major short-term debts used by the companies in this sector are loans from bank 59%, un secured loans from others 14%, loans from institutions 7% and loan from GOI/PSU 5%. The figure 3.30 shows the distribution of unsecured loan in power sector.

3.3.16 Telecom sector:

This sector comprises of 11 companies. 87 % of the secured debt is financed using long-term sources. It consists of term loan from bank 59%, term loan from institutions 15%, term loan others 6%, non-convertible debenture 5%, and deferred credit / higher purchase and convertible debenture 1% each. The short-term sources used are working capital advance, secured loan from others 6% each and cash credit/packing credit/ bills discounted 1%. The figure 3.31 shows the distribution of secured debt under telecom sector. 88% of the unsecured debts are financed through short-term sources. The various short-term sources and it contribution in total unsecured

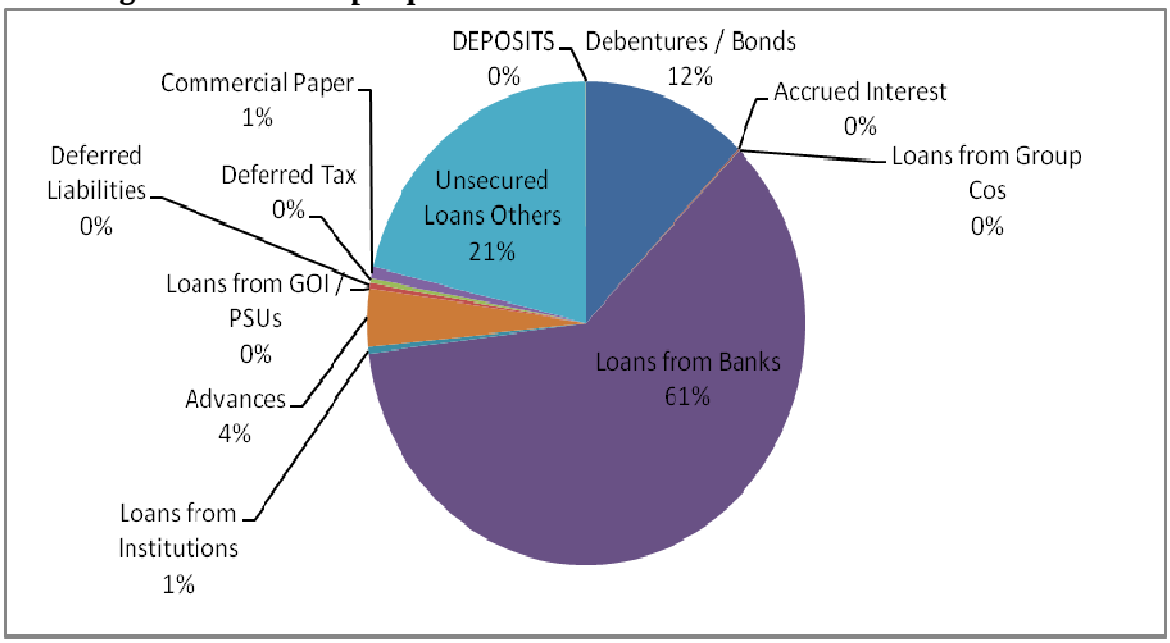
debt are loan from bank 61%, unsecured loan from others 21%, advances 4% and loan from institutions and commercial paper 1% each. Long-term source consist of debenture/bonds holds 12%. The figure 3.32 shows the distribution unsecured debt in telecom sector.

Figure 3.31 The proportions of secured debts in telecom sector



Note: the percentage is calculated using ten year average (2002-2011)

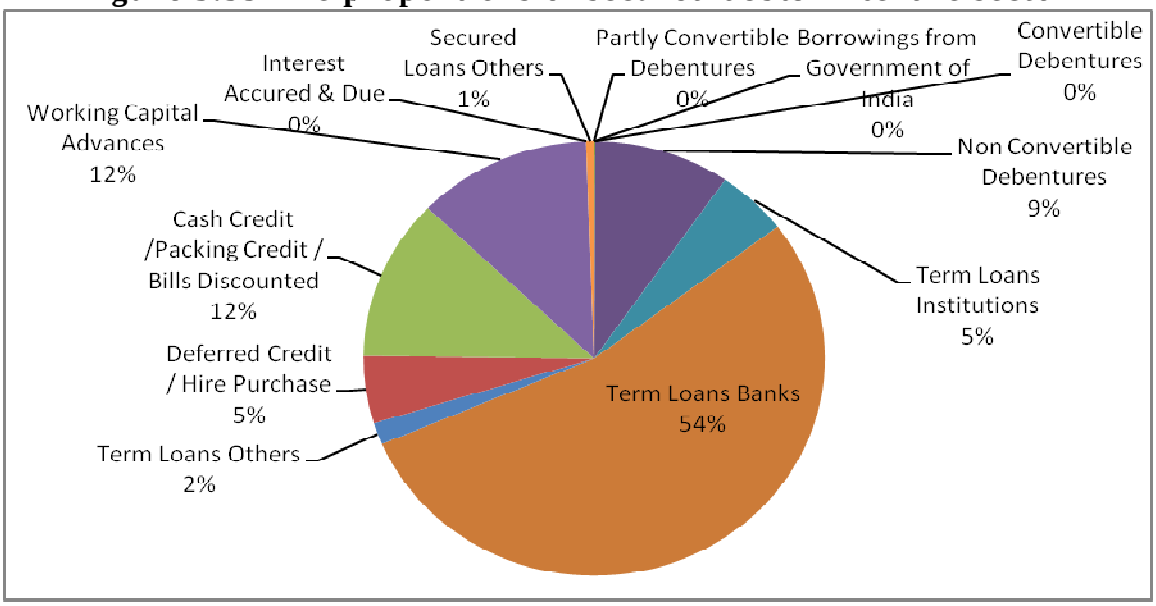
Figure 3.32 The proportions unsecured debt in telecom sector



Note: the percentage is calculated using ten year average (2002-2011)

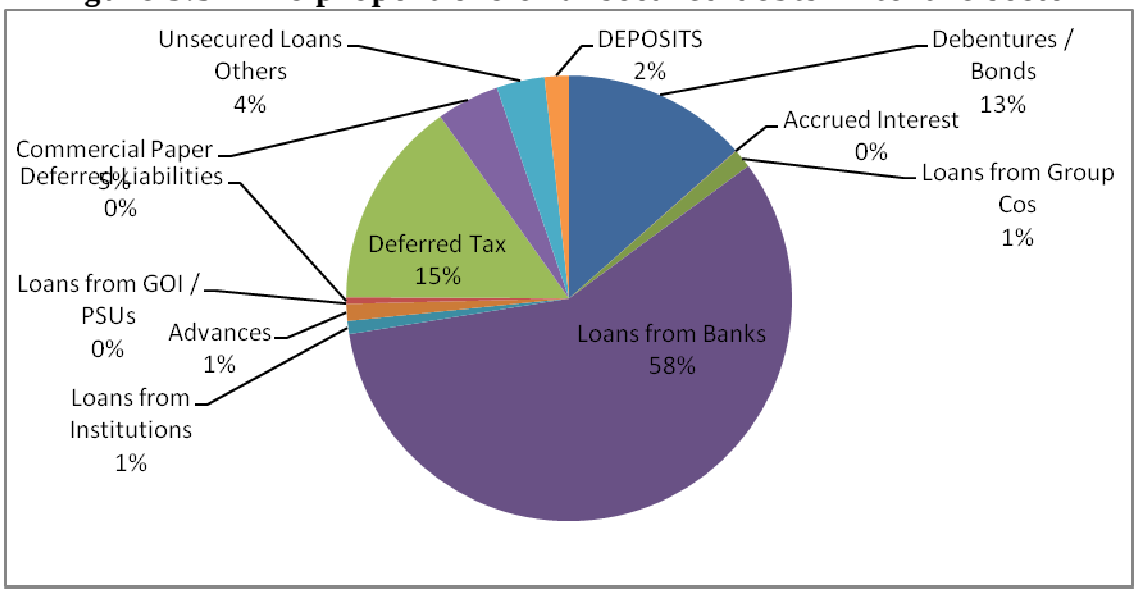
3 3.17 Textile sector:

Figure 3.33 The proportions of secured debts in textile sector



Note: the percentage is calculated using ten year average (2002-2011)

Figure 3.34 The proportions of unsecured debts in textile sector



Note: the percentage is calculated using ten year average (2002-2011)

This sector consists of 10 companies. 75 % of the total secured debt comprises of long-term debt and rest short-term debt. Term loans from banks 54%, Non-convertible debenture 9%, Term loan from institutions and

Deferred credit/higher purchase 5% each and term loan from others 1%. The short-term debt used by the companies in this sectors are working capital advances and cash credit/packing credit/ bills discounted 12% each and secured loan from others 1%.. The figure 3.33 shows the distribution of secured debt under textiles sector.

15% of the total unsecured debt is covered by long-term debt, they are debenture bonds 13 % and deposits 2%. 85% of the total unsecured debt is covered by short-term debt. The major short-term debts used by the companies in this sector are loan from banks 58%, deferred tax 15%, commercial paper 5%, and unsecured loan from others 4%, loans from group of companies, advances and loans from institutions 1% each. The figure 3.34 shows the distribution of unsecured debt under textile sector.

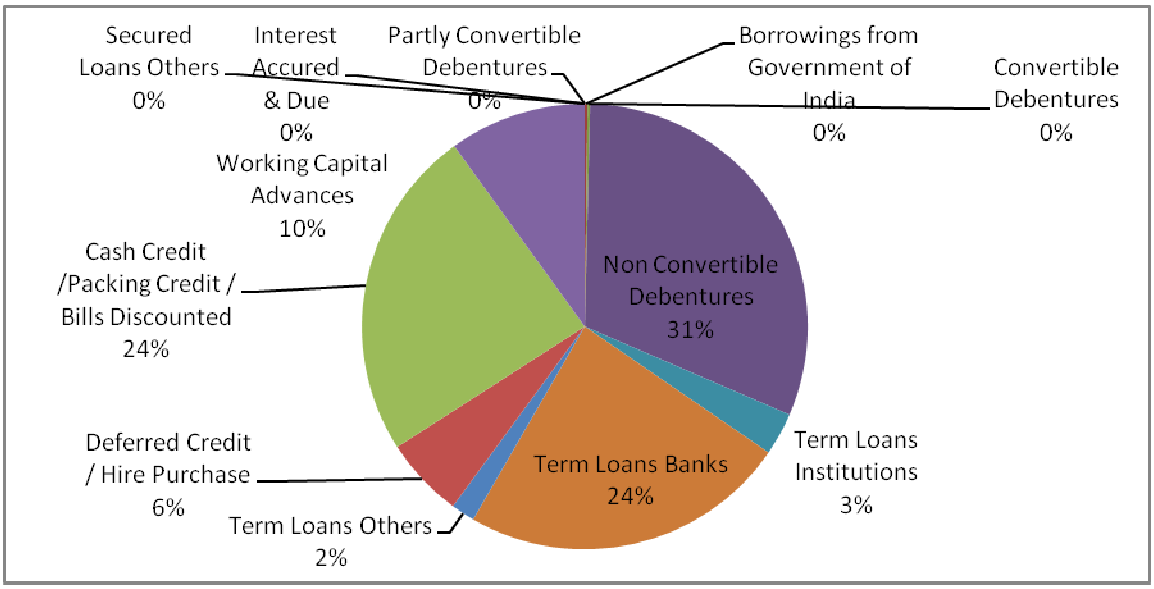
3. 3.18 Transport equipment sector:

This sector consists of 23 companies. 66% of the total debts are long-term in nature. the long-term debts are term loan from banks 24% non-convertible debenture 31%, deferred credit/ higher purchase 6%, term loan from institutions 3% and term loans from others 2%. The statuses of various short-term debts are cash credit/packing credit/bills discounted 24% and working capital advances 10%. The figure 3.35 shows the distribution of secured debt in transport equipments sector.

Under Unsecured long-term debt holds 27%. Debenture bonds 15 % and deposits 12%. Rest are holds by short- term debts. The short-term debts are: unsecured loan from others 32%, loans from bank 22%. Deferred tax is 6%,

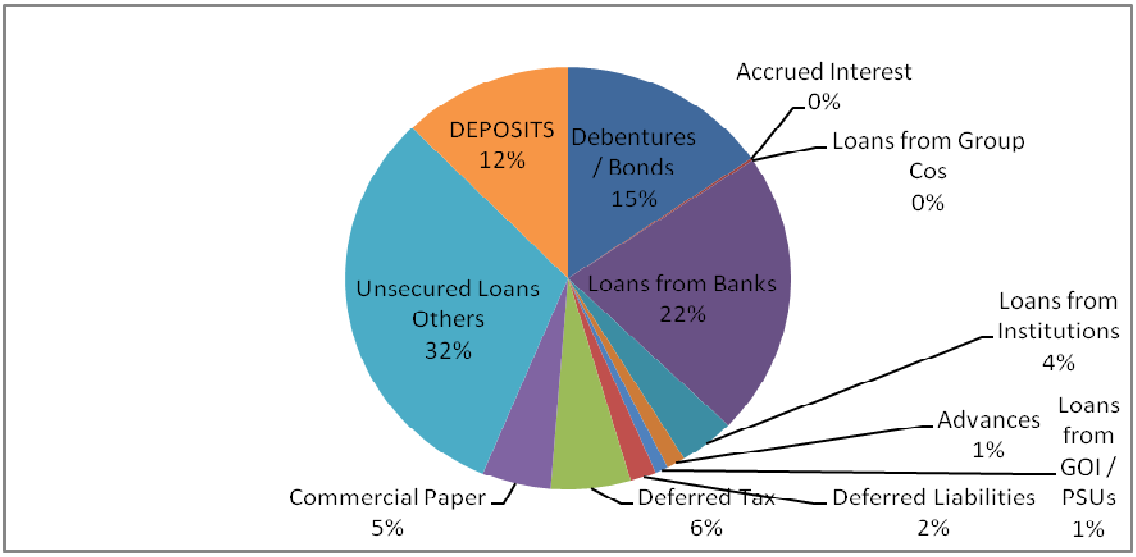
commercial paper is 5%, loan from institutions is 4%, deferred liability 2%, advances and loan from GOI/PSU is 1% each. The figure 3.36 shows the distribution of unsecured debt in transport equipment sector.

Figure 3.35 The proportions of secured debt in transport equipment sector



Note: the percentage is calculated using ten year average (2002-2011)

Figure 3.36 The proportions of unsecured debt in transport equipment sector



Note: the percentage is calculated using ten year average (2002-2011

3.4 Findings

After examining the proportion of different debt choice made by the Indian firms, we can conclude that under secured debt all the sectors have taken term loan from bank. Moreover, term loan from bank contribute the major percentage share except sectors such as information technology and oil & gas, in these sectors term loan from bank is the second major source of secured debt. And in transport equipment it is having the third major percentage share. However the overall sample shows that term loan from the bank has highest (34.77) percentage share in the total secured debt.

Next to the term loan from bank non-convertible debenture holds the second major percentage share (25%) in total secured debt. All the sectors have issued non-convertible debenture. However the sectors such as power, oil & gas, transport equipment and information technology non-convertible debenture having the major percentage share in the total secured debt. Moreover the sectors like capital goods, metal, metal products & mining non-convertible debenture hold the second major percentage share in the total secured debt. Some of the Indian firms are issued partly convertible debenture and convertible debentures. Housing related, media & publishing and power sector are having partly convertible debenture. However the total percentage share of partially convertible debenture in total secured debt is less than 1.5 percentages. Moreover the overall sample also shows the percentage share in partly convertible debenture in total secured debt is only 0.01 percentages. The sectors such as capital goods, chemicals &

petrochemicals, diversified, healthcare, housing related, information technology, metal, metal products & mining, oil & gas, telecom, textile and transport equipment are issued convertible debenture. However the overall sample shows the percentage share in a convertible debenture in total secured debt is only 0.50 percentages.

Table.3.1shows the detailed percentage share of each component secured of Indian companies.

Table 3.1 Sector wise findings on proportions of secured debt in Indian companies (percentage)

Sectors	Partly Convertible Debentures	Convertible Debentures	Non Convertible Debentures	Term Loans Institutions	Term Loans Banks	Term Loans Others	Deferred Credit / Hire Purchase	Cash Credit /Packing Credit / Bills Discounted	Working Capital Advances	Interest Accured & Due	Borrowings from Government of India	Secured Loans Others
Agriculture	0.00	0.00	8.04	6.39	33.11	2.34	3.39	20.10	17.13	0.17	1.17	8.17
Capital Goods	0.00	0.31	19.85	4.62	25.65	1.79	5.50	15.24	22.71	0.18	0.19	3.96
Chemical & Petrochemical	0.00	0.38	19.94	20.65	32.61	0.42	0.31	8.76	14.76	0.09	0.00	2.07
Consumer Durables	0.00	0.00	5.08	0.47	46.89	0.04	0.20	4.14	37.85	0.00	0.00	5.32
Diversified	0.00	0.14	4.58	2.13	55.91	6.43	1.60	8.57	19.85	0.04	0.00	0.73
FMCG	0.00	0.00	13.07	1.66	50.46	2.45	0.79	8.19	21.47	0.08	0.00	1.83
Healthcare	0.00	0.09	5.67	6.74	42.60	3.04	0.90	15.96	24.48	0.00	0.00	0.51
Housing Related	0.01	2.60	12.58	11.02	44.99	6.26	3.36	4.47	13.45	0.04	0.26	0.95
Information Technology	0.00	0.45	27.15	0.04	26.23	1.59	2.01	13.25	8.68	0.03	0.01	20.57
Media & Publishing	1.15	0.00	1.58	0.99	60.62	5.08	0.50	11.71	14.57	0.00	0.00	3.79
Metal,Metal Products & Mining	0.00	0.56	19.88	10.01	47.12	6.01	1.32	3.02	10.83	0.20	0.00	1.05
Miscellaneous	0.00	0.00	12.65	10.38	35.36	1.07	1.07	23.81	10.77	3.76	0.00	1.13
Oil & Gas	0.00	0.07	36.11	8.40	22.89	0.29	1.23	2.18	20.42	0.02	0.00	8.40
Power	0.03	0.00	46.83	14.48	18.78	1.41	12.49	0.33	3.08	0.05	0.00	2.52
Telecom	0.00	1.21	5.46	14.63	59.28	5.94	0.62	0.93	5.79	0.43	0.00	5.70
Textile	0.00	0.08	9.56	5.02	53.92	1.62	4.99	11.96	12.28	0.00	0.00	0.57
Transport Equipments	0.00	0.19	31.09	3.10	23.77	1.73	5.84	24.13	9.96	0.00	0.19	0.00
Total sample	0.01	0.50	25.00	9.40	34.77	2.85	4.40	6.17	13.28	0.16	0.09	3.37

Note: first step for each sector averages have been calculated for the study period. Then the second step percentage of each component obtained

Coming to the Term loans from institutions, all the sectors have taken term loan from institutions. However the chemical & petrochemicals having a second major percentage share in the total secured debt. The overall sample shows term loan from institution has 9.40 percent share in the total secured debt. But in case of Term loans from others, all the sectors have taken term loan from others. However the overall sample shows term loan from others has only 2.85 percent share in the total secured debt.

Some of the companies have borrowed from Government of India. From the sectors like agriculture, capital goods, housing related, and information technology and transport equipment firms borrowed money from the government. However the overall sample shows borrowings from the government of India have only 0.09 percent share in secured debt. Moreover, secured loans from other than this source also have been taken by the firms. Except transport equipment all the other sectors went for a secured loan from other sources. Agriculture, oil & gas and information technology are having more percentage share among the other sectors. But the overall sector shows secured loan from others has only 3.37 percent share in secured debt.

If we look at the short-term secured loans, all the sectors have taken deferred credit/ hire purchase. However the power sector (12.54%) has the major percentage share of deferred credit/ hire purchase in comparison to other sectors. The overall sample shows deferred credit/ hire purchase has only 4.40 percent share in the secured debt.

In case of cash credit /packing credit / bills discounted all the sectors have taken cash credit /packing credit / bills discounted. However, agriculture (20.10%), miscellaneous (23.18%) and transport equipment (24.13%) sectors it is having the second major percentage share in the secured debt. Moreover the sectors such as capital goods, healthcare, information technology and textile having more than ten percentage share in the secured debt. The overall sample shows cash credit /packing credit / bills discounted have 6.17 percent share in the secured debt.

Approaching to working capital advance it is having the major share in short term secured debt. All the sectors have taken working capital advances. The consumer durables sector is having the major percentage share in comparison to other sectors. Moreover the sectors such as capital goods, consumer durables, diversified, FMCG, healthcare, housing related, media & publishing and textile working capital advance having the second major share in total secured debt. However the overall sample shows working capital advance have 13.28 percent share in the secured debt, this is the third major percentage share in total secured debt.

Looking into the interest accrued & due, the sectors such as consumer durables, healthcare, media & publishing, textile and transport equipment are not having interest accrued & due in secured debt. All the reaming sectors are having interest accrued & due. However the percentage share of interest accrued & due is only 0.16.

Table.3.2 shows the detailed percentage share of each component unsecured of Indian companies.

Table 3.2 Sector wise findings on proportion of unsecured debt in Indian companies (parentage)

Sectors	Debentures / Bonds	Loans from Group Cos	Loans from Banks	Loans from Institutions	Loans from GOI / PSUs	Advances	Deferred Liabilities	Accrued Interest	Deferred Tax	Commercial Paper	Deposits	Unsecured Loans Others
Agriculture	21.25	7.20	45.79	0.53	0.46	2.79	1.90	0.02	0.49	2.15	5.35	12.07
Capital Goods	22.99	0.99	57.80	0.16	0.00	1.22	0.95	0.06	4.10	2.53	3.00	6.19
Chemical & Petrochemical	17.94	0.01	63.03	0.21	0.00	3.49	0.12	0.04	2.56	2.62	4.39	5.58
Consumer Durables	36.59	3.59	52.57	0.07	0.00	0.01	0.00	0.00	1.46	0.64	3.85	1.22
Diversified	25.73	3.89	51.68	0.09	0.00	4.11	0.07	0.14	0.02	5.87	5.29	3.12
FMCG	14.78	2.36	62.18	0.04	0.00	0.46	0.11	0.03	4.24	2.19	8.44	5.18
Healthcare	55.71	0.60	35.76	0.28	0.00	0.26	0.47	0.00	2.37	0.24	1.28	3.04
Housing Related	23.69	2.79	29.24	0.50	0.00	4.70	3.99	0.01	10.76	9.27	9.81	5.24
Information Technology	19.34	0.57	50.81	0.03	0.20	0.88	3.89	0.00	0.03	4.42	0.33	19.51
Media & Publishing	19.85	2.14	23.88	21.88	0.00	0.49	0.23	0.14	0.00	23.96	4.98	2.46
Metal,Metal Products & Mining	22.51	0.03	45.98	0.00	0.05	3.64	0.25	0.00	1.13	0.62	2.90	22.88
Miscellenous	33.87	0.14	49.67	0.04	0.00	1.32	0.00	0.08	0.27	1.30	8.45	4.86
Oil & Gas	0.95	1.54	70.71	1.14	0.77	0.35	0.03	0.00	0.28	1.28	1.14	21.80
Power	11.50	0.02	58.72	6.51	5.24	0.07	0.04	0.00	0.35	0.39	3.09	14.06
Telecom	12.24	0.03	60.63	0.43	0.00	3.90	0.35	0.09	0.31	0.77	0.03	21.24
Textile	13.46	1.38	57.57	0.94	0.00	1.23	0.48	0.03	15.11	4.54	1.78	3.48
Transport Equipments	15.36	0.00	21.71	4.04	0.94	1.35	1.88	0.18	5.79	5.01	12.34	31.40
Sample as a total	12.53	1.14	56.98	1.93	1.23	1.33	0.54	0.02	1.64	1.98	3.07	17.62

Note: first step for each sector averages have been calculated for the study period. Then the second step percentage of each component obtained.

However the percentage shares of various sources of unsecured debt in Indian firms are. The entire the sectors have issued debenture/bonds. While, the healthcare sector debenture/ bonds hold the major percentage share in the unsecured debt. Capital goods, consumer durables, diversified, FMCG, housing related, miscellaneous and textile in these sector debenture/ bonds

has the second major percentage share in unsecured debt. Moreover information technology, metal, metal products & mining, transport equipment have a third major percentage share in unsecured debt. However the overall sample shows debenture/ bonds having a 12.53 percent share in unsecured debt.

There are firms which go for loans from group companies. Except transport equipment all other sectors have opted for loans from group companies. The percentage shares by loans from group companies are negligible. The overall sample shows loan from group companies has only 1.14 percent share in the unsecured debt.

The overall sample shows loan from the bank is having a 56.98 percent share in unsecured debt, it holds highest percentage share in unsecured debt. All the sectors have taken loan from bank. It holds the major percentage share in unsecured debt among sectors such as agriculture, capital goods, chemical & petrochemicals consumer durables, diversified, FMCG, housing related, information technology, metal, metal products & mining, miscellaneous, oil & gas, power, telecom and textile. However the sectors such as healthcare, media & publishing and transport equipment it has a second major percentage share in unsecured debt.

At the same time all other sectors except metal, metal products & mining took loan from institutions. Media & publishing (21.88) sector are having highest percentage share of loans from institutions among the other sectors. All other sectors have a very less percentage share. The overall sample shows loan from the institution is having only 1.93 percent share in unsecured debt.

Coming to loan from the Government of India / public sector undertakings (GOI/PSU) the sectors like agriculture, information technology, metal, metal products & mining, oil & gas, power and transport equipment are taken. However the overall sample shows loan from GOI/PSU is only 1.23 percent of unsecured debt. Moving to deposits, every sector has taken deposits. The transport equipment sector has the highest (12.34) percent share among other sectors. However the overall sample shows deposits have only 3.07 percent share in unsecured debt.

The entire the sectors have gone for an unsecured loan from others. The transport equipment sector has the highest (31.40) percent share among other sectors followed by metal, metal products & mining (22.88), oil &gas (21.80) telecom (21.24), information technology (19.51) and agriculture (12.54) percent share in unsecured debt. However the overall sample shows that unsecured loan from others is 17.62 percent of unsecured debt, holds the second major contributor to unsecured debt.

If come across into short-term unsecured debt all the sectors are having advances. But the percentage share in unsecured debt is less than 5 percent in all sectors. The overall sector shows advances contribute only 1.33 percent of unsecured debt. In case of deferred liabilities except consumer durables and miscellaneous sector all the sectors have deferred liabilities. However the overall sample shows deferred liabilities are only 0.54 percent of unsecured debts. Moreover, accrued interest is chosen except consumer durables, healthcare, information technology, metal, metal products & mining, oil & gas and power sectors all the other sectors have accrued

interest. However the overall sample shows accrued interest is only 0.02 percent of unsecured debt.

Moving to Deferred tax except media & publishing all the other sectors having deferred tax. The textile sector has the highest (15.11) percent share in unsecured debt, among other sectors. However the overall sample shows deferred tax only 1.64 percent of unsecured debt. In case of commercial paper every sector issue commercial paper. However media & publishing sector has the highest (23.96) percent share among other sectors. Moreover, in media & publishing sector commercial paper holds the major percent share in unsecured debt. The overall sample shows commercial paper has only 1.98 percent of unsecured debt.

3.5 Chapter Summary

This chapter looks into the various sources of debt capital available for the Indian companies. Among the available sources which are the sources they are mainly opted in their debt capital structure. With the collected data for the analysis we have used simple percentage and pie chart for displaying the results. The study identifies that during the study period on an average loan from bank has been chosen by the companies as major sources in all most all sectors and the overall sample under secured debt, followed by non-convertible debenture, working capital advances, loan from institutions rest of the components has less contribution. However the sectors such as oil & l,

power and transport equipment non-convertible debenture holds the major share under secured debt. Moreover, loan from banks has more than 50 percent share in total unsecured debt for overall and majority of the sectors. Debenture/bonds hold second position followed by loan from others remaining components has negligible contribution.

Overall commercial banks are the major sources of debt capital for Indian companies. For both secured as well as unsecured debt they are mostly depending on commercial banks.

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CHAPTER IV

DETERMINANTS OF DEBT MATURITY STRUCTURE

4.1 Introduction

Mangers choose a debt maturity structure to maximise the value of the firm (Stephan et al., 2011). The maturity structure of debt capital is one of the vital elements of the capital structure decision. Debt capital has three major elements: duration (maturity period), fixed rate of interest and repayment of the principal. Cai et al. (2008) says firm might choose debt maturity policy to address agency problems. Furthermore, firms can signal the quality of their earnings by choosing a specific maturity mix. Moreover, the corporate debt maturity matters if firms happen to consider flexibility in financing, cost of financing, and refunding risk. Diamond and Rajan (2001) also emphasize its importance with reference to credit availability and financial crises. The theories of corporate debt maturity structure were first designed during the 1980s and early 1990s (Barnea et al., 1980; Brick and Ravid, 1985; Flannery, 1986; Lewis, 1990; Diamond, 1991). The theories

based on signalling (Flannery, 1986; Kale and Noe, 1990) and agency costs (Myers, 1977; Barnea et al., 1980) favour the use of short-term debt. The tax-based theories show the benefit of long-term debt (Brick and Ravid, 1991). The empirical tests of debt maturity structure of US firms started during the mid 1990s (Barclay and Smith, 1995; Guedes and Opler, 1996; Stohs and Mauer, 1996) and the research continues (Johnson, 2003; Berger et al., 2005; Datta et al., 2005; Billett et al., 2007). Recently, researchers have focused on the determinants of corporate debt maturity structure in Western Europe (Ozkan, 2000; Antoniou et al., 2006) and in Japan (Cai et al., 1999).

The debt maturity structure has not yet received much attention in Indian context. Moreover, most of the existing studies of debt maturity structure predominantly focussed on developed countries. To contribute to the existing literature in Indian context, this paper has been formulated. The objective of the study is to investigate the potential determinants of the debt maturity structure of Bombay Stock exchange (BSE) 500 index listed companies during the period 2002-2011.

The Bombay Stock exchange is the oldest, Asia largest stock exchange and world's third biggest stock exchange in terms of volume of transactions. As India is the second biggest emerging economy after China and having a steady economic growth during the study period. However the Indian debt market still is not yet established as well as not getting much attention from the corporate sector. Banks are the major sources of debt capital for Indian companies. This would have a different implication on behalf of the rigorousness of agency theory, information asymmetries, bankruptcy and

taxation. Moreover, India is a mixed economy having number of government owned or controlling companies and private sector companies. Consequently, it is exciting to see the debt maturity theories were designed especially with respect to developed economies to the companies in the emerging economies.

The debt maturity may be defined as the composition of short-term and long-term debt in the debt capital structure of firms. The proportionate relation between debt instruments with varying maturities in the debt capital is called debt maturity. The definition of debt maturity is the most controversial issue in the debt maturity literature because there are significant differences among the researchers over the measurement of debt maturity. However, the balance sheet approach is the preferred method for measuring debt maturity among finance researchers. The debt maturity (DEBTMAT) is defined as the ratio of long-term debt (LTD) to total debt (TD). The long-term debt (LTD) is defined as that part of the total debt, which matures in more than one year, excluding the portion of long-term debt that matures in the current year.

4.2 Variable and Hypothesis

The debt maturity theories and their proxies for the study: The study considers the available debt maturity theories in order to derive the dependent and independent variables in the analysis.

4. 2.1 Dependent variables:

In our study, the dependent variables are debt maturity, LTDTD. The ratio of long-term debt to total debt to measure debt maturity (Stephan et al. 2011, Cai et al. 2008, Antonious et al. 2006, Barclay and Smith. 1995).

4.2.2 Independent variables:

Antoniou et al. (2006) and Stohs and Mauer (1996), has divided the main debt maturity theories into four categories: agency costs, signalling and liquidity risks, matching and tax effect theories. Under each theory, we discuss the corresponding proxies and define their measurement to test the theories.

4.2.2.1 Agency theory:

Underinvestment problem. Myers (1977) argues that if a firm is financed by risky debt, managers who act in equityholders' interests may refuse to take projects with a positive net present value because they want to reduce the higher probability of default on risky debt. He argues that this underinvestment incentive can be controlled by issuing short-term debt which matures before the investment option is exercised. Barnea et al. (1980) agree with the Myers' approach to eliminate underinvestment by short-term debt. Furthermore, they argue that both shortening debt maturity and issuing long-term debt with a call provision have identical effects in eliminating this agency cost. Datta and Iskandar-Datta (2000) examine a sample of US bond-

IPOs from 1971 to 1994 and find a negative relation between debt maturity and future growth opportunities.

Overinvestment problem: Hart and Moore (1995) argue that long-term debt can control management's overinvestment problem when firms have future growth opportunities. They argue that if firms have little or no long-term debt, managers have more incentives to invest in negative NPV projects to get more perquisites. They conclude that the optimal debt maturity may be derived from the trade-off between costs and benefits of short-term debt.

Proxies for agency theory:

Growth opportunity: we measure the growth opportunity by using the variable GROWTH which is the sales growth to total asset growth. If growth opportunities are high, a firm should use more short-term debt, in the overinvestment theory, long-term debt can help to control the overinvestment behavior of management, which means the sign of GROWTH should be positive. Our empirical hypothesis, therefore, is that debt maturity is directly related to the GROWTH

H_1: There is no significant relationship between growth opportunity and debt maturity

H_0: There is a positive relationship between growth opportunity and debt maturity

Firm's size: Warner (1977) finds that the ratio of bankruptcy costs to firm value tends to decrease as the firm size increases. Titman and Wessel (1988) suggest that small firms tend to be financed by short-term debt

because they may face high transaction costs when they issue long-term debt or equity. We measure a firm's size (LNSA) by the natural logarithm of its total sales. We assume that debt maturity is directly related to firm size.

H_1: There is no significant relationship between size and debt maturity

H_0: There is a positive relationship between size and debt maturity

4.2.2.2 Signaling and liquidity risk theory

Separating equilibrium. Flannery (1986) argues that if the market cannot distinguish between good firms and bad firms, good firms may choose to issue short-term debt to signal their quality. This happens if long-term debt faces higher credit deterioration than short-term debt, and only good firms can afford the positive transaction costs of rollover of short-term debt. Extending Flannery's work, Kale and Noe (1990) indicate that even without the transaction costs in choosing debt maturity, the Flannery's separating equilibrium may still exist. They argue that if the changes in firm value are positively correlated, good firms will issue short-term debt and bad firms will issue long-term debt.

Titman (1992) also extends Flannery's separating equilibrium. Departing from Flannery's work, he includes interest rate uncertainty and financial distress costs. He argues that firms with a favorable future may borrow short-term debt and swap the floating-rate obligation for the fixed rate obligation in order to achieve the optimal financing structure.

Control rents and liquidity risk. Diamond (1991) indicates the optimal debt maturity is attained by trading off between the benefit of short-term debt and liquidity risk. He argues that if control rents are very high, borrowers may issue long-term debt to avoid high liquidation costs. Short-term debt is used to address the information sensitivity. Furthermore, he proposes that there is a non-monotonic relationship between debt maturity and the borrower's credit rating. Firms with very high and very low credit ratings choose short-term debt, and firms with medium credit rating tend to choose long-term debt.

Proxies for signaling and liquidity risk theories:

Firm's quality: Diamond (1991) proposition that debt maturity and credit ratings are non-monotonically related. Due to the lack data relating to the credit rating of the companies We measure firm's quality as earnings before interest and tax to net sales (PROFIT). The study expects debt maturity to be inversely related to firm's quality.

H_1: There is no significant relationship between firms quality and debt maturity

H_0: There is a negative relationship between firms quality and debt maturity

Liquidity: Myers and Rajan (1998) introduced a paradox theory of liquid assets. Intuitively, highly liquid firms should have ample cash flows to repay their debt. Thus, a firm with a large amount of liquid assets should easily obtain external financing. Morris (1992) argues that firms with longer maturity hold greater liquidity in case they cannot meet the fixed payments of

long-term debt during economic recessions. We measure liquidity (CR) by current assets to current liabilities ratio. The study predicts debt maturity will be directly related to liquidity.

H_1: There is no significant relationship between liquidity and debt maturity

H_0: There is a positive relationship between liquidity and debt maturity

Leverage ratio**:** Morris (1992) argues that long-term debt may help firms to postpone the exposure to bankruptcy risk; therefore, high leverage firms tend to use long-term debt. Stohs and Mauer (1996) indicate that a large proportion of long-term debt inevitably produces a higher value for average debt maturity. Leland and Toft (1996) conclude that the leverage level relies on the debt maturity, and firms with lower leverage level tend to be financed by short-term debt. On the contrary, Dennis et al. (2000) show that the leverage is inversely related to debt maturity. They argue that this happens because agency costs of underinvestment may be limited by reducing leverage and shortening debt maturity. We measure leverage (TDTA) by the ratio of the book value of total debt divided by the book value of total assets. Debt maturity may be positively or inversely related to leverage.

H_1: There is no significant relationship between leverage and debt maturity

H_0: There is significant relationship between growth opportunity and debt maturity

4.2.2.3 Matching principles:

Myers (1977) argues that the diversification of assets may increase the amount of debt the firm can borrow. Furthermore, he indicates that assets may be regarded as the protection for the repayment of debt. In order to match assets with debt, he suggests that the exposure of debt should be reduced in parallel with the decline in the value of assets. Hart and Moore (1994) argue that assets should be matched with debt because debt should be matched either with the return streams or with the rate of depreciation of the collateral. The return streams and the collaterals can be both regarded as assets.

Proxies for matching principles:

Asset maturity: Stohs and Mauer's (1996) was measured the asset maturity (NFADEP) by the sum of the weighted maturity of current assets and the weighted maturity of fixed assets. We calculate the un-weighted maturity of fixed assets by the ratio of net fixed assets to the depreciation (NFADEP), which shows the speed of consuming fixed assets. We expect asset maturity will be positively related to debt maturity.

H_1: There is no significant relationship between asset maturity and debt maturity

H_0: There is a positive relationship between asset maturity and debt maturity

4.2.2.4 Tax theories:

Brick and Ravid (1985) test the tax effects with the existence of default risks, agency costs, and a non-flat term structure of interest rates.

They argue that if the term structure of interest rates is increasing, the optimal financing approach is to issue long-term debt, because the interest tax shield on debt is accelerated with interest rates, which increase the value of the firm. On the other hand, if the term structure of interest rates is decreasing, it is better to issue short-term debt at present.

Proxies for tax theories:

Effective tax rate (EFTAX): We measure the effective tax rate (EFTAX) with the ratio of tax expense to pre-tax profit. Kane et al. (1985) indicate that the tax shield advantage is inversely related to debt maturity. In other words, if the effective tax rate is low, then firms prefer to issue long-term debt.Thus, we expect to find a negative relationship between debt maturity and the effective tax rate.

H_1: There is no significant relationship between effective tax rate and debt maturity

H_0: There is a negative relationship between effective tax rate and debt maturity

4.2.2.5 Macro economic variables:

We have used two macroeconomic variable to test its dependence on debt maturity. The proxies for macroeconomic variables are;

Interest rate (PLR): Prime lending rate used to measure interest rate. Banks are the major contributor of debt capital in Indian corporates. So we assumes

PLR will be an important factor that determine the debt maturity. We predict a positive relation between debt maturity and prime lending rate.

H_1: There is no significant relationship between interest rate and debt maturity

H_0: There is a positive relationship between interest rate and debt maturity

Inflation (WPI): We have measured inflation as the whole sales price prevailing in the country. Wholesale price is having a major role in deciding the sales growths. So it directly influences the company growth. We predict a negative relation between WPI and debt maturity.

H_1: There is no significant relationship between inflation and debt maturity

H_0: There is a positive relationship between inflation and debt maturity

4.3 Model

This study uses the balanced panel data for the analysis. A data set contains observations on different objects studied over a period of time is called panel data. It is the combination of cross-sectional data and time series data. In balanced panel data same time period is available for all cross-sections. Panel data allow us to control for variables we cannot observe or measure like cultural factors or difference in business practices across companies; or variables that change over time, but not across entities (i.e., national policies, federal regulations, international agreements, etc.). This is, it accounts for individual heterogeneity. With panel data, we can include

variables at different levels of analysis (i.e. Countries, states, companies, industries, and sectors) suitable for multilevel or hierarchical modelling.

Debt maturity is affected by so many other variable that are not included in this study such as the location of the firm managerial efficiency, marketing strategy, accounting policies, etc. the presence of these other variables may create inconsistent estimates so for minimizing the effects of these omitted variables the study is using firm specific control variables. There are two types of control variables: fixed effects and random effects.

Fixed effects explore the relationship between predictor and outcome variables within an entity (country, person, company, etc.). Each entity has its own individual characteristics that may or may not influence the predictor variables. When using fixed effects we assume that something within the individual may impact or bias the predictor or outcome variables and we need to control for this. This is the rationale behind the assumption of the correlation between entity's error term and predictor variables. Fixed effects remove the effect of those time-invariant characteristics of the predictor variables so we can assess the predictors' net effect. Another important assumption of the fixed effects model is that those time-invariant characteristics are unique to the individual and should not be correlated with other individual characteristics. Each entity is different, therefore the entity's error term and the constant (which captures individual characteristics) should not be correlated with the others. If the error terms are correlated, then fixed effects is not suitable since inferences may not be correct and we need to model that relationship using random-effects

The rationale behind the random effects model is that, unlike the fixed effects model, the variation across entities is assumed to be random and uncorrelated with the predictor or independent variables included in the model. The crucial distinction between fixed and random effects is whether the unobserved individual effect embodies elements that are correlated with the regressors in the model, not whether these effects are stochastic or not (Green, 2008, p.183)

If there is a reason to believe that differences across entities have some influence on the dependent variable then we should use random effects. An advantage of random effects is that we can include time invariant variables. In the fixed effects model these variables are absorbed by the intercept.

Random effects assume that the entity's error term is not correlated with the predictors which allows for time-invariant variables to play a role as explanatory variables. At random-effects we need to specify those individual characteristics that may or may not influence the predictor variables. The problem with this is that some variables may not be available therefore leading to omitted variable bias in the model. Random effects allow generalizing the inferences beyond the sample used in the model.

To decide between fixed or random effects we have to run a Hausman test where the null hypothesis is that the preferred model is random effects vs. the alternative the fixed effects (see Green, 2008, chapter 9). It basically tests whether the unique errors (μ_i) are correlated with the regressors; the

null hypothesis is they are not. We have used the E-views7 software for the analysis.

4. 3.1 Panel least squares with fixed effects:

$$Debt\ maturity\ (LTDTD)_{it} = \alpha + CF_i + \beta_1\ firm\ size\ (LNSA)_{it} + \beta_2\ asset\ maturity\ (NFADEP)_{it} + \beta_3\ leverage\ ratio\ (TDTA)_{it} + \beta_4\ growth\ (GROWTH)_{it} + \beta_5\ profitability\ (PROFIT)_{it} + \beta_6\ liquidity\ (CR)_{it} + \beta_7\ effective\ tax\ rate\ (EFTAX)_{it} + \beta_8\ interest\ rate\ (PLR)_{it} + \beta_9\ inflation\ (WPI)_{it} + \mu_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots(1)$$

4. 3.2 Panel least squares with random effect[1]

$$Debt\ maturity\ (LTDTD)_{it} = \alpha + RE_i + \beta_1\ firms\ Size\ (LNSA)_{it} + \beta_2\ asset\ maturity\ (NFADEP)_{it} + \beta_3\ leverage\ ratio\ (TDTA)_{it} + \beta_4\ growth\ (GROWTH)_{it} + \beta_5\ profitability\ (PROFIT)_{it} + \beta_6\ liquidity\ (CR)_{it} + \beta_7\ effective\ tax\ rate\ (EFTAX)_{it} + \beta_8\ interest\ rate\ (PLR)_{it} + \beta_9\ inflation\ (WPI)_{it} + \mu_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots(2)$$

Here *i* is representing the firm and *t* is the time. CF_i is the firm specific fixed effects for firm *i*. RE_i the firm specific random effect for firm *i*. *β1, β2, β3……. β9* are the coefficients of firms *size (LNSA), asset maturity (NFADEP), leverage ratio (TDTA), growth (GROWTH), profitability (PROFIT), liquidity (CR), effective tax rate (EFTAX), interest rate (PLR) and inflation (WPI)* respectively. μ_{it} indicate the error term for the observations of the firm *i* in the year *t*.

[1] It should be kept notice that our all estimation is limited to only fixed effect models. This is because there was all most zero difference between the co-efficient obtained from the fixed effect and random effect models. Thus the Hausman test statistic value becomes zero leading to invalid test. Therefore we decided to keep the result obtained from fixed effect model. Another reason to keep fixed effect model is our time period of analysis is relatively short (T<N) which may also render to insignificant time effect. Thus we avoided random effect result.

4.3.3 Dynamic panel estimators (GMM)

It would be worthy to mention that static panel models do not allow us to analyze the possible dynamism existing in firm decisions when choosing their debt maturity structure. This allows us to evaluate the dynamic panel estimators. Further, these models have greater power to control endogenity and allow us to determine the level of adjustment of actual debt maturity towards the optimal level of debt maturity. We can describe that adjustment process as follows:

$$LTDTD_{i,t} - LTDTD_{i,t-1} = \alpha(LTDTD^{*}_{i,t} - LTDTD_{i,t-1}) \quad \ldots\ldots\ldots(3)$$

where $LTDTD_{i,t}$ is the actual debt maturity of the company *i* in period *t*, $LTDTD_{i,t-1}$ is the actual debt maturity of the company *i* in period *t-1* and, $LTDTD^{*}_{i,t}$ is the optimal debt of the company *i* in period *t*. Regrouping the terms and solving to the order of $LTDTD_{i,t}$, we have:

$$LTDTD_{i,t} = \alpha LTDTD^{*}_{i,t} + (1-\alpha)LTDTD_{i,t-1}) \quad \ldots\ldots\ldots\ldots\ldots(4)$$

If $\alpha = 1$ we have $LTDTD_{i,t} = \alpha LTDTD^{*}_{i,t}$, the actual level of debt maturity being equal to the optimal level of debt maturity forcing firms to manage an optimal debt maturity structure. On the contrary, if, $\alpha = 0$ we have $LTDTD_{i,t} = LTDTD_{i,t-1}$ i.e., there is no adjustment of the level of actual debt maturity towards the optimal level of debt maturity. Therefore, a high values of α, means a close proximity of the level of actual debt maturity to optimal

level of debt maturity, whereas a low values of α, means less proximity between the actual level of debt maturity and optimal level of debt maturity.

It is important to mention that the optimal level of debt maturity depends on firms' specific characteristics that are on the determinants considered relevant in explaining debt maturity as pointed out by Stephan et al. (2011), Cai et al. (2008) Therefore, the optimal level of debt maturity is given by:

$$LTDTD^{*}_{i,t} = \lambda_0 + \lambda_1(LNSA_{it}) + \lambda_2(NFADEP_{it}) + \lambda_3(TDTA_{it}) + \lambda_4(GROWTH_{it}) + \lambda_5(PROFIT_{it}) + \lambda_6(EFTAX_{it}) + \lambda_7(CR_{it}) + \lambda_8(PLR_{it}) + \lambda_9(WPI_{it}) + u_{it}, \ldots\ldots\ldots(5)$$

Substituting (5) in (4), and solving to the order of $LTDTD_{i,t}$, we have:

$$LTDTD^{*}_{i,t} = \beta_0 + \delta(LTDTD_{i.t-1}) + \beta_1(LNSA_{it}) + \beta_2(NFADEP_{it}) + \beta_3(TDTA_{it}) + \beta_4(GROWTH_{it}) + \beta_5(PROFIT_{it}) + \beta_6(EFTAX_{it}) + \beta_7(CR_{it}) + \beta_8(PLR_{it}) + \beta_9(WPI_{it}) + \eta_i + e_{it}, \ldots\ldots\ldots\ldots(6)$$

Where, $\delta = (1-\alpha)$, $\beta_0 = \alpha\lambda_0$, $\beta_1 = \alpha\lambda_1$, $\beta_2 = \alpha\lambda_2$ $\beta_3 = \alpha\lambda_3$ $\beta_4 = \alpha\lambda_4$, $\beta_5 = \alpha\lambda_5$, $\beta_6 = \alpha\lambda_6$, $\beta_7 = \alpha\lambda_7$, $\beta_8 = \alpha\lambda_8$, $\beta_9 = \alpha\lambda_9$ $\eta_i = \alpha\mu_i$ and $e_{it} = \alpha\varepsilon_{it}$ s

To control the correlation between η_i and $LTDTD_{i,t-1}$ between e_{it} and $LTDTD_{i,t-1}$ in estimating equation (6) using static panel models which can give biased and inconsistent of the evaluated parameters, Arellano and Bond (1991) proposes evaluation of the equation (6) with the variables in first differences, and the use of debt maturity lags and its determinants at a level as instruments. However, Blundell and Bond (1998) concluded that when the dependent variable is persistent, there being a high correlation between its values in the current period and in the previous period, and the number of periods is not very high, the GMM (1991) estimator is inefficient. The

instruments used to generally being weak in such cases by considering a system with variables at level and first differences Blundell and Bond (1998) extend the GMM (1991) estimator. For the variables at the level in equation (6), the instruments are the variables lagged in first differences. In the case of the variables in first differences in equation (6), the instruments are those lagged variables at level.

However the GMM (1991) and GMM system (1998) dynamic estimators can only be considered robust on confirmation of two conditions: 1) if the restrictions created, a consequence of using the instruments, are valid; and 2) there is no second order autocorrelation. Therefore, to test the validity of the restrictions we use the Sargan test in the case of the GMM (1991) estimator and the GMM system (1998) estimator. The null hypothesis in the Sargan test indicates the restrictions imposed by the use of the instruments are valid against the alternative hypothesis that the restrictions are not valid. Rejection of the null hypothesis leads us to conclude that the estimators are not robust.

Further, we also test for the existence of first and second order autocorrelation through Arellano and Bond (1991) test. The null hypothesis is that there is no autocorrelation against the alternative hypothesis being the existence of autocorrelation. Rejection of the null hypothesis of the existence of second order autocorrelation leads us to conclude that the estimators are not robust.

4.4 Results and Interpretations

The first step of our analysis we have checked the correlation between independent variables. The table 4.1 shows the result of correlation analysis. The correlation among the independent variables is narrow. Same as the case for depended variable too.

Table 4.1 Result of correlation analysis

	LTDTD	LNSA	NFADEP	GROWTH	PROFIT	EFTAX	CR	PLR	WPI
LTDTD	1.00	-0.03	0.08	0.02	0.08	0.02	0.02	0.03	0.00
LNSA	-0.03	1.00	-0.07	0.01	-0.09	-0.02	-0.18	0.03	0.33
NFADEP	0.08	-0.07	1.00	0.00	0.06	-0.01	0.00	0.00	-0.02
TDTA	0.24	0.02	0.04	0.02	-0.08	-0.01	-0.05	-0.01	-0.07
GROWTH	0.02	0.01	0.00	1.00	0.00	0.00	0.00	-0.02	-0.01
PROFIT	0.08	-0.09	0.06	0.00	1.00	-0.01	0.14	0.05	0.08
EFTAX	0.02	-0.02	-0.01	0.00	-0.01	1.00	0.00	0.02	0.00
CR	0.02	-0.18	0.00	0.00	0.14	0.00	1.00	-0.01	0.00
PLR	0.03	0.03	0.00	-0.02	0.05	0.02	-0.01	1.00	-0.14
WPI	0.00	0.33	-0.02	-0.01	0.08	0.00	0.00	-0.14	1.00

4.4.1 Panel least squares with fixed effects:

4.4.1.1 Sample companies

The table 4.2 show that the result of panel least squares with fixed effects. The result of F- statistics shows that the model is fit and it is significant at the one percent. The values of R-squares and Adjusted R-squares are more than 0.5. It indicates that the independent variables could explain more than 50 percent variation in the depended variable. Significant Cross- section F-statistics indicates the presence of firm specific fixed

effects in the model. LNSA, TDTA, CR and constant is positive and WPI is negatively significant at the one percent. Other variables are not showing any kind of significance.

Table 4.2 Result of panel least squares with fixed effects of Sample companies

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNSA	0.05727	0.00705	8.12606	0.00000
NFADEP	0.00000	0.00009	0.05509	0.95610
TDTA	0.06885	0.01582	4.35282	0.00000
GROWTH	0.00001	0.00001	0.73365	0.46320
PROFIT	0.02287	0.01466	1.56034	0.11880
EFTAX	0.00238	0.00145	1.63696	0.10180
CR	0.00085	0.00020	4.18646	0.00000
PLR	0.00065	0.00248	0.26214	0.79320
WPI	-0.00071	0.00014	-5.14910	0.00000
Constant	0.16306	0.04528	3.60109	0.00030
R-squared	0.613186	Adjusted R-squared		0.563455
F-statistic	12.33006***	Cross-section F- statistics		11.17798***
Note: ***, **, and *denote significance at 1, 5 and 10 percent level of significance respectively				

4.4.1.2 Agriculture sector:

Table 4.3 Result of panel least squares with fixed effects: agriculture sector

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNSA	0.05657	0.04263	1.32699	0.18680
NFADEP	0.00347	0.00551	0.62962	0.53000
TDTA	0.06577	0.13128	0.50099	0.61720
GROWTH	0.00024	0.00036	0.66343	0.50820
PROFIT	0.15522	0.16583	0.93601	0.35090
EFTAX	-0.28827	0.17649	-1.63335	0.10470
CR	0.01028	0.01415	0.72648	0.46880
PLR	-0.00641	0.00933	-0.68730	0.49310
WPI	-0.00036	0.00060	-0.59814	0.55070
Constant	0.04732	0.24857	0.19036	0.84930
R-squared	0.600355	Adjusted R-squared		0.523387
F-statistic	7.800001***	Cross-section F- statistic		7.393157***
Note: ***, **, and *denote significance at 1, 5 and 10 percent level of significance respectively				

The table 4.3 shows the result of panel least squares with fixed effects of agriculture sector. None of the variable is showing significance in case of agriculture sector. The values of R-squares and Adjusted R-squared are satisfactory and the significance of F-statistic indicates the model is fit. Significant Cross section f-statistic prove Firm specific fixed is present in the model.

4.4.1.3 Capital goods sector:

According to the table 4.4 Significance of F-statistic and cross section F-statistic specify that the model fit and the presence of firm specific fixed effects. Both the R- squares are satisfactory. LNSA is positively significant at the one percent. WPI is negatively significant at the one percent. The rest of the variable is not determining the debt maturity in case of capital goods sector.

Table 4.4 Result of panel least squares with fixed effects: capital goods sector

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNSA	0.13336	0.02475	5.38727	0.00000
NFADEP	0.00003	0.00009	0.28519	0.77570
TDTA	-0.10262	0.11048	-0.92889	0.35370
GROWTH	-0.00001	0.00035	-0.02447	0.98050
PROFIT	-0.11447	0.16045	-0.71339	0.47620
EFTAX	-0.07889	0.08033	-0.98201	0.32690
CR	-0.00553	0.00455	-1.21516	0.22530
PLR	-0.00446	0.00752	-0.59259	0.55390
WPI	-0.00156	0.00048	-3.22310	0.00140
Constant	0.00527	0.14042	0.03755	0.97010
R-squared	0.653578	Adjusted R-squared		0.599843
F-statistic	12.1629***	Cross-section F- statistic		12.17691***
Note: ***, **, and *denote significance at 1, 5 and 10 percent level of significance respectively				

4. 4.1.4 Chemical and petrochemicals sector:

As per the table 4.5 NFADEP, TDTA and PROFIT are positively significant at 5 percent, 5 percent and 10 percent respectively. GROWTH is negatively significant at 1 percent. Other variables are not significant. The values of R- squares are satisfactory. F-statistic and Cross section F- statistic are showing significant at 1 percent.

Table 4.5 Result of panel least squares with fixed effects of chemical and Petrochemicals sector

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNSA	-0.00052	0.13878	-0.00375	0.99700
NFADEP	0.02332	0.01041	2.23949	0.02790
TDTA	0.70951	0.26876	2.63997	0.01000
GROWTH	-0.01848	0.00650	-2.84330	0.00570
PROFIT	0.49301	0.27313	1.80503	0.07490
EFTAX	-0.18888	0.25801	-0.73207	0.46630
CR	0.01642	0.02848	0.57646	0.56590
PLR	-0.01338	0.01300	-1.02937	0.30640
WPI	-0.00071	0.00130	-0.54762	0.58550
Constant	0.22032	0.70627	0.31195	0.75590
R-squared	0.593394	Adjusted R-squared		0.495603
F-statistic	6.067965***	Cross-section F- statistic		3.688099***
Note: ***, **, and *denote significance at 1, 5 and 10 percent level of significance respectively				

4. 4.1.5 Consumer durables sector:

Table 4.6 illustrates the result of panel least squares with fixed effects of the consumer durable sector. The result shows that EFTAX is negatively significant at 5 percent. The constant is positively significant at 1 percent. The reaming variables are not showing significance. Both the R-squares are explaining more than 50 percent of the variance. Significance of F-statistics shows that the model is fit. Significance of cross section F-statistic confirms the presence of firm specific fixed effects in the model.

Table 4.6 Result of panel least squares with fixed effects: consumer durables sector

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNSA	-0.01447	0.03469	-0.41715	0.67820
NFADEP	-0.00535	0.00728	-0.73517	0.46540
TDTA	-0.06041	0.18476	-0.32695	0.74500
SGGTA	0.00046	0.00302	0.15177	0.87990
PROFIT	0.11546	0.15729	0.73409	0.46600
EFTAX	-0.43863	0.21263	-2.06284	0.04390
CR	-0.01951	0.01215	-1.60588	0.11400
PLR	-0.01453	0.01469	-0.98929	0.32690
WPI	-0.00088	0.00088	-1.00237	0.32060
Constant	1.07796	0.34214	3.15064	0.00260
R-squared	0.644974	Adjusted R-squared		0.541694
F-statistic	6.244886***	Cross-section F- statistics		10.20195***
Note: ***, **, and *denote significance at 1, 5 and 10 percent level of significance respectively				

3. 4.1.6 Diversified sector:

Table 4.7 Result of panel least squares with fixed effects: diversified sector

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNSA	0.27058	0.06170	4.38515	0.00010
NFADEP	-0.00043	0.00140	-0.30671	0.76020
TDTA	0.03679	0.04244	0.86682	0.38980
GROWTH	-0.00375	0.00148	-2.53256	0.01420
PROFIT	-0.30392	0.20119	-1.51060	0.13660
EFTAX	-0.21740	0.23083	-0.94180	0.35040
CR	0.04585	0.01799	2.54821	0.01370
PLR	-0.00835	0.01062	-0.78601	0.43520
WPI	-0.00350	0.00077	-4.57887	0.00000
Constant	-0.62975	0.30807	-2.04418	0.04570
R-squared	0.755038	Adjusted R-squared		0.683777
F-statistic	10.59531***	Cross-section F- statistic		9.396541***
Note: ***, **, and *denote significance at 1, 5 and 10 percent level of significance respectively				

The table 7 display the result of panel least squares with fixed effects of diversified sector. The result of the F-statistic and cross section F-statistic shows that the model is fit and presence of firm specific fixed effects in the

model. The R- squares is explaining more than 65% variation in the model. LNSA and CR are positively significant at 1 percent, 5 percent respectively. GROWTH, WPI and constant are negatively significant at 5 percent, 1 percent and 5 percent respectively. The rest of the variables are not showing any kind of significance.

4. 4.1.7 FMCG sector:

Table 4.8 Result of panel least squares with fixed effects: FMCG Sector

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNSA	0.04620	0.02872	1.60880	0.10960
NFADEP	0.00025	0.00105	0.24210	0.80900
TDTA	0.13716	0.13669	1.00342	0.31710
GROWTH	0.00199	0.00117	1.70168	0.09070
PROFIT	-0.10273	0.36011	-0.28528	0.77580
EFTAX	-0.18422	0.18559	-0.99262	0.32230
CR	0.00849	0.00302	2.81294	0.00550
PLR	-0.00818	0.00929	-0.88111	0.37950
WPI	-0.00060	0.00051	-1.17778	0.24060
Constant	0.18214	0.17748	1.02623	0.30630
R-squared	0.588171	Adjusted R-squared		0.514189
F-statistic	7.950261***	Cross-section F		5.997399***
Note: ***, **, and *denote significance at 1, 5 and 10 percent level of significance respectively				

The table 4.8 shows the result of panel least squares with fixed effects of the FMCG sector. R-squares and Adjusted R-squares is explaining more than 50 percent variation is the model. Significant F-statistic and cross section F-statistic confirms that the model is fit and firm specific fixed effects are present in the model. GROWTH and CR are positively significant at 10 percent, 1 percent respectively. None of the other variables are significant.

4.4.1.8 Healthcare sector:

The table 4.9 shows the result of panel least squares with fixed effects of health care sector. TDTA is positively determining the debt maturity. GROWTH and EFTAX are negatively determining the debt maturity. The remaining variables are not showing significance. The values of R- Squares and Adjusted R-squares are more than 0.6. Significant F-statistics and cross section F-statistic confirms the model is fit, presence of firm specific fixed effects.

Table 4.9 Result of panel least squares with fixed effects: healthcare sector

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNSA	0.00010	0.06545	0.00156	0.99880
NFADEP	-0.00067	0.00615	-0.10964	0.91280
TDTA	0.18312	0.06384	2.86843	0.00450
GROWTH	-0.00246	0.00126	-1.94821	0.05260
PROFIT	0.03108	0.02395	1.29752	0.19580
EFTAX	-0.41224	0.20981	-1.96487	0.05070
CR	0.00774	0.00548	1.41149	0.15950
PLR	0.00798	0.00831	0.96116	0.33750
WPI	-0.00034	0.00069	-0.49306	0.62250
Constant	0.34401	0.30289	1.13576	0.25730
R-squared	0.687647	Adjusted R-squared		0.635822
F-statistic	0.635822***	Cross-section F		13.71328***
Note: ***, **, and *denote significance at 1, 5 and 10 percent level of significance respectively				

4. 4.1.9 Housing related sector:

The table 4.10 indicates the result of panel least squares with fixed effects of housing related sector. LNSA and TDTA is positively significant at

1 percent, the rest of the variables are not significant. The values of R-squares are more than 0.5. Both the F-statistics are significant at 1 percent.

Table 4.10 Result of panel least squares with fixed effects: housing related

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNSA	0.06102	0.01442	4.23296	0.00000
NFADEP	-0.00057	0.00070	-0.80777	0.41990
TDTA	0.19849	0.05006	3.96486	0.00010
GROWTH	-0.00035	0.00034	-1.04050	0.29900
PROFIT	-0.04098	0.03617	-1.13298	0.25820
EFTAX	-0.11757	0.09299	-1.26438	0.20710
CR	-0.00078	0.00073	-1.06291	0.28870
PLR	0.00470	0.00736	0.63925	0.52320
WPI	-0.00024	0.00044	-0.55627	0.57850
Constant	0.13346	0.12548	1.06360	0.28840
R-squared	0.571525	Adjusted R-squared		0.503952
F-statistic	8.457875	Cross-section F		7.524837
Note: ***, **, and *denote significance at 1, 5 and 10 percent level of significance respectively				

4.4.1.10 Information technology:

Table 4.11 Result of panel least squares with fixed effects: information technology

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNSA	0.13740	0.04655	2.95189	0.00360
NFADEP	0.00060	0.00267	0.22408	0.82290
TDTA	0.03113	0.02947	1.05636	0.29220
GROWTH	-0.00028	0.00018	-1.58176	0.11540
PROFIT	0.06405	0.03593	1.78267	0.07630
EFTAX	-0.34210	0.20424	-1.67495	0.09570
CR	0.00886	0.00602	1.47145	0.14290
PLR	0.02225	0.01190	1.86972	0.06310
WPI	-0.00250	0.00083	-3.01420	0.00290
Constant	-0.21830	0.19632	-1.11193	0.26760
R-squared	0.569173	Adjusted R-squared		0.493837
F-statistic	7.555148***	Cross-section F		7.83552***
Note: ***, **, and *denote significance at 1, 5 and 10 percent level of significance respectively				

The table 4.11 specify the result of panel least squares with fixed effects of information technology sector. The values of R-squares are around 0.5. Both the F-statistics are significant at 1 percent. LNSA, PROFIT and PLR are positively significant at 1 percent, 10 percent and 10 percent respectively. EFTAX and WPI are negatively significant at 10 percent and 1 percent correspondingly. All the other variables are not significant.

4.4.1.11 Media & publishing sector:

Table 4.12 Result of panel least squares with fixed effects: media and publishing

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNSA	-0.27787	0.13437	-2.06792	0.04420
NFADEP	-0.01272	0.01035	-1.22860	0.22530
TDTA	-0.20464	0.20188	-1.01368	0.31590
GROWTH	0.00002	0.00001	1.36856	0.17760
PROFIT	0.14729	0.12479	1.18024	0.24380
EFTAX	-0.09775	0.07208	-1.35615	0.18150
CR	0.00420	0.01609	0.26100	0.79520
PLR	0.03925	0.01664	2.35945	0.02250
WPI	0.00348	0.00178	1.95484	0.05660
Constant	0.77327	0.43558	1.77525	0.08230
R-squared	0.719912	Adjusted R-squared		0.630523
F-statistic	8.053637***	Cross-section F		13.94693***
Note: ***, **, and *denote significance at 1, 5 and 10 percent level of significance respectively				

The table 4.12 illustrates the result of panel least squares with fixed effects of media and publishing sector. LNSA is negatively significant at 5 percent. PLR, WPI and constant is positively at 5 percent, 10 percent and 10 percent respectively. The rest of the variables are not significant. The values of R- squares are explaining more than 60 percent of the variation in the

model. Significant F-statistic and cross section F-statistic indicates that the model is fit as well as the presence of firm specific fixed effects.

4. 4.1.12 Metal, metal products and mining sector:

Table 4.13 Result of panel least squares with fixed effects: metal, metal products and mining.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNSA	0.06382	0.03147	2.02785	0.04390
NFADEP	0.00265	0.00228	1.16258	0.24640
TDTA	0.15452	0.08147	1.89659	0.05930
GROWTH	-0.00042	0.00040	-1.05017	0.29490
PROFIT	0.03587	0.16286	0.22025	0.82590
EFTAX	-0.60469	0.16957	-3.56610	0.00050
CR	0.00929	0.00626	1.48319	0.13960
PLR	-0.01715	0.00997	-1.72045	0.08690
WPI	-0.00188	0.00063	-2.98923	0.00310
Constant	0.63581	0.17568	3.61920	0.00040
R-squared	0.575942	Adjusted R-squared		0.503489
F-statistic	7.949262***	Cross-section F		4.835519***
Note: ***, **, and *denote significance at 1, 5 and 10 percent level of significance respectively				

The table 4.13 explains the result of panel least squares with fixed effects of metal, metal products and mining. LNSA, TDTA and Constant are positively significant at 5 percent, 10 percent and 1 percent correspondingly. EFTAX, PLR and WPI are negatively significant at 1 percent, 10 percent and 1 percent respectively. Significance of F-statistics confirms that the model is fit as well as the presence of firm specific fixed effects in the model.

4. 4.1.13 Miscellaneous sector:

The table 4.14 indicates the result of panel least squares with effect of miscellaneous sector. LNSA is positively significant at 1 percent. The

constant is negatively significant at 5 percent. The rest of the variables are not showing significance. The values of R- squares are explaining more than 50 percent of the variation in the model. Significant F-statistic and cross section F-statistic indicates that the model is fit as well as the presence of firm specific fixed effects.

Table 4.14 Result of panel least squares with fixed effects: miscellaneous sector

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNSA	0.21531	0.06257	3.44101	0.00090
NFADEP	0.00883	0.00724	1.21873	0.22620
TDTA	-0.08105	0.11399	-0.71103	0.47900
GROWTH	0.00015	0.00014	1.08362	0.28150
PROFIT	-0.03282	0.36857	-0.08904	0.92930
EFTAX	-0.17947	0.22800	-0.78712	0.43330
CR	0.00550	0.01129	0.48695	0.62750
PLR	0.01661	0.01555	1.06846	0.28830
WPI	-0.00154	0.00097	-1.58855	0.11580
Constant	-0.85207	0.34416	-2.47582	0.01520
R-squared	0.602925	Adjusted R-squared		0.511643
F-statistic	6.605103***	Cross-section F		6.867382***
Note: ***, **, and *denote significance at 1, 5 and 10 percent level of significance respectively				

4. 4.1.14 Oil & gas sector:

The table 4.15 stays the result of panel least squares with effect of oil and gas sector. The values of R- Squares and Adjusted R-squares are more than 0.7. Significant F-statistics and cross section F-statistic confirms the model is fit, presence of firm specific fixed effects. PROFIT and EFTAX is positively significant at 1 percent. The remaining variables are not showing significance.

Table 4.15 Result of panel least squares with fixed effects: oil and gas sector

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNSA	0.00732	0.04037	0.18131	0.85640
NFADEP	-0.00058	0.00135	-0.42809	0.66920
TDTA	0.06735	0.15891	0.42384	0.67230
GROWTH	-0.00001	0.00007	-0.20897	0.83480
PROFIT	0.77439	0.19075	4.05978	0.00010
EFTAX	0.00452	0.00152	2.98004	0.00340
CR	-0.00934	0.00571	-1.63546	0.10400
PLR	0.00801	0.00951	0.84217	0.40100
WPI	-0.00020	0.00065	-0.30327	0.76210
Constant	0.19598	0.25062	0.78200	0.43540
R-squared	0.777859	Adjusted R-squared		0.736667
F-statistic	18.88382***	Cross-section F		12.15553***
Note: ***, **, and *denote significance at 1, 5 and 10 percent level of significance respectively				

4.4.1.15 Power sector:

Table 4.16 Result of panel least squares with fixed effects: power sector

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNSA	0.01079	0.02377	0.45406	0.65060
NFADEP	-0.00027	0.00263	-0.10339	0.91780
TDTA	0.43497	0.14226	3.05765	0.00270
GROWTH	0.00010	0.00051	0.19533	0.84540
PROFIT	0.02467	0.05393	0.45753	0.64810
EFTAX	-0.35885	0.17300	-2.07432	0.04010
CR	0.00022	0.00035	0.61867	0.53720
PLR	-0.01810	0.00942	-1.92100	0.05700
WPI	0.00130	0.00048	2.71086	0.00760
Constant	0.26260	0.19301	1.36060	0.17610
R-squared	0.680417	Adjusted R-squared		0.617507
F-statistic	10.8157***	Cross-section F		7.446219***
Note: ***, **, and *denote significance at 1, 5 and 10 percent level of significance respectively				

Table 4.16 illustrates the result of panel least squares with fixed effects of power sector. The result shows that EFTAX and PLR are negatively significant at 5 percent and 10 percent respectively. TDTA and WPI is

positively significant at 1 percent and 5 percent correspondingly. The reaming variables are not showing significance. Both the R-squares are explaining more than 60 percent of the variance. Significance of F-statistics shows that the model is fit. Significance of cross section F-statistic confirms the presence of firm specific fixed effects in the model

4.4.1.16 Telecom sector:

Table 4.17 Result of panel least squares with fixed effects: telecom sector

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNSA	0.06329	0.03139	2.01641	0.0472
NFADEP	0.01169	0.01028	1.13759	0.2587
TDTA	0.21538	0.19049	1.13065	0.2616
GROWTH	0.00053	0.00116	0.45827	0.648
PROFIT	-0.1017	0.08553	-1.1888	0.2381
EFTAX	-0.0483	0.21805	-0.2214	0.8253
CR	0.00147	0.00041	3.55382	0.0006
PLR	-0.0107	0.01521	-0.7063	0.4821
WPI	-0.0007	0.00079	-0.8676	0.3882
Constant	0.04751	0.27463	0.17299	0.8631
R-squared	0.64339	Adjusted R-squared		0.55763
F-statistic	7.501721***	Cross-section F		7.318377***
Note: ***, **, and *denote significance at 1, 5 and 10 percent level of significance respectively				

The table 4.17 shows the result of panel least squares with fixed effects of telecom sector. LNSA and CR positively determine the debt maturity. The remaining variables are not showing significance. The values of R- Squares and Adjusted R-squares are more than 0.5. Significant F-statistics and cross section F-statistic confirms the model is fit, presence of firm specific fixed effects.

4.4.1.17 Textile sector:

The table 4.18 explains the result of panel least squares with fixed effects of textile sector. R-squares and Adjusted R-squares is explaining more than 75 percent variation is the model. Significant F-statistic and cross section F-statistic confirms that the model is fit and firm specific fixed effects are present in the model. EFTAX is positively significant at 1percent. PLR and WPI are negatively significant at 10 percent and 5 percent respectively. None of the other variables are significant.

Table 4.18 Result of panel least squares with fixed effects: textile sector

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNSA	0.02281	0.03957	0.57637	0.56620
NFADEP	0.00090	0.00385	0.23398	0.81570
TDTA	0.09139	0.15574	0.58680	0.55920
GROWTH	0.00023	0.00203	0.11523	0.90860
PROFIT	0.06564	0.25094	0.26157	0.79440
EFTAX	-0.36783	0.13542	-2.71628	0.00830
CR	0.01375	0.00928	1.48162	0.14290
PLR	0.01340	0.00759	1.76394	0.08200
WPI	0.00115	0.00044	2.60444	0.01120
Constant	-0.14102	0.21681	-0.65044	0.51750
R-squared	0.805071	Adjusted R-squared		0.755653
F-statistic	16.29088***	Cross-section F		23.0222***
Note: ***, **, and *denote significance at 1, 5 and 10 percent level of significance respectively				

4. 4.1.18 Transport equipment sector:

Table 4.19 illustrates the result of panel least squares with fixed effects of the transport equipment sector. The result shows that TDTA and CR are positively significant at 1 percent and 5 percent respectively. WPI and PLR are negatively significant at 5 percent and 10 percent respectively. The

reaming variables are not showing significance. Both the R-squares are explaining more than 60 percent of the variance. Significance of F-statistics shows that the model is fit. Significance of cross section F-statistic confirms the presence of firm specific fixed effects in the model

Table 4.19 Result of panel least squares with fixed effects: Transport and equipments sector

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNSA	0.01913	0.05232	0.36567	0.71510
NFADEP	0.00312	0.00248	1.25666	0.21060
TDTA	0.50779	0.13225	3.83954	0.00020
GROWTH	-0.00145	0.00093	-1.55600	0.12150
PROFIT	0.03345	0.16948	0.19739	0.84380
EFTAX	-0.08831	0.06474	-1.36398	0.17430
CR	0.02906	0.01230	2.36228	0.01930
PLR	-0.01576	0.00792	-1.99037	0.04810
WPI	-0.00104	0.00061	-1.71138	0.08880
Constant	0.42973	0.26717	1.60846	0.10950
R-squared	0.665134	Adjusted R-squared		0.605815
F-statistic	11.2128***	Cross-section F		8.976373***
Note: ***, **, and *denote significance at 1, 5 and 10 percent level of significance respectively				

4. 4.2 Result of dynamic panel least squares

4. 4.2.1 Sample companies:

The table 4.20 explains the result of dynamic panel data for the sample companies taken as a whole. From the results of the Sargan tests, we can conclude that we can reject the null hypothesis of instrument validity, and consequent restrictions generated, from use of the GMM (1991) and GMM system (1998) dynamic estimators respectively.

Table 4.20 Result of dynamic panel data for the sample companies

GMM 1991				GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTDTD	0.73456	0.03107	0.00000	0.66308	0.04675	0.00000
LNSA	0.02148	0.01283	0.09400	0.02840	0.01526	0.06300
NFADEP	0.00005	0.00006	0.45000	0.00005	0.00006	0.44600
TDTA	0.18099	0.05468	0.00100	0.15300	0.05580	0.00600
GROWTH	0.00002	0.00000	0.00000	0.00002	0.00000	0.00000
PROFIT	-0.01070	0.01022	0.29500	-0.01007	0.01063	0.34400
EFTAX	-0.00031	0.00018	0.08900	-0.00038	0.00018	0.03000
CR	-0.00177	0.00041	0.00000	-0.00151	0.00046	0.00100
PLR	-0.00531	0.00226	0.01900	-0.00532	0.00245	0.03000
WPI	-0.00017	0.00018	0.35500	-0.00034	0.00023	0.13200
_CONS	0.01465	0.07439	0.84400	0.04846	0.07796	0.53400
Wald Chi	735.3***			353.49***		
Sargan test	42.85498			34.60435		
AB Test Order 1	-8.4141***			-8.1737***		
AB Test Order 2	1.1528			1.0667		
Number of observations = 2568				Number of observations = 2247		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTDTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

However, the results of the second order autocorrelation tests concerning respectively the GMM (1991) and GMM system (1998) dynamic estimators, allow us to conclude that we cannot reject the null hypothesis of absence of second order autocorrelation. Therefore, given the validity of the absence of second order autocorrelation, but instruments invalidity we cannot conclude that the GMM (1991) and GMM system (1998) dynamic estimators are efficient and robust. L1.LTDTD, LNSA, TDTA and GROWTH is positively significant for both GMM (1991) and GMM (1998). EFTAX, CR

and PLR are negatively significant for both GMM (1991) and GMM (1998). The remaining variables are not showing significance.

4. 4.2.2 Agriculture sector:

Table 4.21 Result of dynamic panel data for agriculture sector

	GMM 1991			GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTDTD	0.54686	0.29721	0.06600	0.62544	0.32756	0.05600
LNSA	-0.05471	0.05886	0.35300	-0.10895	0.07520	0.14700
NFADEP	-0.00149	0.00516	0.77300	0.00310	0.00390	0.42700
TDTA	0.15387	0.14656	0.29400	0.01491	0.14446	0.91800
GROWTH	0.00053	0.00036	0.13600	0.00053	0.00031	0.08700
PROFIT	0.06539	0.11222	0.56000	0.06363	0.13449	0.63600
EFTAX	-0.31538	0.16558	0.05700	-0.38517	0.18284	0.03500
CR	0.00804	0.01214	0.50800	0.00507	0.01223	0.67900
PLR	-0.00790	0.00572	0.16700	-0.00981	0.00602	0.10300
WPI	0.00046	0.00065	0.48500	0.00102	0.00080	0.20300
_CONS	0.53412	0.46944	0.25500	0.79842	0.50009	0.11000
Wald Chi	36.91***			44.21***		
Sargan test	14.13656			12.61266		
AB Test Order 1	-1.5773**			-1.7054***		
AB Test Order 2	0.96414			1.064		
Number of observations = 144				Number of observations = 126		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTDTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

The table 4.21 indicates the result of dynamic panel data for agriculture sector. L1.LTDTD is positive and EFTAX is negatively significant at 10 percent for GMM (1191). L1.LTDTD and GROWTH are

positive and EFTAX is negatively significant at 10 percent, 10 percent and 5% respectively. The rest of the variables are not showing significance.

4.4.2.3 Capital goods sector:

Table 4.22 Result of dynamic panel data for capital goods sector

	GMM 1991			GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTDTD	0.74533	0.01495	0.00000	0.47994	0.01662	0.00000
LNSA	0.05771	0.00862	0.00000	0.05773	0.00888	0.00000
NFADEP	0.00007	0.00010	0.47600	-0.00001	0.00007	0.85300
TDTA	-0.01456	0.05461	0.79000	0.03349	0.03994	0.40200
GROWTH	-0.00003	0.00006	0.67400	-0.00003	0.00011	0.76700
PROFIT	-0.15598	0.04439	0.00000	-0.10625	0.04961	0.03200
EFTAX	-0.15365	0.03880	0.00000	-0.16524	0.05634	0.00300
CR	0.00228	0.00085	0.00700	0.00314	0.00092	0.00100
PLR	-0.00996	0.00174	0.00000	-0.00666	0.00105	0.00000
WPI	-0.00080	0.00007	0.00000	-0.00076	0.00009	0.00000
_CONS	0.09973	0.04635	0.03100	0.08765	0.04889	0.07300
Wald Chi	257138.93***			15212.46***		
Sargan test	30.2683			26.58512		
AB Test Order 1	-3.1064***			-2.9915**		
AB Test Order 2	0.29768			-0.06812		
Number of observations = 312				Number of observations = 273		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTDTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

The table 4.22 shows the result of dynamic panel data of the capital goods sector. L1.LTDTD, LNSA and CR is positively significant at 1% for both GMM (1991), GMM (1998). PROFIT, EFTAX, PLR and WPI are

negatively significant at 5 percent, 1 percent, 1 percent, 1 percent and 1 percent respectively for both GMM (1991), GMM (1998). The constant is also positively significant 5 percent for GMM (1991) ant 10 percent for GMM (1998). Other variables are not significant.

4. 4.2.4 Chemical and petrochemicals sector:

Table 4. 23 Result of dynamic panel data for chemical & petrochemical sector

GMM 1991				GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTDTD	-0.0589	0.2898	0.8390	-0.0502	0.2328	0.8290
LNSA	-0.2966	0.0998	0.0030	-0.2924	0.1101	0.0080
NFADEP	-0.0058	0.0121	0.6310	-0.0079	0.0102	0.4410
GROWTH	-0.0112	0.0074	0.1290	-0.0105	0.0063	0.0950
PROFIT	-1.5567	0.9634	0.1060	-1.8980	0.8611	0.0280
CR	0.0329	0.0349	0.3470	0.0464	0.0300	0.1220
PLR	-0.0046	0.0050	0.3540	-0.0057	0.0049	0.2410
_CONS	2.7558	0.7560	0.0000	2.7579	0.8187	0.0010
Wald chi	151.31***			65.49***		
Sargan test	2.770598			2.916762		
AB Test Order 1	-0.05347***			-3.1064***		
AB Test Order 2	1.0108			0.99572		
Number of observations = 88				Number of observations = 77		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTDTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has χ2 distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has χ2 distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

The table 4.23 explains the result of dynamic panel data for chemical and petrochemical sector[2]. LNSA is negatively significant at 1 percent for GMM (1991) and the rest of the variables are not significant. LNSA, GROWTH and PROFIT are negatively significant at 1 percent, 10 percent and 5 percent respectively for GMM (1998). The rest of the variables are not significant.

4. 4.2.5 Consumer durables sector:

Table 4.24 Result of dynamic panel data for consumer durable sector

	GMM 1991			GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTDTD	-0.2644	0.5337	0.6200	-2.1522	1.3525	0.1120
LNSA	-0.4976	0.2847	0.0810	-0.4921	0.2784	0.0770
NFADEP	-0.0275	0.0196	0.1610	-0.0370	0.0235	0.1150
GROWTH	-0.0009	0.0032	0.7840	-0.0027	0.0041	0.5130
PROFIT	-2.5773	1.6077	0.1090	-2.5098	1.5303	0.1010
CR	-0.0175	0.0220	0.4270	-0.0288	0.0199	0.1470
PLR	-0.0239	0.0326	0.4630	-0.0023	0.0322	0.9420
_CONS	5.1041	2.7816	0.0670	5.6674	3.0151	0.0600
Wald Chi	27.49***			30.12***		
Sargan test	1.35E-18			1.44E-18		
AB Test Order 1	-0.76436***			-0.35904***		
AB Test Order 2	0.53732			-0.91663		
Number of observations = 64				Number of observations = 56		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTDTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

[2] In Tables 4.23, 4.24, 4.25, 4.30, 4.32, 4.35 we omitted(TDTA, EFTAX, WPI) variables because of high degree of multicollinearity among independent variables

The table 4.24 illustrates the result of dynamic panel least squares for the consumer durables sector. LNSA is negative and constant is positively significant at 10 percent for both GMM (1991) and GMM (1998). All the other variables are not showing significance.

4. 4.2.6 Diversified sector:

Table 4.25 Result of dynamic panel data for diversified sector

	GMM 1991			GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTDTD	-0.2009	0.7309	0.7830	-0.4471	0.3751	0.2330
LNSA	0.3039	0.5811	0.6010	0.0264	0.1325	0.8420
NFADEP	0.0001	0.0010	0.9290	0.0006	0.0006	0.3740
GROWTH	-0.0010	0.0036	0.7750	-0.0017	0.0028	0.5480
PROFIT	0.8265	0.8655	0.3400	1.2376	1.6956	0.4650
CR	0.0041	0.0367	0.9120	-0.0181	0.0291	0.5350
PLR	-0.0043	0.0132	0.7430	-0.0029	0.0144	0.8400
_CONS	-1.7932	4.6244	0.6980	0.2475	0.6910	0.7200
Wald Chi	9.47***			19.81***		
Sargan test	9.95E-21			1.21E-23		
AB Test Order 1	-0.07037***			0.42966***		
AB Test Order 2	0.07291			-0.06717		
Number of observations = 64				Number of observations = 56		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTDTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

The table 4.25 shows the result of dynamic panel least squares for the diversified sector. None of the variables are significant for both the model.

4. 4.2.7 FMCG sector:

The table 4.26 illustrates the result of dynamic panel data for the FMCG sector. L1.LTDTD, LNSA, TDTA and CR are positive, WPI is negatively significant at 1 percent, 1 percent, 5 percent and 1 percent respectively for GMM (1991). L1.LTDTD, LNSA, GROWTH and CR are positively significant at 1 percent, 1 percent, 5 percent and 1 percent respectively for GMM (1998).

Table 4.26 Result of dynamic panel data for FMCG Sector

	GMM 1991			GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTDTD	0.410977	0.141725	0.004000	0.354553	0.058962	0.000000
LNSA	0.065470	0.023395	0.005000	0.049653	0.018629	0.008000
NFADEP	0.000166	0.000570	0.771000	-0.000585	0.000595	0.326000
TDTA	0.255587	0.119693	0.033000	0.279050	0.179442	0.120000
GROWTH	0.001813	0.001248	0.146000	0.002086	0.000968	0.031000
PROFIT	0.024501	0.783153	0.975000	0.011519	0.278800	0.967000
EFTAX	-0.025872	0.145960	0.859000	-0.149998	0.141228	0.288000
CR	0.005674	0.001506	0.000000	0.003889	0.000698	0.000000
PLR	-0.000656	0.004538	0.885000	-0.005166	0.004487	0.250000
WPI	-0.000529	0.000229	0.021000	-0.000352	0.000342	0.303000
_CONS	-0.251764	0.156708	0.108000	-0.084993	0.118933	0.475000
Wald Chi	39773.59***			93118.67***		
Sargan test	1.46E+01			11.74222		
AB Test Order 1	-1.9433***			-1.9252***		
AB Test Order 2	1.059			1.052		
Number of observations = 176				Number of observations = 154		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTDTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

4. 4.2.8 Healthcare sector:

The table 4.27 shows the result of dynamic panel data for the healthcare sector. L1.LTDTD, TDTA, GROWTH and CR are positively significant at 1 percent for both GMM (1991), GMM (1998). PLR and EFTAX are negatively significant at 5 percent and 1 percent respectively for GMM (1991). PROFIT, EFTAX and PLR are negatively significant at 1 percent for GMM (1998). All the other variables are not showing significance.

Table 4.27 Result of dynamic panel data for healthcare sector

	GMM 1991			GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTDTD	0.560936	0.046958	0.000000	0.520381	0.066486	0.000000
LNSA	-0.003637	0.033356	0.913000	-0.027578	0.049631	0.578000
NFADEP	0.000373	0.002206	0.866000	-0.001807	0.002385	0.449000
TDTA	0.179249	0.037924	0.000000	0.128695	0.044105	0.004000
GROWTH	0.002511	0.000816	0.002000	0.002982	0.000833	0.000000
PROFIT	0.002291	0.013370	0.864000	-0.020731	0.005804	0.000000
EFTAX	-0.899070	0.119597	0.000000	-0.833286	0.061747	0.000000
CR	0.018514	0.001541	0.000000	0.019407	0.001741	0.000000
PLR	-0.005594	0.002536	0.027000	-0.004416	0.001318	0.001000
WPI	0.000095	0.000399	0.813000	0.000323	0.000482	0.503000
_CONS	0.160783	0.160799	0.317000	0.265606	0.281792	0.346000
Wald Chi	1785.63***			73398.32***		
Sargan test	2.01E+01			21.2708		
AB Test Order 1	-2.7535***			-2.6127**		
AB Test Order 2	0.75786			0.78496		
Number of observations = 232				Number of observations = 203		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTDTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

4.4.2.9 Housing related sector:

Table 4.28 Result of dynamic panel data for housing related sector

	GMM 1991			GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTDTD	0.532299	0.038196	0.000000	0.380084	0.070710	0.000000
LNSA	0.043669	0.011366	0.000000	0.033144	0.003967	0.000000
NFADEP	-0.000575	0.000449	0.200000	-0.000138	0.000478	0.772000
TDTA	0.108434	0.044516	0.015000	0.108047	0.033351	0.001000
GROWTH	0.000561	0.000363	0.122000	0.000665	0.000273	0.015000
PROFIT	-0.005096	0.009854	0.605000	-0.000650	0.004738	0.891000
EFTAX	0.074741	0.038679	0.053000	0.085769	0.026282	0.001000
CR	-0.002205	0.000392	0.000000	-0.002538	0.000158	0.000000
PLR	-0.004822	0.002309	0.037000	-0.005085	0.002959	0.086000
WPI	-0.000686	0.000222	0.002000	-0.000582	0.000164	0.000000
_CONS	0.175904	0.093031	0.059000	0.300505	0.086588	0.001000
Wald Chi	5677.99***			123330.83***		
Sargan test	3.00E+01			29.03378		
AB Test Order 1	-2.8036***			-2.7669***		
AB Test Order 2	-0.4237			-0.73741		
Number of observations = 288				Number of observations = 252		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTDTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

The table 4.28 indicates the result of dynamic panel data for housing related sector. L1.LTDTD, LNSA, TDTA, EFTAX and constant are positively significant 1 percent, 1 percent, 5 percent, 5 percent and10 percent respectively for GMM (1991). CR, PLR and WPI are negatively significant at 1 percent, 5 percent and 1 percent respectively for GMM (1991). L1.LTDTD, LNSA, TDTA, EFTAX, GROWTH and constant are positively significant at 1

percent, 1 percent, 1 percent, 1 percent, 5 percent and 1 percent respectively for GMM (1998). CR, PLR and WPI are negatively significant at 1 percent, 5 percent and 1 percent correspondingly for GMM (1998).

4. 4.2.10 Information technology sector:

Table 4.29 Result of dynamic panel data for information technology sector

	GMM 1991			GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTDTD	0.463662	0.053524	0.000000	0.486539	0.084887	0.000000
LNSA	-0.006965	0.024706	0.778000	0.031588	0.026491	0.233000
NFADEP	0.001431	0.000836	0.087000	0.001928	0.000780	0.013000
TDTA	0.749980	0.145303	0.000000	0.829363	0.153871	0.000000
GROWTH	-0.000085	0.000086	0.321000	-0.000059	0.000073	0.415000
PROFIT	-0.009435	0.013337	0.479000	-0.005056	0.007987	0.527000
EFTAX	-0.121921	0.138838	0.380000	-0.061886	0.115337	0.592000
CR	0.012538	0.002314	0.000000	0.013459	0.002206	0.000000
PLR	0.004829	0.007291	0.508000	0.002475	0.003791	0.514000
WPI	-0.000606	0.000406	0.136000	-0.001095	0.000521	0.036000
_CONS	0.112851	0.118080	0.339000	-0.024447	0.097775	0.803000
Wald Chi	2640.8***			576.94***		
Sargan test	1.14E+01			11.71578		
AB Test Order 1	-2.3399**			-2.3409***		
AB Test Order 2	-0.32066			-0.32213		
Number of observations = 192				Number of observations = 168		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTDTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

The table 4.29 shows the result of dynamic panel least squares for the information technology sector. L1.LTDTD, NFADEP, TDTA and CR are

positively significant at 1 percent, 10 percent, 1 percent and 1 percent for both GMM (1991), GMM (1998). WPI is negatively significant at 5 percent for GMM (1998). The rest of the variables are not significant

4. 4.2.11 Media and publishing sector:

Table 4.30 Result of dynamic panel data for media & publishing sector

	GMM 1991			GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTDD	0.08194	0.98140	0.93300	0.06656	0.89477	0.94100
NFADEP	-0.02230	0.14069	0.87400	-0.01953	0.13582	0.88600
GROWTH	0.00002	0.00002	0.11200	0.00002	0.00001	0.10000
PROFIT	0.77552	7.41545	0.91700	0.60659	7.08971	0.93200
CR	-0.01459	0.04875	0.76500	-0.01318	0.04438	0.76600
PLR	0.02331	0.03656	0.52400	0.02406	0.03735	0.52000
_CONS	0.12854	0.27565	0.64100	0.13958	0.23995	0.56100
Wald Chi	1.12E+06***			2965.88***		
Sargan test	1.39E-14			1.44E-19		
AB Test Order 1	-0.21946***			-0.23886***		
AB Test Order 2	-0.38022			-0.38029		
Number of observations = 56				Number of observations = 49		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTDTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

The table 4.30 shows the result of dynamic panel least squares for the media and publishing sector. None of the variables are significant for both GMM (1991) and GMM (1998).

4.4.2.12 Metal, metal products and mining sector:

Table 4.31 Result of dynamic panel data for metal, metal products and mining sector

	GMM 1991			GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTDTD	0.660973	0.063203	0.000000	0.610801	0.052393	0.000000
LNSA	0.058887	0.024063	0.014000	0.024431	0.015641	0.118000
NFADEP	-0.001663	0.000435	0.000000	-0.000682	0.000606	0.260000
TDTA	0.147635	0.064157	0.021000	0.108096	0.073112	0.139000
GROWTH	-0.000461	0.001734	0.790000	-0.002165	0.001707	0.205000
PROFIT	-0.016660	0.079227	0.833000	0.019119	0.066329	0.773000
EFTAX	-0.923333	0.078446	0.000000	-0.813258	0.056281	0.000000
CR	0.005537	0.002563	0.031000	0.005365	0.004254	0.207000
PLR	-0.023552	0.005932	0.000000	-0.016643	0.006147	0.007000
WPI	-0.000958	0.000385	0.013000	-0.000603	0.000346	0.081000
_CONS	0.342497	0.155257	0.027000	0.426019	0.105995	0.000000
Wald Chi	944.82***			3392.5***		
Sargan test	1.32E+01			14.91667		
AB Test Order 1	-2.6549**			-2.7693**		
AB Test Order 2	1.7568			1.6477		
Number of observations = 208				Number of observations = 182		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTDTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

The table 4.31 shows the result of dynamic panel least squares for metal, metal products and mining sector. L1.LTDTD, LNSA, TDTA, CR and constant is positively significant at 1 percent, 5 percent, 1 percent, 5 percent and 5 percent respectively for GMM (1991). NFADEP, EFTAX, PLR and WPI are negatively significant at 1 percent, 1 percent, 5 percent, 1 percent and 5 percent correspondingly for GMM (1191). The remaining variables are not

showing significance. L1.LTDTD and constant are positively significant at 1 percent for GMM (1998). EFTAX, PLR and WPI are negatively significant at 1 percent, 1 percent and 10 percent respectively for GMM (1998) and the rest of the variables are not significant.

4. 4.2.13 Miscellaneous sector:

Table 4.32 Result of dynamic panel data for miscellaneous sector

	GMM 1991			GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTDD	0.84866	0.32894	0.01000	0.97567	0.60699	0.10800
NFADEP	-0.00115	0.00796	0.88500	-0.00339	0.00652	0.60300
GROWTH	0.00002	0.00003	0.43800	0.00004	0.00003	0.30900
PROFIT	-0.09058	1.33370	0.94600	-0.42876	1.26071	0.73400
CR	-0.00756	0.01469	0.60700	-0.01518	0.01661	0.36100
PLR	0.00931	0.00614	0.13000	0.01026	0.00598	0.08600
_CONS	0.02081	0.22012	0.92500	0.07088	0.13517	0.60000
Wald Chi	5.56E+01***			18.5***		
Sargan test	6.20E+00			5.02E+00		
AB Test Order 1	-1.6714***			-1.4015***		
AB Test Order 2	0.32665			0.28483		
Number of observations = 96				Number of observations = 84		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTDTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has χ2 distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has χ2 distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

The table 4.32 explains the result of dynamic panel least squares for miscellaneous sector. L1.LTDTD is positively significant at 5 percent for

GMM (1991). PLR is positively significant at 10 percent for GMM (1998).All the other variables are not showing significance.

4.3.2.14 Oil and gas sector:

Table 4.33 Result of dynamic panel data for oil and gas sector

	GMM 1991			GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTDTD	0.732445	0.183171	0.000000	0.386480	0.226244	0.088000
LNSA	0.029978	0.024969	0.230000	0.032380	0.020936	0.122000
NFADEP	0.000705	0.000336	0.036000	0.000558	0.000314	0.075000
TDTA	-0.121032	0.150329	0.421000	0.080681	0.107389	0.452000
GROWTH	-0.000001	0.000006	0.830000	-0.000002	0.000005	0.661000
PROFIT	0.949704	0.154395	0.000000	0.817050	0.104072	0.000000
EFTAX	0.003196	0.000209	0.000000	0.003131	0.000229	0.000000
CR	-0.006718	0.004959	0.176000	-0.005225	0.003895	0.180000
PLR	-0.000074	0.002967	0.980000	-0.004775	0.003399	0.160000
WPI	-0.001163	0.000601	0.053000	-0.001156	0.000541	0.033000
_CONS	-0.022844	0.265533	0.931000	0.153100	0.256192	0.550000
Wald Chi	8089.84***			13238.15***		
Sargan test	1.25E+01			8.48251		
AB Test Order 1	-2.0462**			-1.6276***		
AB Test Order 2	0.15093			-0.07043		
Number of observations = 160				Number of observations = 140		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTDTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

The table 4.33 explains the result of dynamic panel data for Oil and Gas sector. L1.LTDTD, NFADEP, PROFIT and EFTAX are positively significant at 1 percent, 5 percent, 1 percent and 1 percent respectively for

GMM (1991). WPI is negatively significant at 10 percent GMM (1998). Other variables are not showing significance. L1.LTDTD, NFADEP, PROFIT and EFTAX are positively significant at 10 percent, 10 percent, 1 percent and 1 percent respectively for GMM (1998). WPI is negatively significant at 5 percent GMM (1998).

4.4.2.15 Power sector:

Table 4.34 Result of dynamic panel data for power sector

	GMM 1991			GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTDTD	-0.086642	0.212527	0.684000	0.020236	0.101590	0.842000
LNSA	0.103586	0.048216	0.032000	0.040043	0.038350	0.296000
NFADEP	-0.000736	0.002941	0.802000	0.000662	0.002198	0.763000
TDTA	0.238546	0.237437	0.315000	0.365429	0.198310	0.065000
GROWTH	0.000685	0.000614	0.265000	0.000256	0.000267	0.339000
PROFIT	-0.000579	0.054212	0.991000	-0.179863	0.147671	0.223000
EFTAX	-0.190325	0.103128	0.065000	-0.155731	0.119638	0.193000
CR	0.000280	0.000248	0.258000	-0.000018	0.000182	0.923000
PLR	-0.007727	0.006035	0.200000	-0.006682	0.006628	0.313000
WPI	0.000096	0.000580	0.868000	0.000170	0.000628	0.787000
_CONS	-0.129525	0.159792	0.418000	0.244191	0.159746	0.126000
Wald Chi	405.15***			143.09***		
Sargan test	8.31E+00			8.546071		
AB Test Order 1	-1.0379**			-1.1838***		
AB Test Order 2	-1.1835			-1.6109		
Number of observations = 136				Number of observations = 119		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTDTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

The table 4.34 illustrates the result of dynamic panel data for power sector. LNSA is positive and EFTAX is negatively significant at 5 percent and 10 percent respectively for GMM (1991). TDTA is positively significant at 10 percent for GMM (1998). The rest of the variables are not significant for both of the models.

4. 4.2.16 Telecom sector:

Table 4.35 Result of dynamic panel data for telecom sector

	GMM 1991			GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTDTD	-0.0867	0.3033	0.7750	0.3072	0.1584	0.0520
NFADEP	0.0050	0.0077	0.5210	0.0070	0.0038	0.0630
GROWTH	0.0003	0.0003	0.2220	-0.0001	0.0004	0.7920
PROFIT	-0.0315	0.0473	0.5050	-0.0304	0.0368	0.4080
CR	-0.0039	0.0006	0.0000	-0.0039	0.0009	0.0000
PLR	-0.0146	0.0063	0.0210	-0.0119	0.0055	0.0300
_CONS	0.5787	0.2077	0.0050	0.3554	0.1543	0.0210
Wald Chi	126.93***			7.00E+01***		
Sargan test	2.084435			3.18E+00		
AB Test Order 1	0.09701***			-1.1865***		
AB Test Order 2	0.80138			0.72024		
Number of observations = 88				Number of observations = 77		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTDTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

The table 4.35 shows the result of dynamic panel least squares for telecom sector. In case of GMM (1991) CR and PLR are negatively

significant at 1 percent and 5 percent respectively. The constant is positively significant at 1 percent other variables are not significant. For the model GMM (1998) L1.LTDTD, CR and PLR are negatively significant at 5 percent, 1 percent and 5 percent respectively. Constant and NFADEP are positively significant at 5 percent and 10 percent respectively. Other variables are not showing significance.

4. 4.2.17 Textile sector:

Table 4.36 Result of dynamic panel data for textile sector

GMM 1991				GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTDTD	-1.06526	0.578053	0.065	-1.13143	0.540536	0.036
NFADEP	0.006589	0.004563	0.149	0.00724	0.004694	0.123
GROWTH	0.001332	0.001948	0.494	0.0011	0.001537	0.474
PROFIT	0.663901	0.38694	0.086	0.621031	0.332829	0.062
CR	0.01839	0.006853	0.007	0.019529	0.006808	0.004
PLR	0.006624	0.006275	0.291	0.007256	0.006046	0.23
_CONS	0.735628	0.228854	0.001	0.750452	0.223987	0.001
Wald Chi	29.86			23.59		
Sargan test	1.908423			1.718165		
AB Test Order 1	1.0977			1.1865		
AB Test Order 2	-0.49162			-0.56596		
Number of observations = 80				Number of observation = 70		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTDTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

The table 4.36 shows the result of dynamic panel least squares for textile sector. PROFIT, CR and constant are positively significant at 10

percent, 1 percent and 1 percent respectively for Both GMM (1991) and GMM (1998). However L1.LTDTD is negatively significant at 10 percent for GMM (1991) and at 5 percent for GMM (1998). Other variables are not significant.

4.4.2.18 Transport equipment sector:

Table 4.37 Result of dynamic panel data for transport and equipment sector

	GMM 1991			GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTDTD	0.713027	0.096790	0.000000	0.509730	0.094244	0.000000
LNSA	-0.015262	0.023727	0.520000	-0.036699	0.029829	0.219000
NFADEP	0.006324	0.001618	0.000000	0.004235	0.001564	0.007000
TDTA	0.169302	0.116251	0.145000	0.161750	0.128659	0.209000
GROWTH	-0.001392	0.000224	0.000000	-0.001433	0.000294	0.000000
PROFIT	-0.607747	0.380629	0.110000	-0.189848	0.461858	0.681000
EFTAX	-0.049928	0.036451	0.171000	-0.051069	0.017664	0.004000
CR	0.015135	0.004304	0.000000	0.016140	0.006430	0.012000
PLR	-0.013388	0.005701	0.019000	-0.012211	0.006551	0.062000
WPI	-0.000863	0.000362	0.017000	-0.000598	0.000466	0.199000
_CONS	0.514090	0.181613	0.005000	0.661378	0.178158	0.000000
Wald Chi	3027.71***			6543.08***		
Sargan test	1.31E+01			13.84393		
AB Test Order 1	-2.372**			-2.1388***		
AB Test Order 2	0.46444			0.14632		
Number of observations = 184				Number of observations = 161		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTDTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTDTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

The Table 4.37 shows the result of dynamic panel data for Transport equipment sector. L1.LTDTD, NFADEP, CR and constant are positively significant at 1 percent for each of the variable in the case of GMM (1991). GROWTH, PLR and WPI are negatively significant at 1 percent, 5 percent and 5 percent. L1.LTDTD, NFADEP, CR and constant are positively significant at 1 percent, 1 percent, 5 percent and 1 percent respectively for GMM (1998). GROWTH, EFTAX and PLR are negatively significant at 1 percent, 5 percent and 10 percent correspondingly for GMM (1998). The rest of the variables are not significant.

4.5 Findings

The study has examined the determinants of debt maturity based on agency costs, signalling and liquidity risks, matching and tax effect theories. The major findings from the analysis are following.

As we have used GMM (Generalized Method of Moments) techniques we could provide evidence of the past year proportion of long-term debt to total debts effect on the current year. The result of previous year debt maturity (L1.LTDTD) is positively determined the sectors like agriculture, capital goods, FMCG, healthcare, housing related, information technology, metal, metal products & mining, miscellaneous, oil & gas and transport equipment. However, the textile sector, it negatively determined the debt maturity. The overall sample also shows previous year debt maturity is positively determining the level of debt maturity. It indicates that if a firm

has a more long term debt to total debt in the previous year will keep same level in the current year too or vice versa. But in case of textile sector if previous year long term debt to total debt ratio is less current year it will be more or vice versa.

The result of Firm size shows that the sectors such as capital goods, FMCG and housing related firm size positively determines debt maturity. However, the chemical & petrochemicals and consumer durables sector, it negatively determines the debt maturity. The overall sample also shows firm size is positively determining the level of debt maturity. Large companies have more tangible assets makes them to attract more debt. Generally large companies keep more debt in their capital. But here sectors like chemical & petrochemicals and the consumer durables sector is negatively affecting the size indicates that the sectors more depending on the internal capital in other words this sector have sufficient internal cash flow to meet their capital requirements.

At the same time the result of growth opportunity (GROWTH) says that healthcare and transport equipment sector positively determines debt maturity. This is implying that the overinvestment issues are important in these sectors. The overall sample also shows growth opportunity is positively determining the level of debt maturity. Growth is always leads to capital requirements. The firms which are having huge internal fund use the internal capital and if it is not sufficient they have to go for debt.

Coming to the outcome of Liquidity (CR) the sectors such as capital goods, FMCG, healthcare, information technology, metal products & mining, oil & gas, textile and transport equipment liquidity positively determines debt maturity. The results imply that a firm with less current liabilities employees more long-term debt in its capital structure. It may be that lenders are concerned about the long-term borrowers when lending for the long term and thus put high liquidity requirements in such case. However, the housing related and telecom sector, it negatively determines the debt maturity. The overall sample shows liquidity is negatively determining the level of debt maturity. This results says that these sectors and overall in India companies need not require high liquidity to access long-term debt. It may be due the high growth opportunity prevailing in the market.

From the result of Firm's quality (PROFIT) we can say that the sectors such as oil & gas and textile firm's quality are positively determining the debt maturity. Therefore, low profit margin leads to more long-term debt and vice versa in the total debt for these sectors. However, the capital goods sector, it is negatively determines the debt maturity. As a result, it confirms that the capital goods sector attracts high profit margin leads to low level of long-term debt in the capital structure. The overall sample doesn't show any influence of a firm's quality on debt maturity.

The result of Leverage ratio says that health care, housing related and information technology sectors have positively determined debt maturity. The overall sample also shows the leverage ratio is positively determining the level of debt maturity. It is a common factor that leverage is positively

determining the debt maturity. It indicates clearly that firms which are having a huge amount of assets will go for more long term debt. The positive significance of leverage and information technology sector is contrary.

Moving asset maturity (NFADEP) the result indicates that sectors such as information technology, oil & gas, and transport equipment asset maturity is positively determining debt maturity. The overall sample overall sample doesn't show any significant influence of asset maturity on debt maturity. As a result, we can say that, the sector which shows the positive significance will have firms with long-term asset maturity tend to have long-term debt.

Meanwhile the result of effective tax rate (EFTAX) shows agriculture, capital goods, healthcare, metal, metal products & mining and power effective tax rate is positively determining debt maturity. On the other hand housing related and oil & gas it negatively determines the debt maturity. The overall sample also shows firm size is negatively determining the level of debt maturity. It indicates that the tax shield advantage is inversely related to issues of long term debt. In other words, in India the debt market is still under progress

Moreover Interest rate (PLR) also negatively determining the debt maturity for capital goods, housing related, metal, metal products & mining, telecom and transport equipment sectors. The overall sample also shows interest rate is negatively determining the level of debt maturity. Therefore, we conclude that a higher rate of interest leads to low level of debt capital.

Furthermore Inflation (WPI) as well negatively determining the debt maturity for the sector, such as capital goods, housing related, metal, metal products & mining and oil & gas. The overall sample doesn't show any influence of inflation on debt maturity. Therefore, high inflation leads to low leverage. The table 4.38 shows the summary of determinants debt maturity of Indian companies.

Table 4.38 Determinants of debt maturity in Indian companies

Sectors	GMM(1991)		GMM(1998)	
	Positively affecting	**Negatively affecting**	**Positively affecting**	**Negatively affecting**
Agriculture	Previous year debt maturity	Effective tax rate	Previous year debt maturity, Growth opportunity	Effective tax rate
Capital Goods	Previous year debt maturity, Firm size, Liquidity	Firm's quality, Effective tax rate, Interest rate, Inflation	Previous year debt maturity, Firm size, Liquidity	Firm's quality, Effective tax rate, Interest rate, Inflation
Chemical & Petrochemical	NA	Firm size,	NA	Firm size, Growth opportunity, Liquidity
Consumer Durables	NA	Firm size,	NA	Firm size,
Diversified	NA	NA	NA	NA
FMCG	Previous year debt maturity, Firm size, Leverage ratio, Liquidity	Inflation	Previous year debt maturity, Firm size, Growth opportunity, Liquidity	NA
Healthcare	Previous year debt maturity, Leverage ratio, Growth opportunity, Liquidity	Effective tax rate, Inflation	Previous year debt maturity, Leverage ratio, Growth opportunity, Liquidity	Firm's quality, Effective tax rate, Interest rate
Housing Related	Previous year debt maturity, Firm size, Leverage ratio ,Effective tax rate	Liquidity, Interest rate, Inflation	Previous year debt maturity, Firm size, Leverage ratio ,Effective tax rate, Growth opportunity	Liquidity, Interest rate, Inflation
Information Technology	Previous year debt maturity Leverage ratio, Asset maturity, Liquidity	NA	Previous year debt maturity Leverage ratio, Asset maturity, Liquidity	Inflation
Media & Publishing	NA	NA	NA	NA
Metal, Metal Products & Mining	Previous year debt maturity, Firm size, Leverage ratio, Liquidity	Asset maturity , Effective tax rate, Interest rate, Inflation	Previous year debt maturity	Effective tax rate, Interest rate, Inflation

Miscellaneous	Previous year debt maturity	NA	Interest rate	
Oil & Gas	Previous year debt maturity ,Asset maturity, Firm's quality, Liquidity, Effective tax rate	Inflation	Previous year debt maturity ,Asset maturity, Firm's quality, Liquidity, Effective tax rate	Inflation
Power	Firm size	Effective tax rate	Leverage ratio	
Telecom	NA	Liquidity, Interest rate	Previous year debt maturity ,Asset maturity	Liquidity, Interest rate
Textile	Firm's quality, Liquidity	Previous year debt maturity	Firm's quality, Liquidity	Previous year debt maturity
Transport Equipments	Previous year debt maturity ,Asset maturity, Growth opportunity, Liquidity	Interest rate, inflation	Previous year debt maturity ,Asset maturity, Growth opportunity, Liquidity	Effective tax rate , Interest rate

4.6 Chapter Summary

This chapter examines the various factors affecting debt maturity in Indian companies. With the help of past literature the study identified variables regarding the determinants of debt maturity. The identified variables are the proxies of the theories such as agency costs, signalling and liquidity risks, matching and tax effect theories. GMM 1991 and 1998 tool have been used as the appropriate technique to measure the debt maturity in Indian companies. Overall all sample results show that previous year debt maturity, firm size, leverage ratio and growth opportunity are the factors that directly affect the debt maturity of Indian companies. On the other hand effective tax rate, liquidity and interest rate are the factors inversely affecting the debt maturity of Indian companies. The results are having a significant difference among different sectors (see table 4.38).

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CHAPTER V

GROWTH AND LONG-TERM DEBT

5.1 Introduction

Determining the value of the firm is the major factors in financial decision making. The values of firm grow only if there is an element of growth is present. Growth is the inevitable element in any investment. Capital structure theories are developed based on growth aspects of the company. During our study period (2002-2011) in India almost all sectors show an extraordinary growth. According to the underinvestment theory, if growth opportunities are high, a firm should go for more short-term debt. As per the overinvestment theory long-term debt can help to control the overinvestment behaviour of management.

There is also a relationship between the degree of previous growth and future growth. Michaelas et al. (1999) argue that future opportunities will be positively related to leverage, in particular short term leverage. They argue that the agency problem and consequently the cost of financing are reduced if the firm issues short-term debt rather than long-term debt. Myers (1977),

however, holds the view that firms with growth opportunities will have a smaller proportion of debt in their capital structure. This is because conflicts of interest between debt and equity holders are especially serious for assets that give the firm the option to undertake such growth opportunities in the future. He argues further that growth opportunities can produce moral hazard situations and small-scale entrepreneurs have an incentive to take risks to grow. The benefits of this growth, if realized, will not be enjoyed by lenders who will only recover the amount of their loans, resulting in a clear agency problem. This will be reflected in increased costs of long-term debt that can be mitigated by the use of short-term debt.

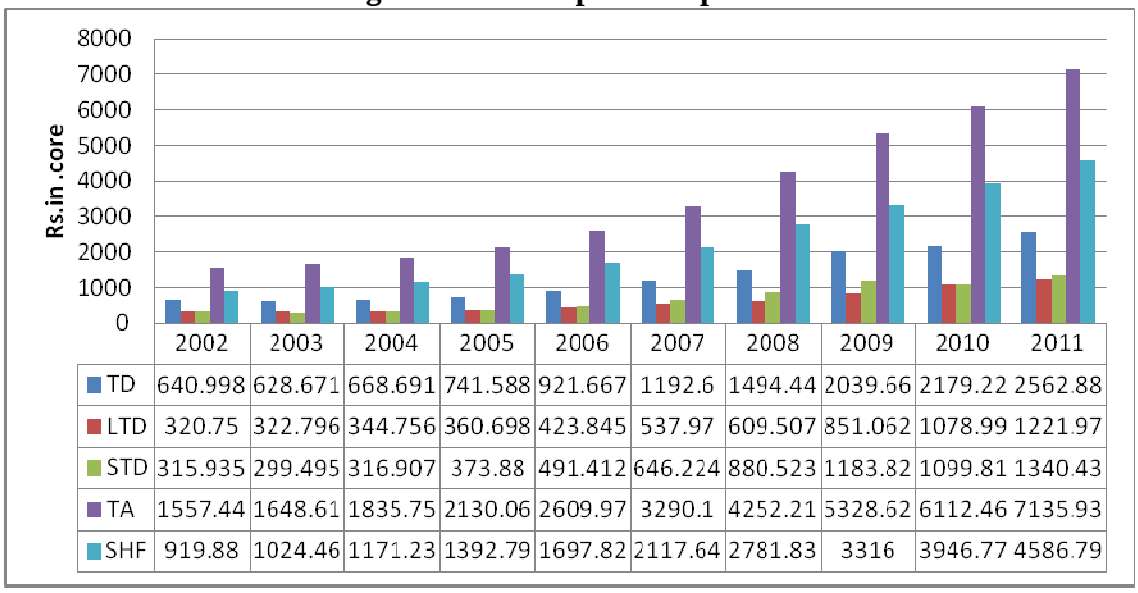
The empirical evidence seems inconclusive. Some researchers found positive relationships between sales growth and leverage (see Kester, 1986; Titman and Wessels, 1988; Barton et al., 1989). Other evidence suggests that higher growth firms use less debt (see Kim and Sorensen, 1986; Stulz, 1990; Rajan and Zingales, 1995; Roden and Lewellen, 1995; Al-Sakran, 2001). Michaelas et al. (1999) found future growth to be positively related to leverage and long-term debt. Cassar and Holmes (2003) and Hall et al. (2004) showed positive associations between growth and both long-term debt and short-term debt ratios, while Chittenden et al. (1996), Jordan et al. (1998), and Esperança et al. (2003) found mixed evidence. Most of the past literature is studied the growth opportunity rather the absolute percentage growth. In this regard, we have defined the growth as the total percentage growth in total assets. So the main purpose of the study is to examine growth of a company and its dependence on long-term debt.

5. 2 The Debt Capital to Total Assets and Debt capital to Equity

To know whether growth in total asset is financed by debt capital or equity capital (equity plus reserve) we have checked the absolute value of total assets in comparison to equity and debt capital. The detail analysis has been discussed below.

5.2.1 Sample companies:

Figure 5.1 Sample companies



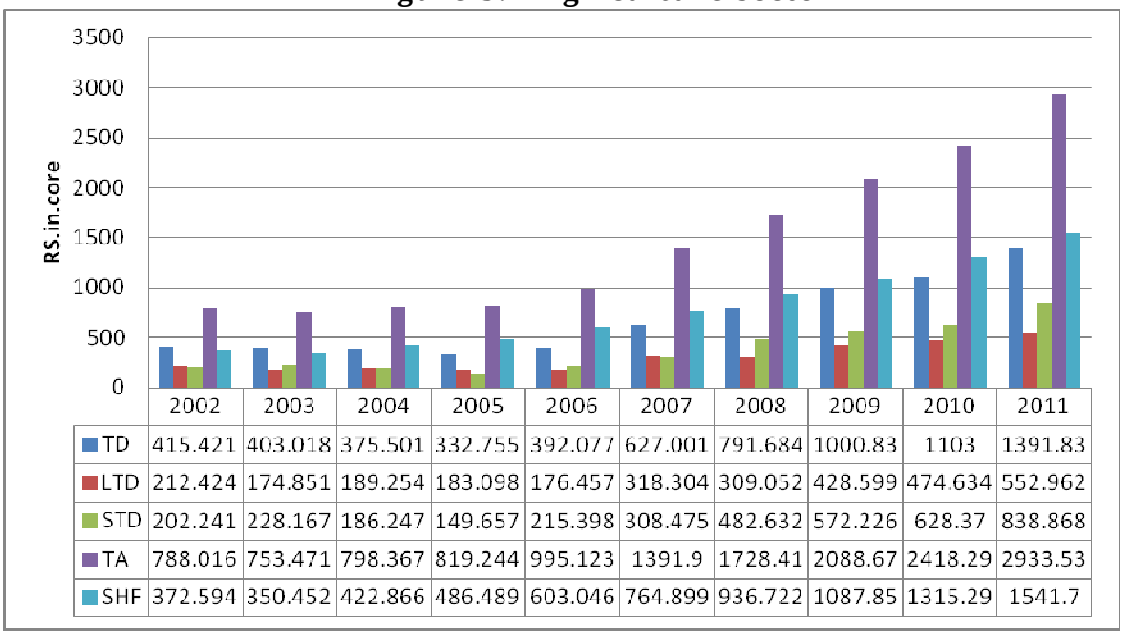
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
TD	640.998	628.671	668.691	741.588	921.667	1192.6	1494.44	2039.66	2179.22	2562.88
LTD	320.75	322.796	344.756	360.698	423.845	537.97	609.507	851.062	1078.99	1221.97
STD	315.935	299.495	316.907	373.88	491.412	646.224	880.523	1183.82	1099.81	1340.43
TA	1557.44	1648.61	1835.75	2130.06	2609.97	3290.1	4252.21	5328.62	6112.46	7135.93
SHF	919.88	1024.46	1171.23	1392.79	1697.82	2117.64	2781.83	3316	3946.77	4586.79

Note: the figure is a yearly average of the total value. Where TD indicates: total debt, LTD is long-term debt, STD short-term debt, TA is total assets and SHF is shareholders equity.

The figure 5.1 illustrates the growth in total assets and major capitals for the sample companies taken as a whole. During the study period the total assets are grown-up by 4.58 times. At the same time the total debt capital increases by 3.99 times and the share holder's equity rises by 4.98 times. Out of total debt, long-term debt is increases by 3.80 times and short-term debt by 4.24 times.

5.2.2 Agriculture sector:

Figure 5.2 Agriculture sector



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
TD	415.421	403.018	375.501	332.755	392.077	627.001	791.684	1000.83	1103	1391.83
LTD	212.424	174.851	189.254	183.098	176.457	318.304	309.052	428.599	474.634	552.962
STD	202.241	228.167	186.247	149.657	215.398	308.475	482.632	572.226	628.37	838.868
TA	788.015	753.471	798.367	819.244	995.123	1391.9	1728.41	2088.67	2418.29	2933.53
SHF	372.594	350.452	422.866	486.489	603.046	764.899	936.722	1087.85	1315.29	1541.7

Note:the figure is a yearly average of the total value. Where TD indicates: total debt, LTD is long-term debt, STD short-term debt, TA is total assets and SHF is shareholders' equity

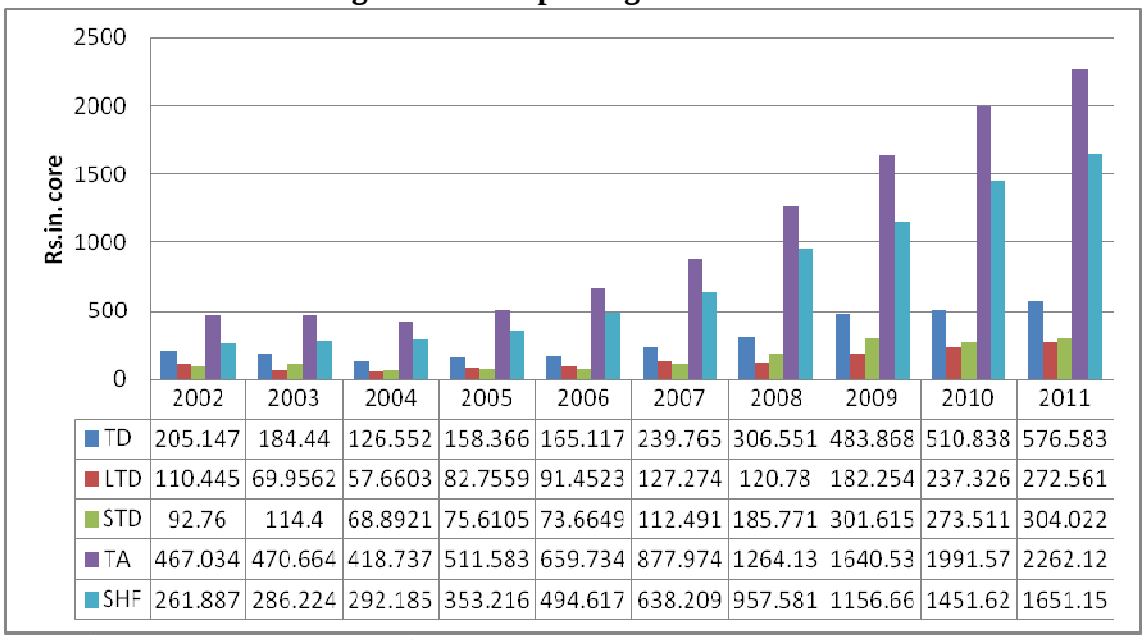
The figure 5.2 shows the status of growth in total assets, total debt, long-term debt, short-term debt and shareholders' equity for the study period of agriculture sector. During the study period, total assets are grown-up 3.72 times, total debt capital increases by 3.35 times and shareholder's equity by 4.13 times. Out of total debt, long-term debt rises by 2.60 times and short-term debt grown-up by 4.14 times.

5.2.3 Capital goods sector:

The figure 5.3 explains the growth in the total assets in comparison to total debt, shareholders equity, long-term debt and short-term debt for capital goods sector. During the study period the total assets are grown as much as 4.84 times. Total debt capital is increased by 2.81 times and shareholders'

equity is increased by 6.30 times. Out of total debt capital long- term debt grown-up by 2.46 times and the short-term debt grown by 3.27 times.

Figure 5.3 Capital goods sector

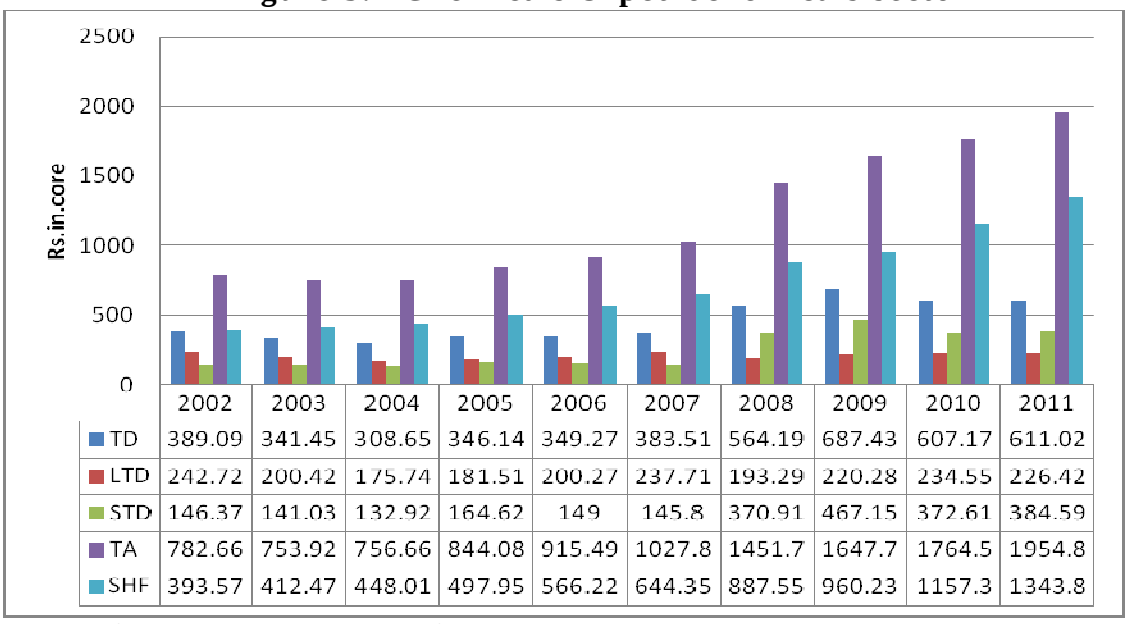


	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
TD	205.147	184.44	126.552	158.366	165.117	239.765	306.551	483.868	510.838	576.583
LTD	110.445	69.9562	57.6603	82.7559	91.4523	127.274	120.78	182.254	237.326	272.561
STD	92.76	114.4	68.8921	75.6105	73.6649	112.491	185.771	301.615	273.511	304.022
TA	467.034	470.664	418.737	511.583	659.734	877.974	1264.13	1640.53	1991.57	2262.12
SHF	261.887	286.224	292.185	353.216	494.617	638.209	957.581	1156.66	1451.62	1651.15

Note: the figure is a yearly average of the total value. Where TD indicates: total debt, LTD is long-term debt, STD short-term debt, TA is total assets and SHF is shareholders equity..

5.2.4 Chemical and petrochemicals sector:

Figure 5.4 Chemicals & petrochemicals sector



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
TD	389.09	341.45	308.65	346.14	349.27	383.51	564.19	687.43	607.17	611.02
LTD	242.72	200.42	175.74	181.51	200.27	237.71	193.29	220.28	234.55	226.42
STD	146.37	141.03	132.92	164.62	149	145.8	370.91	467.15	372.61	384.59
TA	782.66	753.92	756.66	844.08	915.49	1027.8	1451.7	1647.7	1764.5	1954.8
SHF	393.57	412.47	448.01	497.95	566.22	644.35	887.55	960.23	1157.3	1343.8

Note: the figure is a yearly average of the total value. Where TD indicates: total debt, LTD is long-term debt, STD short-term debt, TA is total assets and SHF is shareholders equity.

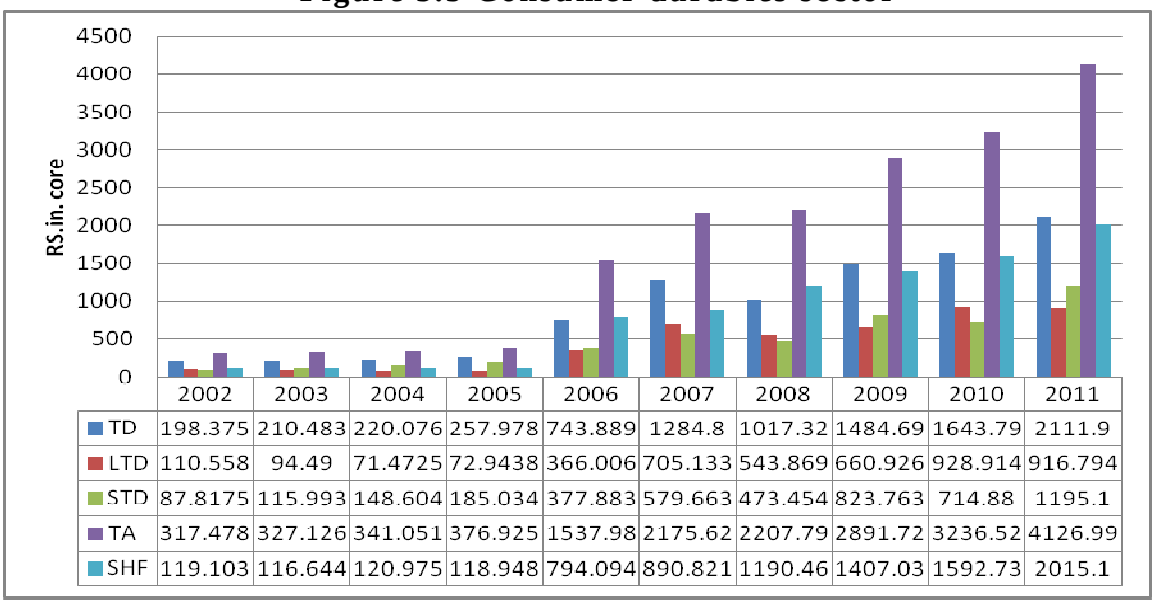
The figure 5.4 shows the growth in total assets and various capitals used to finance the assets in the chemicals and petrochemicals sector. During the

study period, total assets are increased by 2.49 times. Meanwhile the total debt is raised by 1.57 times and shareholders' equity is increased by 3.41 times. Out of total debt, long-term debt declined to 0.93 times and short-term debt increases by 2.62 times.

5.2.5 Consumer durables sector:

The table 5.5 indicates the comparison of total assets with the various capitals used to finance the assets for consumer durable sector. During the study period the total assets are grown up by 12.99 times. However the total debt is increased by 10.66 times and shareholders' equity by 16.92 times. Out of the total debt capital long-term debt capital rises by 8.29 times and short-term debt capital rises by 13.60 times.

Figure 5.5 Consumer durables sector

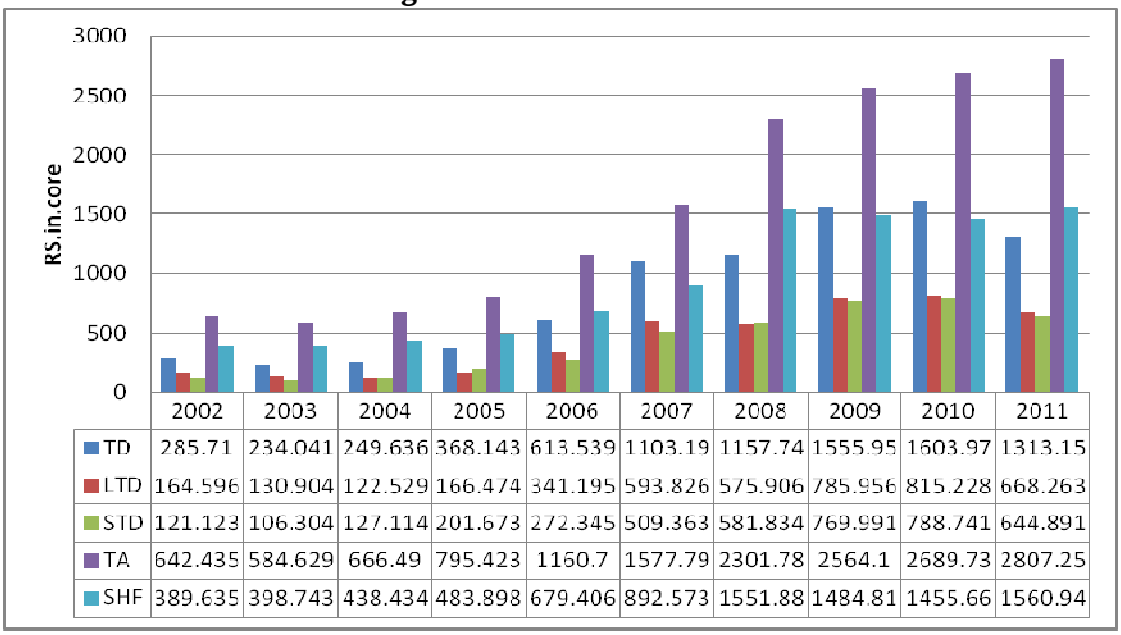


	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
TD	198.375	210.483	220.076	257.978	743.889	1284.8	1017.32	1484.69	1643.79	2111.9
LTD	110.558	94.49	71.4725	72.9438	366.006	705.133	543.869	660.926	928.914	916.794
STD	87.8175	115.993	148.604	185.034	377.883	579.663	473.454	823.763	714.88	1195.1
TA	317.478	327.126	341.051	376.925	1537.98	2175.62	2207.79	2891.72	3236.52	4126.99
SHF	119.103	116.644	120.975	118.948	794.094	890.821	1190.46	1407.03	1592.73	2015.1

Note: the figure is a yearly average of the total value. Where TD indicates: total debt, LTD is long-term debt, STD short-term debt, TA is total assets and SHF is shareholders equity.

5. 2.6 Diversified sector:

Figure 5.6 Diversified sector



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
TD	285.71	234.041	249.636	368.143	613.539	1103.19	1157.74	1555.95	1603.97	1313.15
LTD	164.596	130.904	122.529	166.474	341.195	593.826	575.906	785.956	815.228	668.263
STD	121.123	106.304	127.114	201.673	272.345	509.363	581.834	769.991	788.741	644.891
TA	642.435	584.629	666.49	795.423	1160.7	1577.79	2301.78	2564.1	2689.73	2807.25
SHF	389.635	398.743	438.434	483.898	679.406	892.573	1551.88	1484.81	1455.66	1560.94

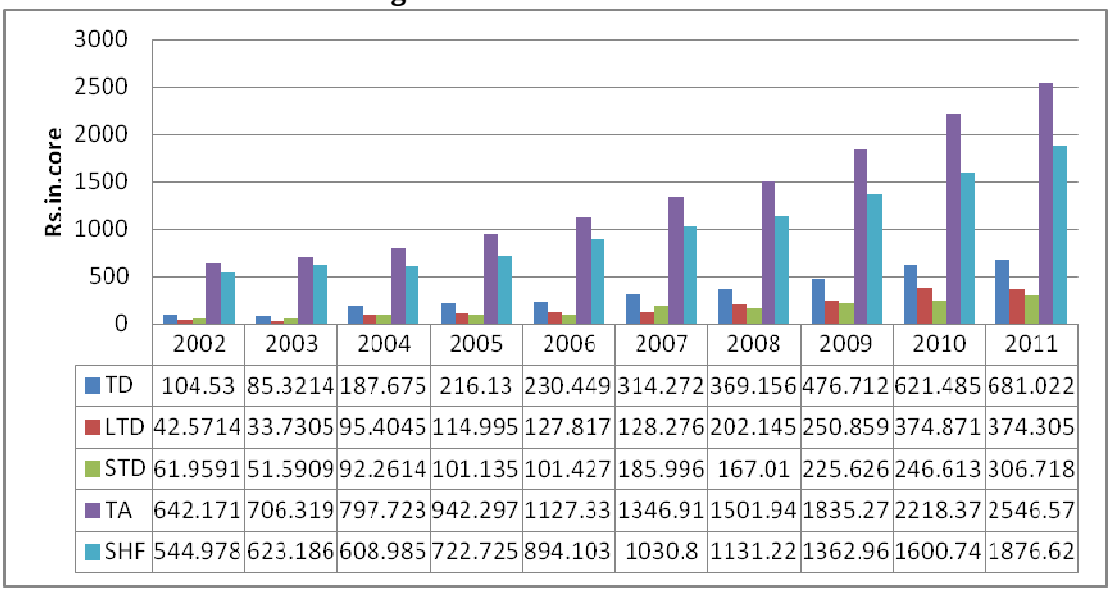
Note: the figure is a yearly average of the total value. Where TD indicates: total debt, LTD is long-term debt, STD short-term debt, TA is total assets and SHF is shareholders equity.

The figure 5.6 shows the growth in total assets and various capitals used to finance the assets in the diversified sector. During the study period, total assets are increased by 4.36 times. Meanwhile the total debt is raised by 4.59 times and shareholders' equity is increased by 4 times. Out of total debt, long-term debt rises by 4 times and short-term debt increases by 5.32 times.

5.2.7 FMCG sector:

The table 5.7 indicates the comparison of total assets with the various capitals used to finance the assets for the FMCG sector. During the study period the total assets are grown up by 3.96 times. However the total debt is increased by 6.51 times and shareholders' equity by 3.44 times. Out of the total debt capital long-term debt capital rises by 8.79 times and short- term debt capital rises by 4.95 times.

Figure 5.7 FMCG sector

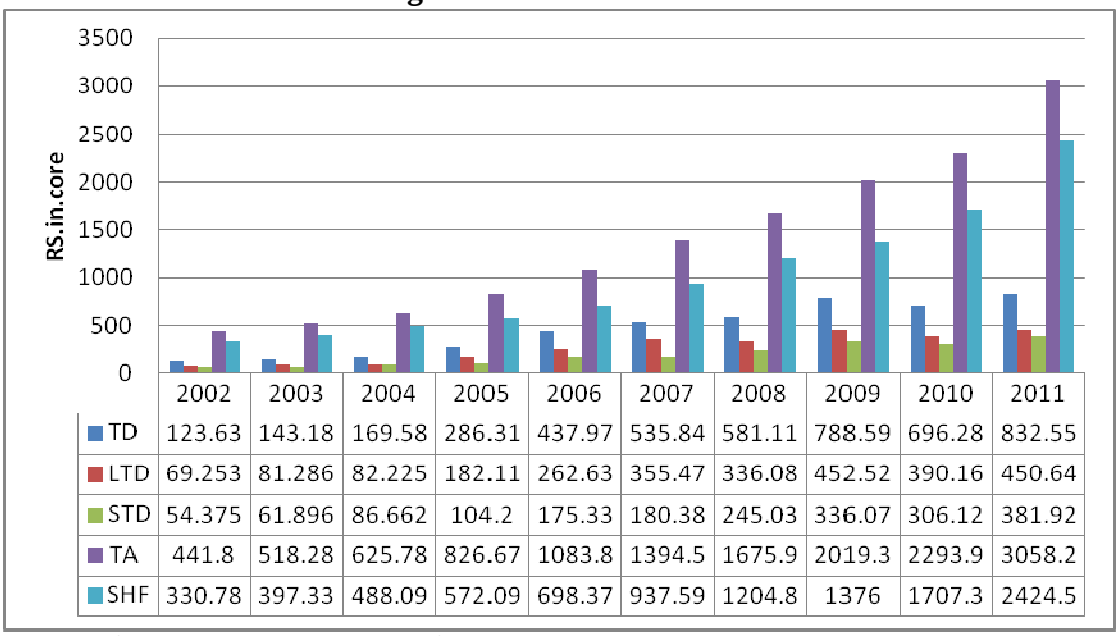


	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
TD	104.53	85.3214	187.675	216.13	230.449	314.272	369.156	476.712	621.485	681.022
LTD	42.5714	33.7305	95.4045	114.995	127.817	128.276	202.145	250.859	374.871	374.305
STD	61.9591	51.5909	92.2614	101.135	101.427	185.996	167.01	225.626	246.613	306.718
TA	642.171	706.319	797.723	942.297	1127.33	1346.91	1501.94	1835.27	2218.37	2546.57
SHF	544.978	623.186	608.985	722.725	894.103	1030.8	1131.22	1362.96	1600.74	1876.62

Note: the figure is a yearly average of the total value. Where TD indicates: total debt, LTD is long-term debt, STD short-term debt, TA is total assets and SHF is shareholders equity.

5.2.8 Healthcare sector:

Figure 5.8 Healthcare sector



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
TD	123.63	143.18	169.58	286.31	437.97	535.84	581.11	788.59	696.28	832.55
LTD	69.253	81.286	82.225	182.11	262.63	355.47	336.08	452.52	390.16	450.64
STD	54.375	61.896	86.662	104.2	175.33	180.38	245.03	336.07	306.12	381.92
TA	441.8	518.28	625.78	826.67	1083.8	1394.5	1675.9	2019.3	2293.9	3058.2
SHF	330.78	397.33	488.09	572.09	698.37	937.59	1204.8	1376	1707.3	2424.5

Note: the figure is a yearly average of the total value. Where TD indicates: total debt, LTD is long-term debt, STD short-term debt, TA is total assets and SHF is shareholders equity.

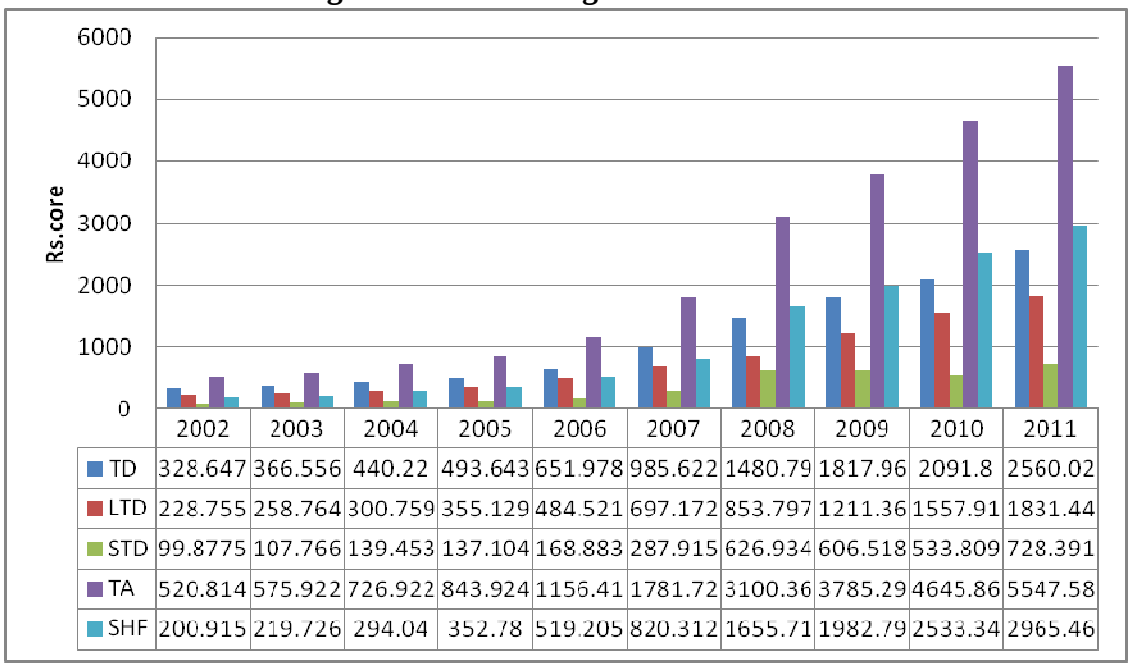
The figure 5.8 explains the growth in total assets and various capitals used to finance the assets in the healthcare sector. During the study period, total assets are increased by 6.92 times. Meanwhile the total debt is raised by

6.73 times and shareholders' equity is increased by 7.32 times. Under the total debt, the long-term debt raised by 6.50 times and short-term debt increased by 7.02 times.

5 2.9 Housing related sector:

The figure 5.9 indicates the comparison of total assets with the various capitals used to finance the assets for housing related sector. During the study period the total assets are grown up by 10.65 times. However the total debt is increased by 7.79 times and shareholders' equity by 14.76 times. Out of the total debt capital long-term debt capital rises by 8 times and short-term debt capital rises by 7.29 times.

Figure 5.9 Housing related sector



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
TD	328.647	366.556	440.22	493.643	651.978	985.622	1480.79	1817.96	2091.8	2560.02
LTD	228.755	258.764	300.759	355.129	484.521	697.172	853.797	1211.36	1557.91	1831.44
STD	99.8775	107.766	139.453	137.104	168.883	287.915	626.934	606.518	533.809	728.391
TA	520.814	575.922	726.922	843.924	1156.41	1781.72	3100.36	3785.29	4645.86	5547.58
SHF	200.915	219.726	294.04	352.78	519.205	820.312	1655.71	1982.79	2533.34	2965.46

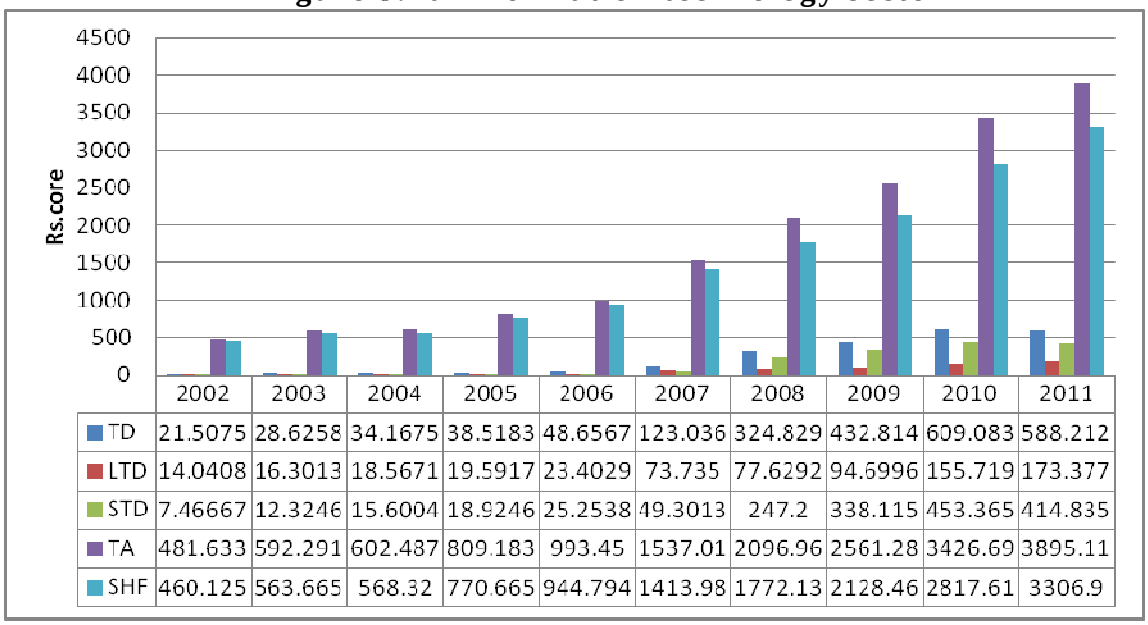
Note: the figure is a yearly average of the total value. Where TD indicates: total debt, LTD is long-term debt, STD short-term debt, TA is total assets and SHF is shareholders equity.

5. 2.10 Information technology sector:

The figure 5.10 shows the growth in total assets and various capitals used to finance the assets in the information technology sector. During the

study period, total assets are increased by 8.08 times. Meanwhile the total debt is raised by 27.34 times and shareholders' equity is increased by 7.18 times. Out of total debt, long-term debt rises by 12.34 times and short-term debt increases by 55.55 times

Figure 5.10 Information technology sector

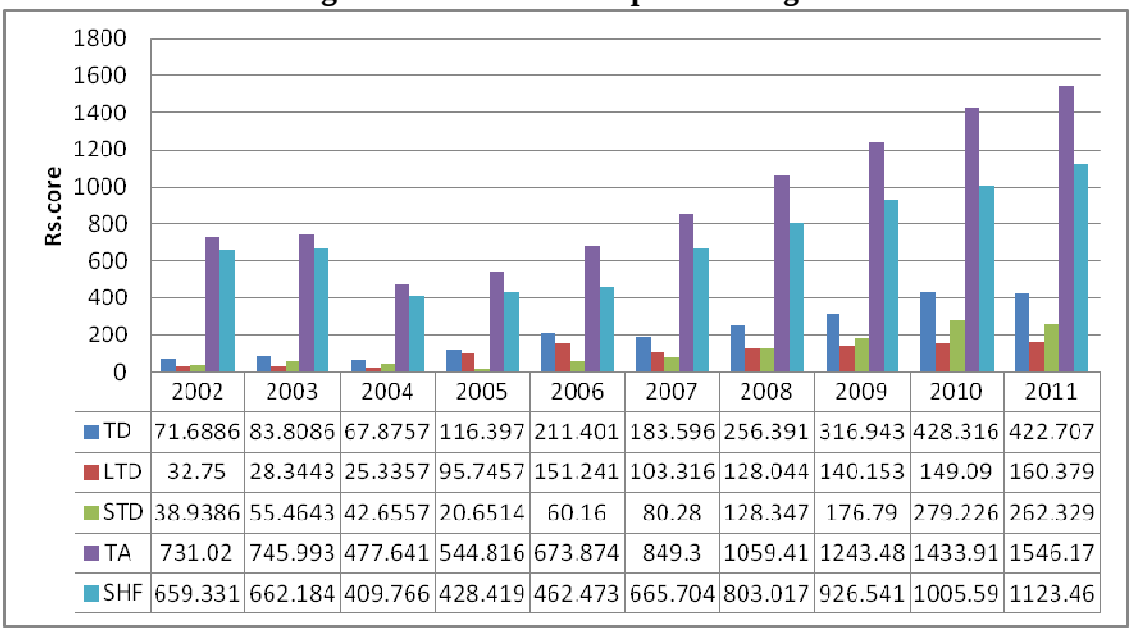


	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
TD	21.5075	28.6258	34.1675	38.5183	48.6567	123.036	324.829	432.814	609.083	588.212
LTD	14.0408	16.3013	18.5671	19.5917	23.4029	73.735	77.6292	94.6996	155.719	173.377
STD	7.46667	12.3246	15.6004	18.9246	25.2538	49.3013	247.2	338.115	453.365	414.835
TA	481.633	592.291	602.487	809.183	993.45	1537.01	2096.96	2561.28	3426.69	3895.11
SHF	460.125	563.665	568.32	770.665	944.794	1413.98	1772.13	2128.46	2817.61	3306.9

Note: the figure is a yearly average of the total value. Where TD indicates: total debt, LTD is long-term debt, STD short-term debt, TA is total assets and SHF is shareholders equity.

5 .2.11 Media and publishing sector:

Figure 5.11 Media & publishing sector



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
TD	71.6886	83.8086	67.8757	116.397	211.401	183.596	256.391	316.943	428.316	422.707
LTD	32.75	28.3443	25.3357	95.7457	151.241	103.316	128.044	140.153	149.09	160.379
STD	38.9386	55.4643	42.6557	20.6514	60.16	80.28	128.347	176.79	279.226	262.329
TA	731.02	745.993	477.641	544.816	673.874	849.3	1059.41	1243.48	1433.91	1546.17
SHF	659.331	662.184	409.766	428.419	462.473	665.704	803.017	926.541	1005.59	1123.46

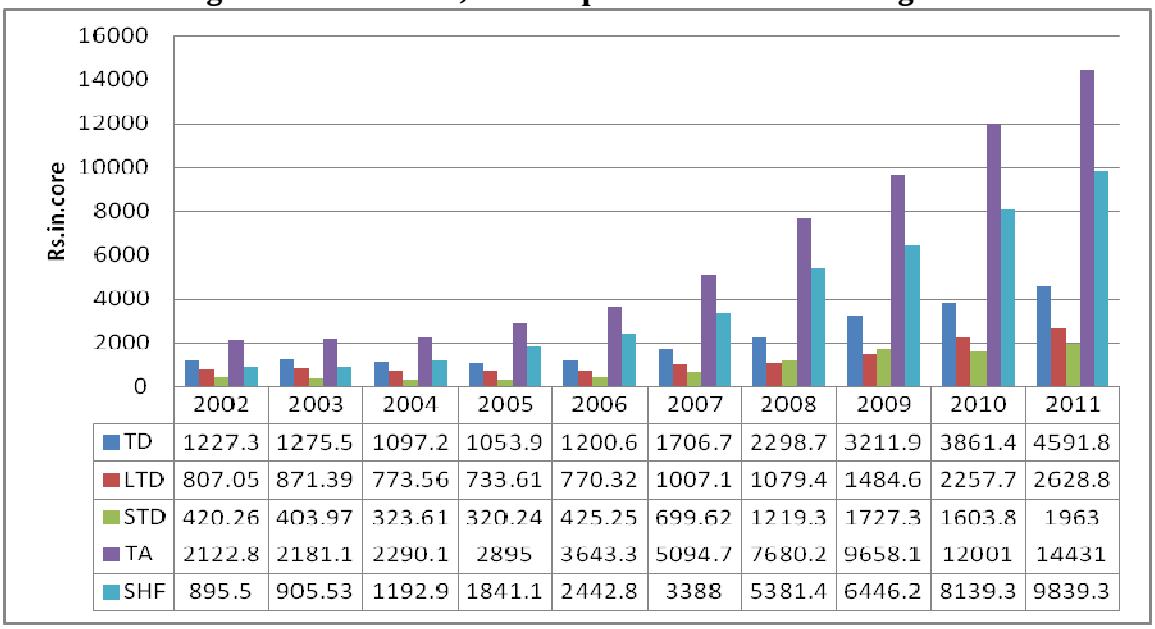
Note: the figure is a yearly average of the total value. Where TD indicates: total debt, LTD is long-term debt, STD short-term debt, TA is total assets and SHF is shareholders equity.

The table 5.11 indicates the comparison of total assets with the various capitals used to finance the assets for housing related sector. During the study period the total assets are grown up by 2.11 times. However the total debt is increased by 5.89 times and shareholders' equity by 1.70 times. Out of the total debt capital long-term debt capital rises by 5.89 times and short-term debt capital rises by 6.73 times

5.2.12 Metal, metal products and mining sector:

The figure 5.12 explains the growth in the total assets in comparison to total debt, shareholders equity, long-term debt and short-term debt for metal, metal products and mining sector. During the study period the total assets are grown as much as 6.79 times. Total debt capital is raised by 3.74 times and shareholders' equity is increased by 10.98 times. Out of total debt capital long- term debt grown-up by 3.25 times and the short-term debt grown by 4.67 times

Figure 5.12 Metal, metal products and mining sector



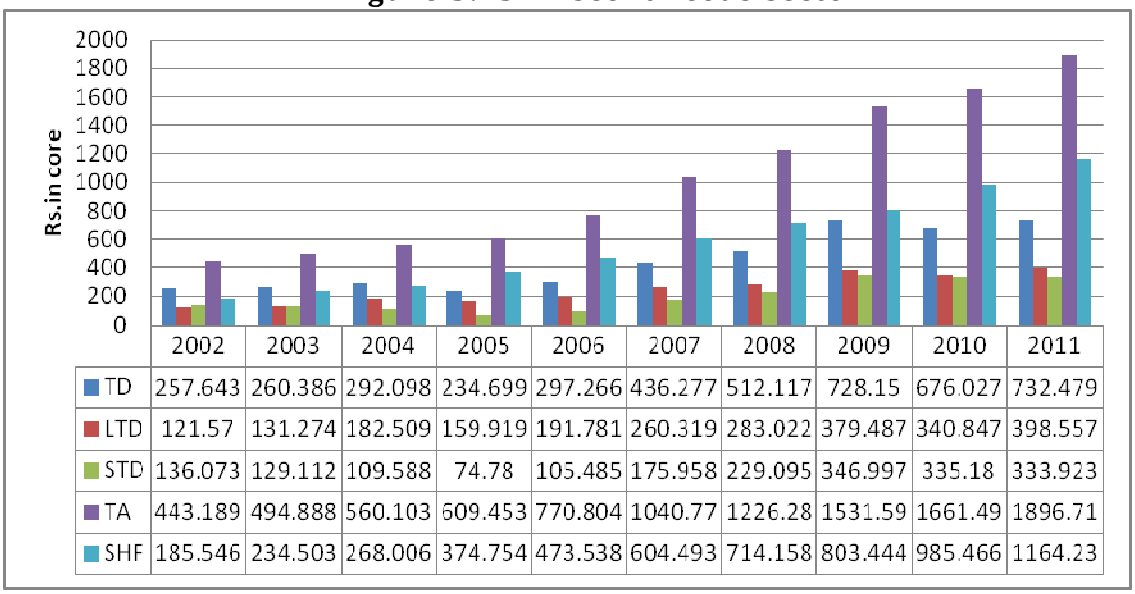
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
TD	1227.3	1275.5	1097.2	1053.9	1200.6	1706.7	2298.7	3211.9	3861.4	4591.8
LTD	807.05	871.39	773.56	733.61	770.32	1007.1	1079.4	1484.6	2257.7	2628.8
STD	420.26	403.97	323.61	320.24	425.25	699.62	1219.3	1727.3	1603.8	1963
TA	2122.8	2181.1	2290.1	2895	3643.3	5094.7	7680.2	9658.1	12001	14431
SHF	895.5	905.53	1192.9	1841.1	2442.8	3388	5381.4	6446.2	8139.3	9839.3

Note: the figure is a yearly average of the total value. Where TD indicates: total debt, LTD is long-term debt, STD short-term debt, TA is total assets and SHF is shareholders equity.

5.2.13 Miscellaneous sector:

The table 5.13 indicates the comparison of total assets with the various capitals used to finance the assets for miscellaneous sector. During the study period the total assets are grown up by 4.28 times. However the total debt is increased by 2.84 times and shareholders' equity by 6.27 times. Out of the total debt capital long-term debt capital rises by 3.27 times and short- term debt capital rises by 2.45 times.

Figure 5.13 Miscellaneous sector



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
TD	257.643	260.386	292.098	234.699	297.266	436.277	512.117	728.15	676.027	732.479
LTD	121.57	131.274	182.509	159.919	191.781	260.319	283.022	379.487	340.847	398.557
STD	136.073	129.112	109.588	74.78	105.485	175.958	229.095	346.997	335.18	333.923
TA	443.189	494.888	560.103	609.453	770.804	1040.77	1226.28	1531.59	1661.49	1896.71
SHF	185.546	234.503	268.006	374.754	473.538	604.493	714.158	803.444	985.466	1164.23

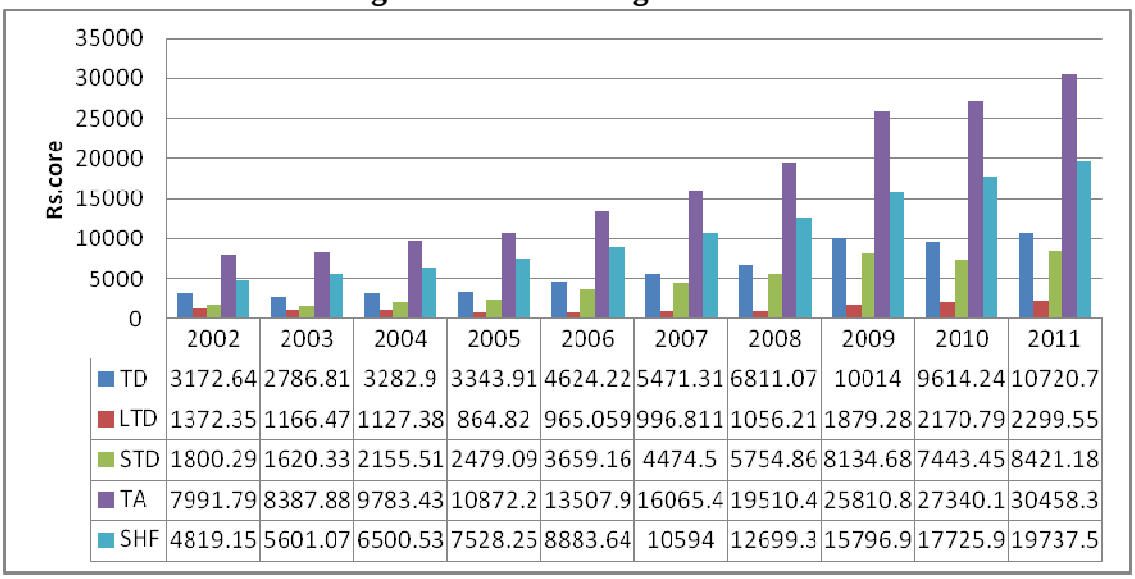
Note: the figure is a yearly average of the total value. Where TD indicates: total debt, LTD is long-term debt, STD short-term debt, TA is total assets and SHF is shareholders equity.

5. 2.14 Oil & gas sector:

The figure 5.14 shows the growth in the total assets in comparison to total debt, shareholders equity, long-term debt and short-term debt for oil and gas sector. During the study period the total assets are grown as much as 3.81 times. Total debt capital is raised by 3.38 times and shareholders' equity is

increased by 4.09 times. Out of total debt capital long- term debt grown-up by 1.67 times and the short-term debt grown by 4.67 times.

Figure 5.14 Oil & gas sector

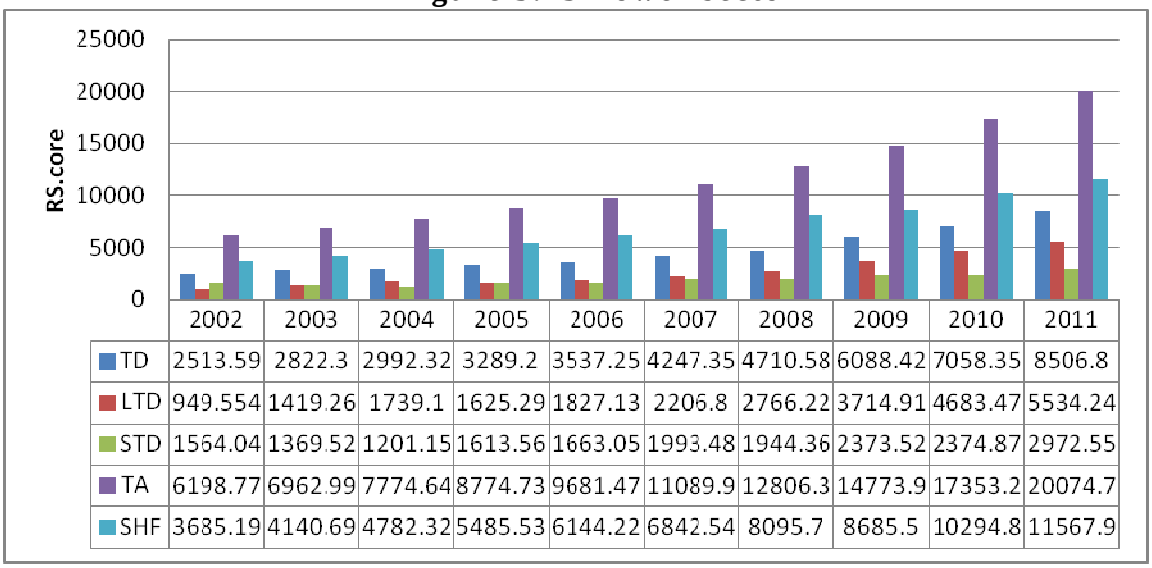


	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
TD	3172.64	2786.81	3282.9	3343.91	4624.22	5471.31	6811.07	10014	9614.24	10720.7
LTD	1372.35	1166.47	1127.38	864.82	965.059	996.811	1056.21	1879.28	2170.79	2299.55
STD	1800.29	1620.33	2155.51	2479.09	3659.16	4474.5	5754.86	8134.68	7443.45	8421.18
TA	7991.79	8387.88	9783.43	10872.2	13507.9	16065.4	19510.4	25810.8	27340.1	30458.3
SHF	4819.15	5601.07	6500.53	7528.25	8883.64	10594	12699.3	15796.9	17725.9	19737.5

Note: the figure is a yearly average of the total value. Where TD indicates: total debt, LTD is long-term debt, STD short-term debt, TA is total assets and SHF is shareholders equity.

5. 2.15 Power sector:

Figure 5.15 Power sector



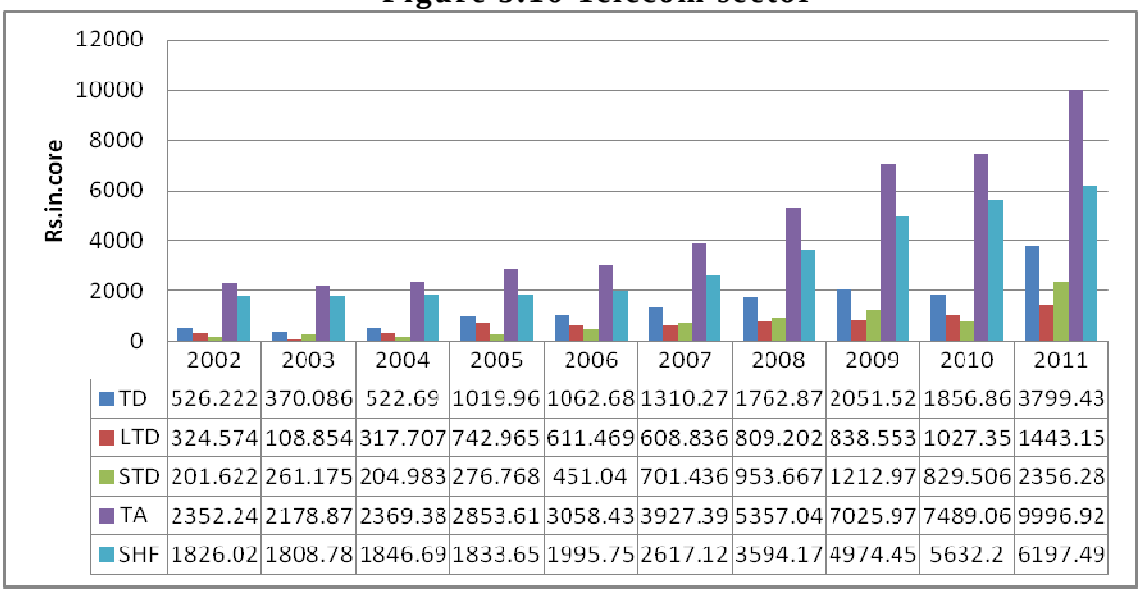
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
TD	2513.59	2822.3	2992.32	3289.2	3537.25	4247.35	4710.58	6088.42	7058.35	8506.8
LTD	949.554	1419.26	1739.1	1625.29	1827.13	2206.8	2766.22	3714.91	4683.47	5534.24
STD	1564.04	1369.52	1201.15	1613.56	1663.05	1993.48	1944.36	2373.52	2374.87	2972.55
TA	6198.77	6962.99	7774.64	8774.73	9681.47	11089.9	12806.3	14773.9	17353.2	20074.7
SHF	3685.19	4140.69	4782.32	5485.53	6144.22	6842.54	8095.7	8685.5	10294.8	11567.9

Note: the figure is a yearly average of the total value. Where TD indicates: total debt, LTD is long-term debt, STD short-term debt, TA is total assets and SHF is shareholders equity.

The figure 5.15 indicates the comparison of total assets with the various capitals used to finance the assets for power sector. During the study period the total assets are grown up by 3.23 times. However the total debt is increased by 3.38 times and shareholders' equity by 3.13 times. Out of the total debt capital long-term debt capital rises by 5.82 times and short- term debt capital rises by 1.90 times.

5. 2.16 Telecom sector:

Figure 5.16 Telecom sector



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
TD	526.222	370.086	522.69	1019.96	1062.68	1310.27	1762.87	2051.52	1856.86	3799.43
LTD	324.574	108.854	317.707	742.965	611.469	608.836	809.202	838.553	1027.35	1443.15
STD	201.622	261.175	204.983	276.768	451.04	701.436	953.667	1212.97	829.506	2356.28
TA	2352.24	2178.87	2369.38	2853.61	3058.43	3927.39	5357.04	7025.97	7489.06	9996.92
SHF	1826.02	1808.78	1846.69	1833.65	1995.75	2617.12	3594.17	4974.45	5632.2	6197.49

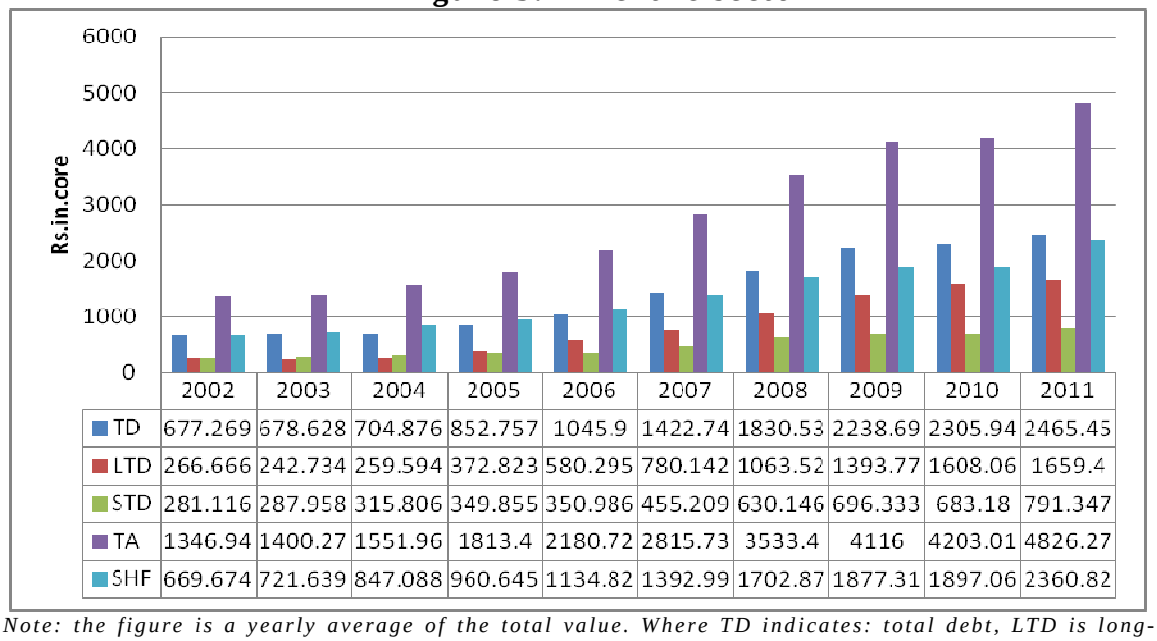
Note: the figure is a yearly average of the total value. Where TD indicates: total debt, LTD is long-term debt, STD short-term debt, TA is total assets and SHF is shareholders equity.

The figure 5.16 shows the comparison of total assets with the various capitals used to finance the assets for telecom sector. During the study period the total assets are grown as much as 4.25 times. Total debt capital is raised by 7.22 times and shareholders' equity is increased by 3.39 times. Out of total debt capital long- term debt grown-up by 4.44 times and the short-term debt grown by 11.68 times.

5. 2.17 Textile sector:

The figure 5.17 indicates the comparison of total assets with the various capitals used to finance the assets for textile sector. During the study period the total assets are grown up by 3.58 times. However the total debt is increased by 3.64 times and shareholders' equity by 3.52 times. Out of the total debt capital long-term debt capital rises by 6.22 times and short- term debt capital rises by 2.81 times.

Figure 5.17 Textile sector



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
TD	677.269	678.628	704.876	852.757	1045.9	1422.74	1830.53	2238.69	2305.94	2465.45
LTD	266.666	242.734	259.594	372.823	580.295	780.142	1063.52	1393.77	1608.06	1659.4
STD	281.116	287.958	315.806	349.855	350.986	455.209	630.146	696.333	683.18	791.347
TA	1346.94	1400.27	1551.96	1813.4	2180.72	2815.73	3533.4	4116	4203.01	4826.27
SHF	669.674	721.639	847.088	960.645	1134.82	1392.99	1702.87	1877.31	1897.06	2360.82

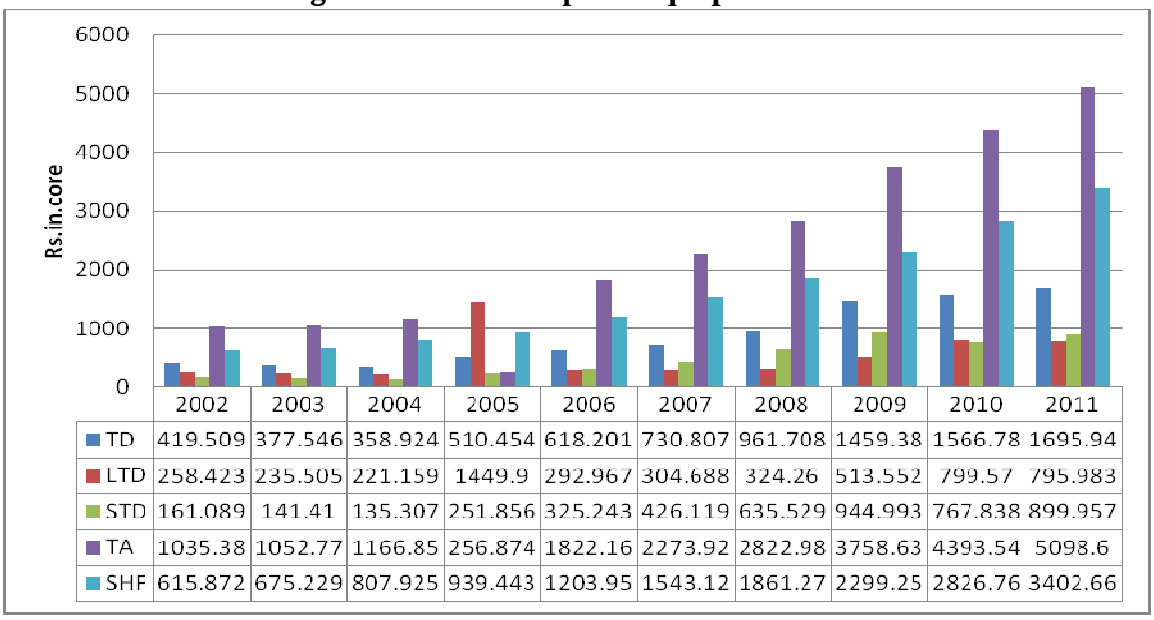
Note: the figure is a yearly average of the total value. Where TD indicates: total debt, LTD is long-term debt, STD short-term debt, TA is total assets and SHF is shareholders equity.

5. 2.18 Transport equipment sector:

The figure 5.18 indicates the comparison of total assets with the various capitals used to finance the assets in the transport equipment sector. During the study period the total assets are grown up by 4.92 times. However the total debt is increased by 4.04 times and shareholders'

equity by 5.52 times. Out of the total debt capital long-term debt capital rises by 3.08 times and short- term debt capital rises by 3.48 times.

Figure 5.18 Transport equipment sector



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
TD	419.509	377.546	358.924	510.454	618.201	730.807	961.708	1459.38	1566.78	1695.94
LTD	258.423	235.505	221.159	1449.9	292.967	304.688	324.26	513.552	799.57	795.983
STD	161.089	141.41	135.307	251.856	325.243	426.119	635.529	944.993	767.838	899.957
TA	1035.38	1052.77	1166.85	256.874	1822.16	2273.92	2822.98	3758.63	4393.54	5098.6
SHF	615.872	675.229	807.925	939.443	1203.95	1543.12	1861.27	2299.25	2826.76	3402.66

Note: the figure is a yearly average of the total value. Where TD indicates: total debt, LTD is long-term debt, STD short-term debt, TA is total assets and SHF is shareholders equity.

5. 3 Variables and Hypothesis

Long-term debt (LTD) is taken as depended variable and for examining the growth and its dependence on long-term debt. We have taken the major internal and external factors affecting growth of a firm in financial point of view as independent variable.

5.3.1 Internal factors

Firm Size (GTA): Titman and Wessles (1988) indicates that most of the capital structure theories argue that the type of assets owned by a firm in some way affects its capital structure choice. Moreover, they said firms with more tangible assets that can be used as collateral may be expected to issue

more debt. Larger firms are more diversified and hence have lower variance of earnings, making them able to tolerate high debt ratios larger firms are more diversified and hence have lower variance of earnings, making them able to tolerate high debt ratios (Castanias, 1983; Wald, 1999). Smaller firms, on the other hand, may find it relatively more costly to resolve information asymmetries with lenders, thus, may present lower debt ratios (Castanias, 1983). Lenders to larger firms are more likely to get repaid than lenders to smaller firms, reducing the agency costs associated with debt. Therefore, larger firms will have higher debts. Empirical evidence on the relationship between size and capital structure supports a positive relationship. Several works show a positive relationship between firm size and leverage (see Barclay and Smith, 1996; Friend and Lang, 1988; Barton et al., 1989; Mackie-Mason, 1990; Kim et al., 1998; Al-Sakran, 2001, Hovakimian et al., 2004). Their results suggest that smaller firms are more likely to use equity finance, while larger firms are more likely to issue debt rather than stock. Their results showed that the success rate for large firms applying for bank loans was higher than that of smaller firms. We measure the firm size as growth in total assets (current year total assets subtracted by last year total assets divided by the last year total assets). The study predicts a positive relationship between GTA and the issue of long-term debt.

H_1: There is no significant relationship between firm size and long term debt

H_0: There is a positive relationship between firm size and long term debt

Non-debt tax shields (GNDTX): Numerous empirical studies have explored the impact of taxation on corporate financing decisions in the major industrial countries. Some are concerned directly with tax policy, for example: MacKie-Mason (1990), Shum (1996) and Graham (1999). MacKie-Mason (1990) studied the tax effect on corporate financing decisions and provided evidence of substantial tax effect on the choice between debt and equity. He concluded that changes in the marginal tax rate for any firm should affect financing decisions. Titman and Wessles (1988) says that firms with large non-debt tax shields relative to their expected cash flow include less debt in their capital structures. We measure the non- debt tax shield as growth in depreciation to total assets (current year depreciation to total assets subtracted by last year depreciation to total assets divided by the last year depreciation to total assets). And we are expecting a negative relationship between GNDTX and the issue of long-term debt.

H_1: There is no significant relationship between non-debt tax shield and long term debt

H_0: There is a negative relationship between non-debt tax shield and long term debt

Profitability (GROE): The relationship between firm profitability and capital structure can be explained by the pecking order theory which holds that firms prefer internal sources of finance to external sources. The order of the preference is from the one that is least sensitive (and less risky) to the one that is most sensitive (and most risky) that arise because of asymmetric

information between corporate insiders and less well informed market participants (Myers, 1984). By this token, profitable firms with access to retained profits can rely on them as opposed to depending on outside sources (debt). Murinde et al. (2004) observe that retentions are the principal source of finance. Titman and Wessels (1988) and Barton et al. (1989) agree that firms with high profit rates, all things being equal, would maintain relatively lower debt ratios since they are able to generate such funds from internal sources. We measure the profitability as growth in return on equity (current year return on equity subtracted from last year return on equity divided by the last year return on equity). And we are expecting a negative relationship between GROE and the issue of long-term debt.

H_1: There is no significant relationship between profitability and long term debt

H_0: There is a negative relationship between profitability and long term debt

Firm's quality (GRE): the credit quality of the firm is having a direct relationship between the debt capitals. We are unable to get the credit rating of the sample companies so instead of credit rating we have measured firm's quality by growth the general reserve (current year reserve subtracted from the last year reserve divided by the last year reserve) of the company. We are predicting a negative relation shipment between firm's quality and issue of long-term debt.

H_1: There is no significant relationship between firm's quality and long term debt

H_0: There is a negative relationship between firm's quality and long term debt

5.3.2 External factors:

Under external factors we are considering the economic growth of the country during the study period. The studies measure the economic growth of the country using the growth in the Gross Domestic Product (GDP) at constant price (current year GDP subtracted by last year GDP divided by the last year GDP). We are predicting a positive relationship between GGDP and the issue of long-term debt.

H_1: There is no significant relationship between economic growth and long term debt

H_0: There is a positive relationship between economic growth and long term debt

5. 4 Model:

For the analysis GMM (1991) and GMM (1998) has been used. More details of the models are mentioned in chapter IV. The proposed model for the analysis is given

$$LTD^{*}_{i,t} = \beta_0 + \delta(LTD_{i.t-1}) + \beta_1(GTA_{it}) + \beta_2(GROE_{it}) + \beta_3(GRE_{it}) + \beta_4(GNDTX_{it}) + \beta_5(GGDP_{it}) + \eta_i + e_{it},.$$

Where $LTD^{*}_{i,t}$ is the current year long-term debt?

5. 5 Result and Interpretations[3]

5.5.1 Sample companies:

The table 5.1 shows the result of dynamic panel data for the sample companies taken as a whole. From the results of the Sargan tests, we can conclude that we can reject the null hypothesis of instrument validity, and consequent restrictions generated, from use of the GMM (1991) and GMM system (1998) dynamic estimators respectively. However, the results of the second order autocorrelation tests concerning respectively the GMM (1991) and GMM system (1998) dynamic estimators, allow us to conclude that we cannot reject the null hypothesis of absence of second order autocorrelation. Therefore, given the validity of the absence of second order autocorrelation, but instruments invalidity we cannot conclude that the GMM (1991) and GMM system (1998) dynamic estimators are efficient and robust. In case of GMM (1991) L1.LTD, L3.LTD, GTA and GGDP is positively significant at 1 percent. L2.LTD and constant are negatively significant at 1 percent. GRE and GNDTX are having a negative insignificant coefficient. However GROE has a positive insignificant coefficient. For the GMM (1998) L1.LTD, GROE, GRE and GGDP are positively significant at 1 percent. But the constant is negatively significant at 1 percent. GTA and GNDTX having a positive insignificant coefficient.

[3] In the sector wise analysis we have omitted Consumer durables sector due to the significance of Sargan test. Significance of Sargan test indicates that the GMM model is not the correct specification for consumer durable sector.

Table 5.1 Result of dynamic panel least squares for sample companies

GMM 1991				GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTD	1.30381	0.02353	0.00000	1.30445	0.02596	0.00000
L2.LTD	-0.24199	0.02515	0.00000	-0.16935	0.02131	0.00000
L3.LTD	0.09627	0.02163	0.00000			
GTA	21.23297	4.30972	0.00000	0.00024	0.00146	0.86700
GROE	2.04362	3.26169	0.53100	1.58006	0.03745	0.00000
GRE	-4.95565	3.80629	0.19300	0.06895	0.01983	0.00100
GNDTX	-1.07019	0.84369	0.20500	0.13389	0.47886	0.78000
GGDP	2067.6220	521.62950	0.00000	2441.49400	608.68220	0.00000
_CONS	-152.80610	42.06297	0.00000	-198.38720	54.25940	0.00000
Wald Chi	41978.49***			6301.49***		
Sargan test	36.97419			33.6868		
AB Test Order 1	-3.5654***			-3.6713***		
AB Test Order 2	0.0534			-0.61171		
Number of observations = 1926				Number of observations = 1926		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

5.5.2 Agriculture sector:

The table 5.2 explains the result of dynamic panel least squares for agriculture sector. The result of GMM (1991) shows that L1.LTD, GTA, GROE and GGDP having a positive significant coefficient of 1 percent, 1 percent, 5 percent and 1 percent respectively. However, GRE has a negative coefficient significant at 1 percent. GNDTX and constant are having a negative insignificant coefficient. The result of GMM (1998) indicates that

LI.LTD, GGDEP and constant are positively significant at 1 percent. The GRE is negatively significant at 1 percent. GTA and GROE are having a positive insignificant coefficient likewise GNDTX has a negative insignificant coefficient.

Table 5.2 Result of dynamic panel least squares for agriculture sector

	GMM 1991			GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTD	0.878082	0.030040	0.000000	0.494692	0.011069	0.000000
GTA	123.84220	33.047370	0.000000	1.305270	42.888650	0.976000
GROE	5.717627	2.640863	0.030000	0.710572	3.867517	0.854000
GRE	-32.44844	14.403660	0.024000	-54.645550	18.278970	0.003000
GNDTX	-63.13029	59.705810	0.290000	-62.416110	92.678620	0.501000
GGDP	628.54080	171.34340	0.000000	-930.61740	201.526600	0.000000
_CONS	-8.002734	29.592170	0.787000	233.095800	35.170510	0.000000
Wald Chi	56251.02***			34336.88***		
Sargan test	12.7936			9.623704		
AB Test Order 1	-1.8209*			-1.7664*		
AB Test Order 2	1.5652			1.4664		
Number of observations = 144				Number of observations = 126		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

5. 5. 3 Capital goods sector:

The table 5.3 indicates the result of dynamic panel least squares for the capital goods sector. The GMM (1991) result shows that L1.LTD, GTA and

GGDP are having a positive significant coefficient of 1 percent. However GROE, GRE, GNDTX and constant are having a negative coefficient significant at 1 percent. The result of GMM (1998) illustrates that LI.LTD, GTA, GGDEP and constant are positively significant at 1 percent. GROE and GRE are negatively significant at 1 percent. GNDTX has a negative insignificant coefficient.

Table 5.3 Result of dynamic panel data for capital goods sector

	GMM 1991			GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTD	1.06651	0.00008	0.00000	0.80815	0.00016	0.00000
GTA	4.01806	0.05374	0.00000	1.72209	0.18617	0.00000
GROE	-8.18920	0.05066	0.00000	-10.09599	0.03738	0.00000
GRE	-0.60925	0.03774	0.00000	-0.13088	0.04722	0.00600
GNDTX	-0.31149	0.01754	0.00000	-0.02338	0.01921	0.22400
GGDP	965.95690	6.66914	0.00000	35.67802	12.43094	0.00400
_CONS	-60.11447	0.65443	0.00000	38.99338	3.70758	0.00000
Wald Chi	3.05E+09***			1.18E+09***		
Sargan test	38.77069			32.26484		
AB Test Order 1	-1.7579*			-1.7334*		
AB Test Order 2	-0.92664			-0.84303		
Number of observations = 312				Number of observations = 273		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

5. 5.4 Chemical and petrochemical sector:

Table 5.4 Result of dynamic panel least squares for chemicals & petro-chemicals sector

	GMM 1991			GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTD	0.83345	0.23892	0.00000	0.20228	0.12999	0.12000
GTA	162.88050	194.57170	0.40300	-194.69430	277.43970	0.48300
GROE	9.04053	12.08870	0.45500	31.61658	27.32811	0.24700
GRE	-7.66135	13.31095	0.56500	-1.75930	2.78430	0.52700
GNDTX	152.82440	163.12940	0.34900	-33.58377	150.78550	0.82400
GGDP	1509.4740	1026.2050	0.14100	1451.21400	616.21740	0.01900
_CONS	-122.38560	137.97560	0.37500	16.08626	45.94237	0.72600
Wald Chi	8.17E+02***			5.92E+02***		
Sargan test	3.293482			3.369738		
AB Test Order 1	-1.4162			-0.69964		
AB Test Order 2	-1.0378			-1.0889		
Number of observations = 88				Number of observations = 77		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

The table 5.4 explains the result of dynamic panel least squares for chemical and petrochemical sector. The GMM (1991) result shows that L1.LTD positively significant coefficient at 1 percent. However, in case of GMM (1998) GGDP is positively significant at 5 percent. The rest of the variables of both the models are insignificant.

5. 5.5 Diversified sector:

Table 5.5 Result of dynamic panel least squares for diversified sector

GMM 1991				GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTD	0.91479	0.24920	0.00000	1.09570	0.27439	0.00000
GTA	754.78100	285.63790	0.00800	887.86290	401.10490	0.02700
GROE	-11.51953	64.64894	0.85900	-32.99600	93.07626	0.72300
GRE	-320.94070	94.20437	0.00100	-224.77290	68.56180	0.00100
GNDTX	170.75790	229.89570	0.45800	125.18530	190.84550	0.51200
GGDP	2252.8300	9153.2160	0.80600	3938.08800	8292.53100	0.63500
_CONS	91.37493	1103.8430	0.93400	-388.81400	871.67410	0.65600
Wald Chi	1.23E+03***			7.25E+03***		
Sargan test	1.609783			1.761829		
AB Test Order 1	-3.7814***			-2.3982**		
AB Test Order 2	1.3772			1.1629		
Number of observations = 64				Number of observations = 56		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

The table 5.5 indicates the result of dynamic panel least squares of diversified sector. L1.LTD and GTA are positively significant and GRE is negatively significant at 1 percent for both GMM (1991) and (1998). However, other variables are not showing significance.

5.5.6 FMCG sector:

The table 5.6 indicates the result of dynamic panel least squares for the FMCG sector. L1.LTD and constant are having a positive significant coefficient at 1 percent for both GMM (1991) and GMM (1998). And GTA, GROE, GRE and GNDTX are having a significant negative coefficient for both the model. However GGDP has a negative insignificant coefficient at 1 percent for GMM (1991) and having a negative significant coefficient in case of GMM (1998) at 1 percent.

Table 5.6 Result of dynamic panel data for FMCG sector

GMM 1991				GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTD	0.97108	0.00329	0.00000	0.69341	0.00293	0.00000
GTA	-0.08753	0.01297	0.00000	-0.05898	0.01684	0.00000
GROE	-17.25652	3.33677	0.00000	-12.91407	1.84543	0.00000
GRE	-4.93609	0.70762	0.00000	-3.42438	0.91374	0.00000
GNDTX	-120.21580	4.30087	0.00000	-92.96684	3.36436	0.00000
GGDP	-85.22951	135.10960	0.52800	-1798.97900	24.97840	0.00000
_CONS	37.25824	12.72977	0.00300	234.68620	4.75629	0.00000
Wald Chi	2.70E+07***			5.16E+06***		
Sargan test	14.56088			20.76522		
AB Test Order 1	-1.4292			-1.435		
AB Test Order 2	-0.00346			0.03741		
Number of observations = 176				Number of observations = 154		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

5.5.7 Healthcare sector:

Table 5.7 Result of dynamic panel data for healthcare sector

GMM 1991				GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTD	0.87532	0.00189	0.00000	0.80779	0.00249	0.00000
GTA	79.73412	11.32903	0.00000	68.58002	4.12771	0.00000
GROE	32.89873	1.45210	0.00000	19.76769	0.95971	0.00000
GRE	-120.11690	4.14794	0.00000	-97.99736	4.40407	0.00000
GNDTX	-91.49858	8.14117	0.00000	-89.82479	2.52745	0.00000
GGDP	1041.77600	73.09055	0.00000	1222.90100	60.23182	0.00000
_CONS	5.62609	7.07658	0.42700	-20.02831	8.15390	0.01400
Wald Chi	1.21E+07***			1.19E+07***		
Sargan test	28.90168			20.59359		
AB Test Order 1	-2.3107**			-2.299**		
AB Test Order 2	1.6152			1.5946		
Number of observations = 232				Number of observations = 203		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

The table 5.7 explains the result of dynamic panel least squares for the healthcare sector. The GMM (1991) result shows that L1.LTD, GTA, GROE and GGDP are having a positive significant coefficient at 1 percent for both GMM (1991) and (1998). However, GRE and GNDTX are having a negative coefficient significant at 1 percent for both the model. Moreover, constant has a positive insignificant coefficient for GMM (1991) and a negative significant coefficient for GMM (1998).

5.5.8 Housing related sector:

Table 5.8 Result of dynamic panel data for housing related sector

	GMM 1991			GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTD	1.2829	0.0004	0.0000	1.1988	0.0017	0.0000
GTA	0.9241	0.0090	0.0000	0.5930	0.0083	0.0000
GROE	-2.7930	0.0875	0.0000	-1.4978	0.0385	0.0000
GRE	0.0741	0.0004	0.0000	0.0665	0.0003	0.0000
GNDTX	3.7890	0.1463	0.0000	2.7438	0.3462	0.0000
GGDP	7027.8050	156.3472	0.0000	1515.9820	132.5507	0.0000
_CONS	-587.9220	11.4418	0.0000	-85.6509	15.1945	0.0000
Wald Chi	8.32E+08***			7.36E+07***		
Sargan test	28.46145			26.80341		
AB Test Order 1	-2.0172**			-1.9864**		
AB Test Order 2	-1.1979			-1.1389		
Number of observations = 288				Number of observations = 252		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

The table 5.8 indicates the result of dynamic panel least squares for the housing related sector. L1.LTD, GTA, GRE, GNDTX and GGDP are having a positive significant coefficient of 1 percent. However GROE and constant are having a negative coefficient significant at 1 percent for both GMM (1991) and (1998).

5.5.9 Information technology sector:

Table 5.9 Result of dynamic panel data for information technology sector

GMM 1991				GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTD	0.697505	0.001352	0.000000	0.640129	0.000828	0.000000
GTA	53.468890	0.995227	0.000000	62.384580	0.603991	0.000000
GROE	0.314967	0.066452	0.000000	0.745131	0.046148	0.000000
GRE	0.282613	0.109781	0.010000	1.229636	0.077687	0.000000
GNDTX	-3.317095	0.980432	0.001000	-4.605008	0.444144	0.000000
GGDP	4.579386	20.53701	0.824000	-338.013300	8.220112	0.000000
_CONS	10.282030	2.159732	0.000000	34.346080	1.844303	0.000000
Wald Chi	1.10E+07***			1.70E+08***		
Sargan test	23.22158			20.73522		
AB Test Order 1	-1.8303*			-1.8197*		
AB Test Order 2	1.178			1.1933		
Number of observations = 192				Number of observations = 168		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

The table 5.9 shows the result of dynamic panel least squares for the information technology sector. L1.LTD, GTA, GRE and constant are having a positive significant coefficient of 1 percent. However GNDTX has a negative coefficient significant at 1 percent for both GMM (1991) and (1998). Moreover GGDP has a positive insignificant coefficient for GMM (1991) and negative significant coefficient for GMM (1998).

5.5.10 Media & publishing sector:

The table 5.10 shows the result of dynamic panel least squares for the media and publication sector. Except GGDP for GMM (1998) has a positive significant coefficient at 10 percent, none of the other variables have significant effect for both models.

Table 5.10 Result of dynamic panel data for media& publications sector

	GMM 1991			GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTD	1.4972	0.9953	0.1330	2.9446	2.7799	0.2890
GTA	-3127.7340	4806.5100	0.5150	100.9102	70.6270	0.1530
GROE	-23.6506	82.2192	0.7740	11.1537	22.2340	0.6160
GRE	1765.0000	2103.6670	0.4010	199.8564	221.0225	0.3660
GNDTX	-125.4852	193.6185	0.5170	145.8190	136.1284	0.2840
GGDP	9698.5360	11340.240	0.3920	4256.7370	2510.6230	0.0900
_CONS	12.1571	528.2145	0.9820	-669.5051	523.0259	0.2010
Wald Chi	3.49E+03***			2.58E+02***		
Sargan test	5.70E-18			8.88E-22		
AB Test Order 1	-0.22015			-1.1971		
AB Test Order 2	0.13821			-0.76312		
Number of observations = 56				Number of observations = 49		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

5.5.11 Metal, metal products & mining sector:

Table 5.11 Result of dynamic panel least squares for metal, metal products & mining sector

	GMM 1991			GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTD	1.27677	0.00708	0.00000	1.15916	0.00473	0.00000
GTA	142.70520	42.78347	0.00100	114.72030	11.58863	0.00000
GROE	6.96523	7.11606	0.32800	3.11562	5.44412	0.56700
GRE	99.36267	7.60235	0.00000	64.98439	2.34220	0.00000
GNDTX	13.45497	9.90668	0.17400	-4.27419	4.18228	0.30700
GGDP	6905.5140	530.1256	0.00000	6651.63300	268.37970	0.00000
_CONS	-742.10270	64.52154	0.00000	-591.06910	26.78939	0.00000
Wald Chi	9.86E+06***			3.20E+07***		
Sargan test	2.18E+01			1.99E+01		
AB Test Order 1	-2.0785**			-1.9352*		
AB Test Order 2	-0.04309			0.33846		
Number of observations = 208				Number of observations = 182		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

The table 5.11 shows the result of dynamic panel least squares for the metal, metal products and mining sector. L1.LTD, GTA, GRE and GGDP are having a positive significant coefficient of 1 percent. However, constant has a negative coefficient significant at 1 percent for both GMM (1991) and (1998). The rest of the variables are not showing significance.

5. 5.12 Miscellaneous sector:

Table 5.12 Result of dynamic panel data for miscellaneous sector

	GMM 1991			GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTD	0.73116	0.10489	0.0000	0.28235	0.02117	0.00000
GTA	124.12130	137.77150	0.3680	245.64820	205.92520	0.23300
GROE	-9.32465	35.72787	0.7940	125.79990	161.38080	0.43600
GRE	-78.71354	39.97805	0.0490	-216.05020	166.96140	0.19600
GNDTX	22.74308	18.03418	0.2070	-81.19038	100.04260	0.41700
GGDP	276.14960	801.89360	0.7310	1062.29500	1597.18500	0.50600
_CONS	31.08898	23.64584	0.1890	70.74780	92.25527	0.44300
Wald Chi	1.39E+04***			9.07E+03***		
Sargan test	4.97E+00			5.46E+00		
AB Test Order 1	-1.2528			-0.91425		
AB Test Order 2	0.51317			-0.36672		
Number of observations = 96				Number of observations = 84		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

The table 5.12 shows the result of dynamic panel least squares for the miscellaneous sector. L1.LTD has a positive significant coefficient for both GMM models. However, GRE has a negative significant coefficient at 5 percent level for GMM (1991) and has a negative insignificant coefficient for GMM (1998). The remaining variables are not showing significance.

5. 5.13 Oil & gas sector:

Table 5.13 Result of dynamic panel least squares for oil & gas sector

GMM 1991				GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTD	0.89666	0.00202	0.00000	0.59670	0.00204	0.00000
GTA	895.75500	130.26670	0.00000	595.49500	31.36334	0.00000
GROE	102.19320	1.00651	0.00000	143.85880	0.60231	0.00000
GRE	-58.89724	11.62822	0.00000	-103.50560	10.99268	0.00000
GNDTX	-10.89008	0.15929	0.00000	-4.80552	0.08088	0.00000
GGDP	636.63550	501.42910	0.20400	-4701.7730	154.50530	0.00000
_CONS	10.22551	76.60378	0.89400	762.75150	56.08099	0.00000
Wald Chi	1.04E+07***			5.25E+07***		
Sargan test	1.83E+01			1.49E+01		
AB Test Order 1	-1.7227*			-1.6591*		
AB Test Order 2	-0.64742			-0.79702		
Number of observations = 160				Number of observations = 140		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

The table 5.13 shows the result of dynamic panel least squares for the Oil and gas sector. L1.LTD, GTA and GROE are having a positive significant coefficient of 1 percent. GRE and GNDTX have a negative coefficient significant at 1 percent for both GMM (1991) and (1998). However GGDP has a positive insignificant coefficient for GMM (1991) and a negative significant coefficient at 1 percent level for GMM (1998). Similarly, constant

is not significant at GMM (1991) but showing positive significant at 1 percent for GMM (1998).

5. 5.14 Power sector:

Table 5.14 Result of dynamic panel least squares for power sector

GMM 1991				GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTD	1.1979	0.0030	0.0000	1.119	0.002	0.000
GTA	11.9531	7.7065	0.1210	25.734	49.892	0.606
GNDTX	21.7031	40.4940	0.5920	108.008	20.839	0.000
GGDP	-8680.1690	207.4292	0.0000	-5608.509	250.676	0.000
_CONS	637.8854	59.3839	0.0000	585.169	61.072	0.000
Wald Chi	1.03E+07***			1.84E+06***		
Sargan test	9.72E+00			1.17E+01		
AB Test Order 1	-1.6255			-1.5246		
AB Test Order 2	-0.18966			-0.20548		
Number of observations = 136				Number of observations = 119		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

The table 5.14 explains the result of dynamic panel least squares for the power sector. L1.LTD and constant are having a positive significant coefficient of 1 percent. GGDP have a negative coefficient significant at 1 percent for both GMM (1991) and (1998). However GNDTX has a positive insignificant coefficient for GMM (1991) and a positive significant coefficient at 1 percent level for GMM (1998)

5 5.15 Telecom sector:

Table 5.15 Result of dynamic panel least squares for telecom sector

	GMM 1991			GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTD	1.036	0.031	0.000	0.835	0.021	0.000
L2.LTD	-0.120	0.117	0.305	-0.044	0.011	0.000
GTA	30.902	19.893	0.120	20.371	19.432	0.294
GNDTX	31.117	0.574	0.000	29.317	0.647	0.000
GGDP	-14098.650	3934.073	0.000	-13159.290	1938.121	0.000
_CONS	1075.289	775.711	0.166	1297.011	163.394	0.000
Wald Chi	3.63E+03			3.24E+03		
Sargan test	4.81E+00			6.80E+00		
AB Test Order 1	-1.9884**			-2.022**		
AB Test Order 2	-1.4167			-1.2974		
Number of observations = 77				Number of observations = 66		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has χ2 distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has χ2 distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

The table 5.15 indicates the result of dynamic panel least squares for the telecom sector. To avoid the significance of Sargan test for telecom sector, we have used two lags. Similarly, it shows the presence of autocorrelation, we have omitted two variables as GROE and GRE. L1.LTD and GNDTX are having a positive significant coefficient of 1 percent. And GGDP have a negative coefficient significant at 1 percent for both GMM (1991) and (1998). However L2.LTD has a negative insignificant coefficient for GMM (1991) and a negative significant coefficient at 1 percent level for

GMM (1998). Similarly, constant is not significant for GMM (1991) but it is positively significant 1 percent for GMM (1998). Other variables are not showing significance.

5.5.16 Textile sector:

Table 5.16 Result of dynamic panel least squares for textile sector

	GMM 1991			GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTD	1.1737	0.0644	0.0000	1.0120	0.0393	0.0000
GTA	1062.7000	525.3810	0.0430	284.9373	608.0392	0.6390
GROE	-48.8862	38.4375	0.2030	-25.5274	16.7661	0.1280
GRE	-255.9894	101.6558	0.0120	-101.9201	95.7993	0.2870
GNDTX	188.1311	279.1447	0.5000	-19.0815	266.3058	0.9430
GGDP	1068.0180	2278.0870	0.6390	1213.8850	1557.2350	0.4360
_CONS	-355.5528	208.8153	0.0890	-26.60814	576.3842	0.963
Wald Chi	1.24E+04***			11719.5900***		
Sargan test	3.27E+00			4.354045		
AB Test Order 1	-1.7105*			-1.615*		
AB Test Order 2	1.5384			1.6054		
Number of observations = 80				Number of observations = 77		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has χ2 distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has χ2 distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

The table 5.16 explains the result of dynamic panel least squares for textile sector. The result of GMM (1991) shows L1.LTD and GTA have a positive significant coefficient of 1 percent and 5 percent respectively. However, GRE and constant are having a negative coefficient significant at 5

percent and 10 percent respectively. The result of GMM (1998) indicates that LI.LTD is positively significant at 1 percent. The remaining variables are not showing significance.

5. 5.17 Transport Equipment:

Table 5.17 Result of dynamic panel least squares for transport equipment sector

	GMM 1991			GMM1998		
Variables	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
L1.LTD	1.0749	0.0009	0.0000	0.8151	0.0128	0.0000
GTA	414.1197	32.7596	0.0000	373.3251	23.1129	0.0000
GROE	6.9530	1.9429	0.0000	7.1986	0.8165	0.0000
GRE	-235.1975	32.6433	0.0000	-253.8758	22.0983	0.0000
GNDTX	-12.3998	6.4550	0.0550	-6.8523	7.6173	0.3680
GGDP	2177.6090	168.8918	0.0000	-460.7188	129.4133	0.0000
_CONS	-179.5196	15.2309	0.0000	113.9532	16.6929	0.0000
Wald Chi	5.71E+06***			7.59E+06***		
Sargan test	1.95E+01			1.63E+01		
AB Test Order 1	-1.3186			-1.3338		
AB Test Order 2	-0.87381			-1.0032		
Number of observations = 184				Number of observations = 161		

Notes: 1. In the GMM(1991) estimator the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in which $Z_{k,i,t-2}$ are the debt maturity determinants lagged two periods. 2. In the GMM system (1998) estimators the instruments used are $(LTD_{i,t-2}, \sum_{K=1}^{n} Z_{k,i,t-2})$, in the first difference equations, and $(\Delta LTD_{i,t-2}, \sum_{K=1}^{n} \Delta Z_{k,i,t-2})$, in the level equations. 3. The Wald test has $\chi 2$ distribution and tests the null hypothesis of overall non-significance of the parameters of the explanatory variables, against the alternative hypothesis of overall significance of the parameters of the explanatory variables. 4. The Sargan test has $\chi 2$ distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 5. The AB Test Order 1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 6. The AB Test Order 2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 7. Standard deviations in brackets. 8. *** significant at 1% significance; ** significant at 5% significance; * significant at 10% significance.

The table 5.17 shows the result of dynamic panel least squares for the transport equipment sector. L1.LTD, GTA, GROE and GDP are having a positive significant coefficient of 1 percent. At the same time GRE and

constant has a negative coefficient significant at 1 percent for both GMM (1991) and (1998). However GNDTX has negative significant coefficient for GMM (1991) and negative insignificant coefficient for GMM (1998).

5.6 Findings

The Study has investigated the growth and its dependence on long-term debt capital using the internal and external factors affects growth. From the result of the analysis we are concluding that firm size (GTA) is positively determining the long-term debt for capital goods, consumer durables, diversified, healthcare, housing related, information technology, metal, metal products & mining, oil & gas and transport equipment sectors. However the FMCG sector, it is negatively determined the long-term debt. The overall sample is not showing significance. It is evident from the past studies that the firms which are having huge amount of fixed assets will go for more long-term debt. Generally FMCG sector will have sufficient internal cash flow, therefore, depend more or internal fund for capital investment purpose. That may be the reason for negative significance.

At the same time the variable profitability (GROE) is positively determining the long-term debt in sectors such as healthcare, information technology, oil & gas and transport equipment. These are the very sensitive sectors in Indian scenario. Still, there is expecting a huge growth. Therefore, growth in return on equity will directly influence these sectors to go for more long–term debt. Because the internal cash flow may not be sufficient to cover the growth. However the capital goods, FMCG and housing related sectors it

negatively determines the long-term debt. Because these sectors depend more on internal cash flow. The overall sample is not showing significance.

The result of a firm's quality (GRE) specifies that the sectors like housing related, information technology and metal, metal products & mining firm's quality is positively determining the long-term debt. The firms in these sectors have enormous internal reserve so they can easily avail long term debt. However, agriculture, capital goods, diversified, FMCG, healthcare, oil & gas and transport equipment sectors it negatively determines the long-term debt. Because of massive growth potential in these sectors in the country makes these firms to avail long-term debt without much credibility. The overall sample is not showing significance.

The result of non- debt tax shield (GDEPTA) indicates that the sector, such as housing related, power and telecom, non-debt tax shield is positively determining the long-term debt. These are the sectors usually charge a high percentage of depreciation. Therefore, this depreciation contributes the credibility of the firms and makes them to attract more long- term debt. Moreover, these sectors usually have more tangible fixed assets help them to attract more long-term debt. However, FMCG, healthcare, information technology oil & gas and transport equipment sectors it negatively determines the long-term debt. As a result, these sectors are using the internal cash flow for their capital requirements. The overall sample is not showing significance.

Table 5.18 Findings of determinants of growth and long-term debt capital

Sectors	GMM(1991)		GMM(1998)	
	Positively affecting	**Negatively affecting**	**Positively affecting**	**Negatively affecting**
Agriculture	Previous year long term debt, firm size, profitability and economic growth	Firms quality	Previous year long term debt	Firms quality , economic growth
Capital Goods	Previous year long term debt, firm size and economic growth	Firms quality ,profitability, non-debt tax shield	Previous year long term debt, firm size and economic growth	Firms quality, Profitability
Chemical & Petrochemical	Previous year long term debt	NA	Economic growth	NA
Consumer Durables	Previous year long term debt, firm size	NA	Previous year long term debt, firm size and economic growth	Profitability
Diversified	Previous year long term debt, firm size	Firms quality	Previous year long term debt, firm size	Firms quality
FMCG	Previous year long term debt	Firm size, firms quality ,profitability, non-debt tax shield	Previous year long term debt	Firm size, firms quality ,profitability, non-debt tax shield, economic growth
Healthcare	Previous year long term debt, Firm size, profitability, economic growth	Firms quality, non-debt tax shield	Previous year long term debt, Firm size, profitability, economic growth	Firms quality, non-debt tax shield
Housing Related	Previous year long term debt, firm size, firms quality, non-debt tax shield, economic growth	Profitability	Previous year long term debt, firm size, firms quality, non-debt tax shield, economic growth	Profitability
Information Technology	Previous year long term debt, firm size, firms quality, profitability	Non-debt tax shield	Previous year long term debt, firm size, profitability, firms quality, economic growth	Non-debt tax shield,
Metal, Metal Products & Mining	Previous year long term debt, firm size, firms quality, profitability, economic growth	NA	Previous year long term debt, firm size, firms quality, economic growth	NA
Miscellaneous	Previous year long term debt	Firms quality,	Previous year long term debt	
Oil & Gas	Previous year long term debt, firm size, profitability	Firms quality, non-debt tax shield,	Previous year long term debt, firm size, profitability	Firms quality, non-debt tax shield, economic growth
Power	Previous year long term debt, non-debt tax shield	Economic growth	Previous year long term debt, non-debt tax shield	Economic growth
Telecom	Previous year long term debt, non-debt tax shield	Economic growth	Previous year long term debt, non-debt tax shield	Previous two year long term debt, Economic growth
Textile	Previous year long term debt,	Firms quality	Previous year long term debt,	NA

	firm size			
Transport Equipments	Previous year long term debt, firm size, profitability, economic growth	Firms quality, non-debt tax shield,	Previous year long term debt, firm size, profitability	Firms quality, economic growth

The outcome of the external factors, economic growth (GGDP) specify that agriculture, capital goods, healthcare, housing related, metal, metal products & mining and transport equipment are positively determining the long-term debt. However power and textile sectors it negatively determines the long-term debt. The overall sample is showing positive significance. Economic growth contributes to all the sectors and makes the firms in the particular sectors able get external finance. Moreover, countries' economic growth induces the growth of the financial sector too.

However, the previous year long-term debt state that the sectors such as agriculture, capital goods, consumer durables, diversified, FMCG, healthcare, housing related, information technology, metal, metal products & mining, miscellaneous, oil & gas, power, telecom, textile and transport equipment previous year long-term debt is positively determining the current year long-term debt. The overall sample showing previous year long-term debt is positively determined the current year long-term debt. Hence we conclude that the firms take long-term debt based on the debt capital at present they have.

5.7 Chapter Summary

This chapter evaluates the growth and its dependents on long-term debt. For that the study identified the internal (firm size, profitability, firms quality, non-debt tax shield) and external factors (growth in Gross domestic products) that affect the growth. GMM 1991 and GMM 1998 techniques have been used for the analysis. The level of previous year long-term debt is directly influencing the current year long-term debt. However, previous two year long-term debt is inversely affected the current year long-term debt. The result of overall sample is not similar among the models GMM 1991 and GMM 1998. But among the sectors there are some common factors (see table 5.18).

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CHAPTER VI

CONCLUSION

6.1 Conclusion

In this study, we examined the issues associated with debt capital among the selected listed companies in India. The major focus of the study is to examine how does Indian companies are applying various theories to manage their debt capital. The study has dealt four major issues, namely debt structure, choice of debt capital, determinants of debt maturity and the relation between growth and long term debt. The financial data for the study have been collected from a Capital line database for a period of ten years from March 2002-2011March. We have examined the objectives, applying the various statistical tools like quantile regression, panel data fixed and random effects and GMM 1991 and 1998. Moreover, simple percentage and average also have been used for analysis.

For the first step of our analysis was on the trend line of debt capital structure. The result of a trend analysis shows that the total debt capital of Indian companies has grown up significantly during the study period. However the growth in debt capital in comparison to equity capital is less. It confirms that Indian companies are following pecking order theory. i.e., when there is a need for capital, first they will prefer internal capital, and then if necessary will choose debt capital. In other words, we can say that Indian companies are trying to keep debt as minimum as possible. However, there is

a slight change over the period that Indian companies also moving towards debt capital.

After examining the trend we moved to find the major factors affecting debt capital using quantile regression analysis. From the overall analysis we can say that the firms which are having low level (quantile 0.25) of debt capital are directly related to size, creditworthiness and economic growth. It is inversely related to non-debt tax shield and debt capacity. Thus we can conclude that for this quantile Indian firms are following pecking order theory. According to the pecking order theory profitable firms generally borrow less; not because they have low target debt ratios but they don't need outside money. Less profitable firms issue debt because they do not have internal fund sufficient for their capital investment. The relationship between tangible fixed assets and debt financing is related to the maturity structure of the debt. In such a situation, the level of tangible fixed assets may help firms to obtain more long-term debt, but the agency problems may become more severe with the more tangible fixed assets, because the information revealed about future profit is less in these firms. If this is the case, then it is likely to find a negative relationship between tangible fixed assets and debt ratio.

The firm, which are having average level (quantile 0.50) of debt capital as well as high level (quantile 0.75) of debt capital is directly related to size, creditworthiness, FDI, economic growth and inversely related to non-debt tax shield and debt capacity. The cost of issuing debt and equity is negatively related to firm size. In addition, larger firms are often diversified and have more stable cash flows, and so the probability of bankruptcy for

larger firms is less, relative to smaller firms. This suggests that size could be positively related with leverage. The positive relationship between size and leverage is also viewed as support of asymmetric information. Larger size firms enjoy economies of scale and creditworthiness in issuing long term debt and have bargaining power over creditors. The tax trade-off model predicts that profitable firms will employ more debt since they are more likely to have a high tax burden and low bankruptcy risk. Also, profitable firms are more capable of tolerating more debt since they may be in a position to service their debt easily and on time. Profitable firms are more attractive to financial institutions as lending prospects; therefore they can always take on more debt capital. So we can conclude firms having good amount of sales and has sufficient internal cash flow and retained earnings will go for high amount of debt capital.

The firm, which has a very high level (quantile 0.95) of debt capital, is directly related to size, creditworthiness, FDI and economic growth. Thus, the firm having high amount of sales and sufficient retained earnings will go for very high debt.

So in general the level of debt capital is directly related to leverage, size, credit worthiness and inversely related to asset structure and non-debt tax shield. Moreover, it is direly related to the macroeconomic variable like FDI and economic growth.

After understanding which are the major factors affecting the debt capital we moved to examine the choice of different debt capital by the

Indian firms. The result indicates that the Indian companies are managing their debt capital keeping more of unsecured debt in the total debt capital than secured debt. It confirms that Indian companies managing their capital requirements using more short-term debt than long-term debt. The sectors such as agriculture, capital goods, chemical& petrochemicals, information technology, media & publishing, oil & gas and transport equipment are using short-term debt more than long-term debt. Moreover, total sample companies also show the same (see chapter IV table 1-20). However, Indian companies are managing their debt structure, keeping a trade off between secured and unsecured debt as well as short-term and long-term debt.

It is also observed that the Indian corporate sector is managing their debt requirements depending on commercial banks. Commercial banks are the major contributor of debt capital in various ways as long- term secured loan as well as short-term unsecured loans. Debenture and bonds are the second major contributor. It is found that leverage, size, creditworthiness, profitability, foreign direct investment and economic growth, directly determines the level of debt capital. However, asset structure, debt capacity and non-debt tax shield negatively determines the level of debt capital in Indian companies.

It confirms that the Indian debt market is still untapped. The nature of Indian banks may be a reason for companies to choose banks as their major choice. Banks in India are governed and controlled by central government. So in case companies incurred loss or they are not repaying the loan amount there a chance to write-off the loan amount.

The 2008 Global Financial Crisis (GFC) highlighted the need to reduce the dominance of the banking system in financing, corporate sector by developing a good corporate bond market. India's infrastructure funding requirements (estimated at around 10 per cent of GDP annually) need a robust corporate bond market for diversifying risk, enhancing financial stability, and for better matching of risk-return preferences of the borrowers. Historically, India's financial system has been bank-dominated, supplemented by the Development Finance Institutions (DFIs). However, the financial system has undergone several changes during the recent years and DFIs have been converted into banks. Commercial banks, by nature, are not able to fill the gap in long-term finance, given the asset-liability management issues.

A well-developed corporate bond market is critical for the Indian economy as it (i) enables efficient allocation of funds, (ii) facilitates infrastructure financing, (iii) improves the health of the corporate balance sheets, (iv) promotes financial inclusion for the Small and Medium Enterprises (SMEs) and the retail investors, (v) safeguards financial stability and (vi) enables development of the municipal bond market. Accordingly, development of the corporate bond market has been high on the agenda for the regulators.

A well-developed corporate bond market provides additional avenues to corporate for raising funds in a cost effective manner and reduces reliance of corporate on bank finance. A deep and liquid debt market augments financial savings and helps match the savers to the borrowers in an efficient manner.

By enlarging the financial sector, capital markets promote innovation in financial instruments. In addition, it instils discipline in behaviour of firms leading to increased efficiency of the system. The existence of a well-functioning bond market can lead to the efficient pricing of credit risk as expectations of all bond market participants are incorporated into bond prices. In order to achieve the objective, it is desirable to have diversified issuer and investor base. Issuer profile in India, however, is concentrated among a few categories of market participants dominated by financial sector firms, including banks, Non-Banking, Financial Companies (NBFCs), financial institutions, housing finance companies (HFCs) and Primary Dealers (PDs) (81 per cent) while other non-finance corporate account for only 19 per cent of total issuances made in 2011-12. Similarly, on the demand side, the majority of investment are made by banks and institutions, including Foreign Institutional Investors (FIIs) with very little or negligible part played by retail investors. Thus, there is an urgent need to further develop the Indian corporate debt market.

The Committee on Infrastructure Financing (Chairman: Shri Deepak Parekh) has estimated that 51.46 trillion would be required for infrastructure development during the 12th Five Year Plan (2012-17) and that 47 per cent of the funds could come through the public private partnership route. If we add the potential financing needs for upgrading our railways, urban and rural infrastructure, the financing needs could be much larger. As much as the government security market development has provided a boost to the development of the corporate bond market, the municipal bond market could

derive similar benefits from a well-developed corporate bond market. This would provide a boost in financing the urban infrastructure in an assured and sustainable manner. In this context, it is important to note that government of India's capital expenditure remained stagnant during the last two years at around 13 per cent. Hence, the role of private sector assumes greater importance in the context of infrastructure development.

Corporate debt can provide our Small and medium enterprises (SMEs) with an avenue for sourcing funds. Since this would require rating and would result in greater external scrutiny, it would help SMEs become more transparent and follow proper accounting, governance and disclosure practices. It would also increase their understanding of this important market for sourcing funds in addition to banks and other alternative funding options. It is expected that Chambers of Commerce and SME associations would take this up on a priority basis so that our SMEs too could access the corporate debt market in the coming years as has been the experience in the US, Europe and some Asian countries. This would also go a long way in fulfilling our financial inclusion objectives for the SMEs, most of whom, as we know, do not have access to the formal financial sector. Corporate debt can also provide an excellent long term investment avenue for retail investors, who lack knowledge and understanding of this important asset class. One hopes that, market bodies, such as, the Fixed Income Money Market and Derivatives Association of India (FIMMDA), the Primary Dealer Association of India (PDAI), etc. together with the stock exchanges take up the task of spreading awareness with all sincerity that it deserves. This is very relevant as Indian

households have one of the highest savings rate in the world, but the household wealth in India is generally parked in bank deposits, gold and real estate with almost negligible investment in corporate bonds. If retail investors prefer to invest in shares of certain companies, there should be no reason why they should be hesitant to also consider investing in its debt.

Various financial crises have highlighted that even well regulated, supervised, capitalized and managed banking systems may have limitations in mitigating financial vulnerabilities. The crises have underscored that the banking systems cannot be the predominant source of long-term investment capital without making an economy vulnerable to external shocks. Alan Greenspan had argued that bond markets could act like a “spare tyre”, substituting for bank lending as a source of corporate funding at times when banks’ balance sheets are weak and banks are rationing credit. The capital inflows to the country through ECBs, while helping the country fund the current account deficits and corporate to raise resources at a lower cost, could become a source of the transmission of severe external shocks to the domestic economy. Therefore, it is important to develop the domestic corporate bond market to enable corporates to meet a substantial part of their funds requirement domestically. Further, credit flow to infrastructure sector by banks has grown manifold in the last few years. There is, however, a risk of exposure attached to banks with such long term financing considering ALM mismatch. Moreover, the banks’ ability to withstand stress is critical, especially in the context of the recent increase in banks’ non-performing assets on account of their exposure to the infrastructure sector. Bond markets also aids financial stability by spreading credit risks across the economy and

thereby shielding the banking sectors in times of stress. Further, a well-developed bond market can also help banks raise funds to strengthen their balance-sheets. Viewed in the above context, a vibrant debt market is critical to meet the funding requirement for the infrastructure sector. Hence, going forward, there is a need to increase the reliance on the corporate bond financing so as to reduce macro-economic vulnerability to shocks and mitigate systemic risks.

After analysing the debt choice we moved to examine the determinants of the debt maturity structure of Indian companies. Using GMM 1991 and GMM 1998 we have examined the debt maturity. The debt maturity literature has established that the corporate debt maturity decisions are determined by agency cost hypothesis, signalling hypothesis, liquidity risk hypothesis matching hypothesis and tax hypothesis. The major factors affecting the debt maturity of Indian companies are; previous year debt maturity, firm's size, leverage ratio and growth opportunity. On the other hand effective tax rate, liquidity and interest rate are the factors inversely affecting the debt maturity of Indian companies. The results say that previous year debt maturity is positively determining the level of debt maturity. It indicates that if a firm has more long term debt to total debt in the previous year will keep same level in the current year too or vice versa. But in case of textile sector if previous year long term debt to total debt ratio is less current year it will be more or vice versa. The positive significance of firm's size confirms that Large companies have more tangible assets makes them to attract more debt. Therefore, generally large companies keep more debt in their capital. But

here sectors like chemical & petrochemicals and the consumer durables sector is negatively affecting the size indicates that the sectors more depending on the internal capital in other words, this sector has sufficient internal cash flow to meet their capital requirements It confirms that large companies will go for more long-term debt in the total debt, i.e., it holds the liquidity theory. Moreover, firms having a high growth opportunity will also go for long-term debt, confirms the agency cost theory of overinvestment. Growth opportunity is positively determined debt maturity imply that the overinvestment issues are important in Indian companies. Growth is always leads to capital requirements. The firms which are having huge internal fund use the internal capital and if it is not sufficient they have to go for debt. The positive significances of leverage ratio are a common factor, that leverage is positively determining the debt maturity. It indicates clearly that firms which are having a huge amount of assets will go for more long term debt. The positive significance of leverage and information technology sector is contrary.

Liquidity, effective tax rate and interest rate are negatively determining the debt maturity of Indian companies. The negative relationship between liquidity and debt maturity in the Indian context has to check further. It is not supporting the liquidity theories. The results of liquidity imply that a firm with less current liabilities employees more long-term debt in its capital structure. It may be that lenders are concerned about the long-term borrowers when lending for the long term and thus put high liquidity requirements in such case. However, the housing related and

telecom sector, it negatively determines the debt maturity. The overall sample shows liquidity is negatively determining the level of debt maturity. This results says that these sectors and overall in India companies need not require high liquidity to access long-term debt. It may be due the high growth opportunity prevailing in the market. The statistically significant and negative coefficient on effective tax rate strongly supports the tax hypothesis that debt maturity inversely relates to the tax rate. The upward trend in the corporate tax rate and high volatility in tax rate across the firms reveal that there exists a complex tax regime and the Indian corporates are subject to high rates of taxation. However, the high corporate tax rate offers immense options to increase interest tax shield and maximize the market value of the firms by recapitalize with appropriate debt maturity. The interest rate is negatively related to debt maturity. It support that if the rate of interest is low companies will prefer more long-term debt.

At the last step of our analysis, we have examined the dependence between long-term debt and growth with the help of GMM 1991 and GMM 1998. The result shows that the level of previous year long-term debt is directly influencing the current year long-term debt. However, previous two year long-term debt is inversely affected the current year long-term debt. Therefore, we can conclude that the Indian companies are not going long-term debt year by year. It may also point out that the existence of trade-off theory in the Indian corporate sector. Because Indian firms having a specific target debt ratio. Other variables case we are unable to give a conclusion because of inconsistency in the results. But sector wise there is consistency.

The variable Firm size is positively determining the long-term debt in the sectors such as capital goods, consumer durables, diversified, healthcare, housing related, information technology, metal, metal products & mining, oil & gas and transport equipment. However the FMCG sector, it is negatively determined the long-term debt. The overall sample is not showing significance. It is evident from the past studies that the firms which are having huge amount of fixed assets will go for more long-term debt. Generally FMCG sector will have sufficient internal cash flow, therefore, depend more or internal fund for capital investment purpose. That may be the reason for negative significance.

The variable Profitability is directly influencing the long-term debt for sectors such as healthcare, information technology, oil & gas and transport equipment. That means growth in return make the firm capable of attracting more long-term debt. Moreover, these sectors had shown huge growth in the study period. However the capital goods, FMCG and housing related sectors it negatively determines the long-term debt. It confirms that these sectors may be using the earnings for their future investment rather debt capital.

In case of Firm's quality the sectors such as housing related, information technology and metal, metal products & mining firm's quality is positively determining the long-term debt. This indicates that these sectors are using their retained earnings to attract more long term debt rather for capital investment. However, agriculture, capital goods, diversified, FMCG, healthcare, oil & gas and transport equipment sectors it negatively determines the long-term debt.

The variable non- debt tax shield is positively determining the long-term debt in the sector, such as housing related, power and telecom. These sectors generally will have a high amount of non-debt tax shield income. Therefore, it can attract long-term debt. However, FMCG, healthcare, information technology oil & gas and transport equipment sectors it negatively determines the long-term debt. It may be the reason that this sector may be having a low rate of depreciation.

At last the variable Economic growth is positively determining the long-term debt in the sectors such as agriculture, capital goods, healthcare, housing related, metal, metal products & mining and transport equipment. However power and textile sectors it negatively determines the long-term debt. The overall sample is showing positive significance. Economic growth will accelerate growth in all sectors and it directly influences the debt capital.

Overall we can conclude that the debt capitals in the Indian companies are rising. The firms are deploying more short-term unsecured debt in the total debt capital than long-term debt. Still commercial banks are the major source of debt capital followed by debenture. But the proportion debenture is less. The debt capital trend, structure and choice have not shown much variation among different sectors during the period of the study. But the factors that affect debt capital, debt maturity, growth in long-term debt are varied among sectors. All though the level of total debt capital has increased significantly in all the sectors, still Indian companies are liquid, because shareholders' equity of companies increased more than the debt capital. But

there are some companies which are unable to raise equity capital from the market are deeply depending on debt capital. So the investor has to ensure its liquidity before investing in such companies. Moreover, there are certain companies which are having an excellent brand value in the market are planning to start a new venture may depend more on debt capital because it is the cheapest capital. Investing in such companies also should be taken care.

It has been observed that commercial banks are the major provider of debt capital for the companies in India. RBI has to insist restrictions in giving unsecured loans to companies for avoiding non-performing assets. Moreover, even if it is offering the secured loan it has to ensure the market value of the security given is 50 percent more than the loan amount. RBI has to strictly restrict the commercial banks giving loans only on the base of brand value of the companies.

From the study it is evident that debt market in India is still untapped. India companies are still dependent on commercial banks as the major sources. One of the reasons for this may be most of the commercial banks in India are under the central government, in case of default in the loan payment the companies can influence government for closing the loan. Government should not entertain such things for the growth of the debt market in the country.

Securities and Exchange Board of India (SEBI) has to promote usage of debentures and bills among companies for the growth of the debt market. It is found from the studies that the Indian companies financing their

investment requirements mostly from the internal capital, if it is not enough then only going to debt capital. It indicates that Indian financial manager's risk averse. They are not utilizing the advantages of debt capital.

The study can be extended using the primary data, as well as sectors defined according to industrial classification. It can be further extended to understanding why the Indian debt market is still untapped. Through conducting a primary survey need to analyse the financial risk bearing capacity of Indian companies. Moreover, the inverse relationship between liquidity and the level of debt need further analysis. The reason behind the growth of un-secured debt has to explore. The reason behind the dependence of Indian companies on short-term debt has to be analysed further

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APPENDIX

Appendix I
List of sample companies choose for the study

Company	Sector
Advanta India Ltd	Agriculture
Bajaj Hindusthan Ltd	Agriculture
Balrampur Chini Mills Ltd	Agriculture
Bayer CropScience Ltd	Agriculture
Chambal Fertilisers & Chemicals Ltd	Agriculture
Coromandel International Ltd	Agriculture
Deepak Fertilizers & Petrochemicals Corp Ltd	Agriculture
EID Parry (India) Ltd	Agriculture
Gujarat Narmada Valley Fertilisers Company Ltd	Agriculture
Gujarat State Fertilizers & Chemicals Ltd	Agriculture
Jain Irrigation Systems Ltd	Agriculture
K S Oils Ltd	Agriculture
Monsanto India Ltd	Agriculture
National Fertilizer Ltd	Agriculture
Rallis India Ltd	Agriculture
Rashtriya Chemicals & Fertilizers Ltd	Agriculture
Shree Renuka Sugars Ltd	Agriculture
United Phosphorus Ltd	Agriculture
Zuari Industries Ltd	Agriculture
ABB Ltd	Capital Goods
AIA Engineering Ltd	Capital Goods
Alstom Projects India Ltd	Capital Goods
Arshiya International Ltd	Capital Goods
BEML Ltd	Capital Goods
Bharat Bijlee Ltd	Capital Goods
Bharat Electronics Ltd	Capital Goods
Carborundum Universal Ltd	Capital Goods
Crompton Greaves Ltd	Capital Goods
Dredging Corporation of India Ltd	Capital Goods
Elecon Engineering Company Ltd	Capital Goods
EMCO Ltd	Capital Goods
Everest Kanto Cylinder Ltd	Capital Goods
Gammon India Ltd	Capital Goods
Gammon Infrastructure Projects Ltd	Capital Goods
Graphite India Ltd	Capital Goods
Greaves Cotton Ltd	Capital Goods
Havells India Ltd	Capital Goods

HEG Ltd	Capital Goods
Ingersoll-Rand (India) Ltd	Capital Goods
JSL Industries Ltd	Capital Goods
Jyoti Structures Ltd	Capital Goods
Kirloskar Brothers Ltd	Capital Goods
Lakshmi Machine Works Ltd	Capital Goods
Larsen & Toubro Ltd	Capital Goods
McNally Bharat Engineering Company Ltd	Capital Goods
Noida Toll Bridge Company Ltd	Capital Goods
Praj Industries Ltd	Capital Goods
Punj Lloyd Ltd	Capital Goods
Reliance Industrial Infrastructure Ltd	Capital Goods
Sadbhav Engineering Ltd	Capital Goods
Siemens Ltd	Capital Goods
SKF India Ltd	Capital Goods
Thermax Ltd	Capital Goods
Titagarh Wagons Ltd	Capital Goods
Triveni Engineering and Industries Ltd	Capital Goods
Voltamp Transformers Ltd	Capital Goods
Walchandnagar Industries Ltd	Capital Goods
Welspun Corp Ltd	Capital Goods
Asian Paints Ltd	Chemical & Petrochemical
BASF India Ltd	Chemical & Petrochemical
Berger Paints India Ltd	Chemical & Petrochemical
Finolex Industries Ltd	Chemical & Petrochemical
Godrej Industries Ltd	Chemical & Petrochemical
Gujarat Alkalies & Chemicals Ltd	Chemical & Petrochemical
NOCIL Ltd	Chemical & Petrochemical
Pidilite Industries Ltd	Chemical & Petrochemical
Supreme Industries Ltd	Chemical & Petrochemical
Tata Chemicals Ltd	Chemical & Petrochemical
Uflex Ltd	Chemical & Petrochemical
Bajaj Electricals Ltd	Consumer Durables
Blue Star Ltd	Consumer Durables
Gitanjali Gems Ltd	Consumer Durables
Rajesh Exports Ltd	Consumer Durables
Titan Industries Ltd	Consumer Durables
V I P Industries Ltd	Consumer Durables
Videocon Industries Ltd	Consumer Durables
Whirlpool of India Ltd	Consumer Durables
3M India Ltd	Diversified
Adani Enterprises Ltd	Diversified
Aditya Birla Nuvo Ltd	Diversified
DCM Shriram Consolidated Ltd	Diversified

Gulf Oil Corporation Ltd	Diversified
Kesoram Industries Ltd	Diversified
Max India Ltd	Diversified
Voltas Ltd	Diversified
Bata India Ltd	FMCG
Britannia Industries Ltd	FMCG
Colgate-Palmolive (India) Ltd	FMCG
Dabur India Ltd	FMCG
Emami Ltd	FMCG
Gillette India Ltd	FMCG
GlaxoSmithkline Consumer Healthcare Ltd	FMCG
Godrej Consumer Products Ltd	FMCG
Hindustan Unilever Ltd	FMCG
ITC Ltd	FMCG
Kwality Dairy (India) Ltd	FMCG
Marico Ltd	FMCG
Mcleod Russel India Ltd	FMCG
Nestle India Ltd	FMCG
Procter & Gamble Hygiene and Health Care Ltd	FMCG
REI Agro Ltd	FMCG
Ruchi Infrastructure Ltd	FMCG
Ruchi Soya Industries Ltd	FMCG
Tata Global Beverages Ltd	FMCG
United Breweries Ltd	FMCG
United Spirits Ltd	FMCG
Zydus Wellness Ltd	FMCG
Abbott India Ltd	Healthcare
Apollo Hospitals Enterprise Ltd	Healthcare
Aurobindo Pharma Ltd	Healthcare
Bilcare Ltd	Healthcare
Biocon Ltd	Healthcare
Cadila Healthcare Ltd	Healthcare
Cipla Ltd	Healthcare
Divis Laboratories Ltd	Healthcare
Dr Reddys Laboratories Ltd	Healthcare
FDC Ltd	Healthcare
Fortis Healthcare (India) Ltd	Healthcare
Glaxosmithkline Pharma Ltd	Healthcare
Glenmark Pharmaceuticals Ltd	Healthcare
Ipca Laboratories Ltd	Healthcare
Jubilant Life Sciences Ltd	Healthcare
Lupin Ltd	Healthcare
Novartis India Ltd	Healthcare

Opto Circuits (India) Ltd	Healthcare
Orchid Chemicals & Pharmaceuticals Ltd	Healthcare
Panacea Biotec Ltd	Healthcare
Pfizer Ltd	Healthcare
Piramal Healthcare Ltd	Healthcare
Ranbaxy Laboratories Ltd	Healthcare
Strides Arcolab Ltd	Healthcare
Sun Pharmaceuticals Industries Ltd	Healthcare
Torrent Pharmaceuticals Ltd	Healthcare
Unichem Laboratories Ltd	Healthcare
Wockhardt Ltd	Healthcare
Wyeth Ltd	Healthcare
ACC Ltd	Housing Related
Ahluwalia Contracts (India) Ltd	Housing Related
Ambuja Cements Ltd	Housing Related
Birla Corporation Ltd	Housing Related
Century Textiles & Industries Ltd	Housing Related
DLF Ltd	Housing Related
Era Infra Engineering Ltd	Housing Related
Godrej Properties Ltd	Housing Related
Hindustan Construction Company Ltd	Housing Related
Housing Development & Infrastructure Ltd	Housing Related
India Cements Ltd	Housing Related
IVRCL Ltd	Housing Related
J K Cements Ltd	Housing Related
Jaiprakash Associates Ltd	Housing Related
JK Lakshmi Cement Ltd	Housing Related
Madras Cements Ltd	Housing Related
Mahindra Lifespace Developers Ltd	Housing Related
Marg Ltd	Housing Related
NCC Ltd	Housing Related
Omaxe Ltd	Housing Related
Orbit Corporation Ltd	Housing Related
Orient Paper & Industries Ltd	Housing Related
Patel Engineering Ltd	Housing Related
Peninsula Land Ltd	Housing Related
Phoenix Mills Ltd	Housing Related
Prism Cement Ltd	Housing Related
Puravankara Projects Ltd	Housing Related
Rain Commodities Ltd	Housing Related
Shree Cement Ltd	Housing Related
Simplex Infrastructures Ltd	Housing Related
Sintex Industries Ltd	Housing Related
Sobha Developers Ltd	Housing Related

Sunteck Realty Ltd	Housing Related
UltraTech Cement Ltd	Housing Related
Unitech Ltd	Housing Related
Unity Infraprojects Ltd	Housing Related
3i Infotech Ltd	Information Technology
Allied Digital Services Ltd	Information Technology
Aptech Ltd	Information Technology
CMC Ltd	Information Technology
CORE Education & Technologies Ltd	Information Technology
Financial Technologies (India) Ltd	Information Technology
Glodyne Technoserve Ltd	Information Technology
HCL Infosystems Ltd	Information Technology
HCL Technologies Ltd	Information Technology
Infosys Ltd	Information Technology
Infotech Enterprises Ltd	Information Technology
Karuturi Global Ltd	Information Technology
KPIT Cummins Infosystems Ltd	Information Technology
Mastek Ltd	Information Technology
Mindtree Ltd	Information Technology
MphasiS Ltd	Information Technology
NIIT Ltd	Information Technology
Oracle Financial Services Software Ltd	Information Technology
Polaris Financial Technology Ltd	Information Technology
Redington India Ltd	Information Technology
Rolta India Ltd	Information Technology
Tata Elxsi Ltd	Information Technology
Tech Mahindra Ltd	Information Technology
Wipro Ltd	Information Technology
Entertainment Network (India) Ltd	Media & publications
Jagran Prakashan Ltd	Media & publications
Navneet Publications (India) Ltd	Media & publications
Reliance MediaWorks Ltd	Media & publications
Sun TV Network Ltd	Media & publications
Television Eighteen India Ltd (Merged)	Media & publications
Zee Entertainment Enterprises Ltd	Media & publications
Adhunik Metaliks Ltd	Metal,Metal Products & Mining
Bhushan Steel Ltd	Metal,Metal Products & Mining
Electrosteel Castings Ltd	Metal,Metal Products & Mining
Gujarat Mineral Development Corporation Ltd	Metal,Metal Products & Mining
Gujarat NRE Coke Ltd	Metal,Metal Products & Mining
Hindalco Industries Ltd	Metal,Metal Products & Mining
Hindustan Copper Ltd	Metal,Metal Products & Mining
Hindustan Zinc Ltd	Metal,Metal Products & Mining
Indian Metals & Ferro Alloys Ltd	Metal,Metal Products & Mining

ISMT Ltd	Metal,Metal Products & Mining
Jai Balaji Industries Ltd	Metal,Metal Products & Mining
Jai Corp Ltd	Metal,Metal Products & Mining
Jindal Saw Ltd	Metal,Metal Products & Mining
Jindal Steel & Power Ltd	Metal,Metal Products & Mining
JSW Steel Ltd	Metal,Metal Products & Mining
Maharashtra Seamless Ltd	Metal,Metal Products & Mining
Monnet Ispat & Energy Ltd	Metal,Metal Products & Mining
National Aluminium Company Ltd	Metal,Metal Products & Mining
NMDC Ltd	Metal,Metal Products & Mining
PSL Ltd	Metal,Metal Products & Mining
Sesa Goa Ltd	Metal,Metal Products & Mining
Steel Authority of India Ltd	Metal,Metal Products & Mining
Sterlite Industries (India) Ltd	Metal,Metal Products & Mining
Tata Steel Ltd	Metal,Metal Products & Mining
Texmaco Ltd	Metal,Metal Products & Mining
Uttam Galva Steels Ltd	Metal,Metal Products & Mining
Ballarpur Industries Ltd	Miscellaneous
Balmer Lawrie & Company Ltd	Miscellaneous
Educomp Solutions Ltd	Miscellaneous
Engineers India Ltd	Miscellaneous
Gati Ltd	Miscellaneous
Pantaloon Retail (India) Ltd	Miscellaneous
Prakash Industries Ltd	Miscellaneous
Shoppers Stop Ltd	Miscellaneous
State Trading Corporation of India Ltd	Miscellaneous
Tamil Nadu Newsprint & Papers Ltd	Miscellaneous
Time Technoplast Ltd	Miscellaneous
Trent Ltd	Miscellaneous
Aban Offshore Ltd	Oil & Gas
Bharat Petroleum Corporation Ltd	Oil & Gas
BOC India Ltd	Oil & Gas
Castrol India Ltd	Oil & Gas
Chennai Petroleum Corporation Ltd	Oil & Gas
Essar Oil Ltd	Oil & Gas
GAIL (India) Ltd	Oil & Gas
Gujarat Fluorochemicals Ltd	Oil & Gas
Gujarat Gas Company Ltd	Oil & Gas
Gujarat State Petronet Ltd	Oil & Gas
Hindustan Oil Exploration Company Ltd	Oil & Gas
Hindustan Petroleum Corporation Ltd	Oil & Gas
Indian Oil Corporation Ltd	Oil & Gas
Indraprastha Gas Ltd	Oil & Gas
Mangalore Refinery And Petrochemicals Ltd	Oil & Gas

Oil & Natural Gas Corpn Ltd	Oil & Gas
Oil India Ltd	Oil & Gas
Reliance Industries Ltd	Oil & Gas
Selan Explorations Technology Ltd	Oil & Gas
Shiv-Vani Oil & Gas Exploration Services Ltd	Oil & Gas
BF Utilities Ltd	Power
CESC Ltd	Power
GMR Infrastructure Ltd	Power
Gujarat Industries Power Co Ltd	Power
GVK Power & Infrastructure Ltd	Power
Jaiprakash Power Ventures Ltd	Power
JSW Energy Ltd	Power
Lanco Infratech Ltd	Power
Nava Bharat Ventures Ltd	Power
Neyveli Lignite Corporation Ltd	Power
NHPC Ltd	Power
NTPC Ltd	Power
Power Grid Corporation of India Ltd	Power
PTC India Ltd	Power
Reliance Infrastructure Ltd	Power
Reliance Power Ltd	Power
SJVN Ltd	Power
Tata Power Company Ltd	Power
Bharti Airtel Ltd	Telicom
Finolex Cables Ltd	Telicom
GTL Ltd	Telicom
Himachal Futuristic Communications Ltd	Telicom
Idea Cellular Ltd	Telicom
Mahanagar Telephone Nigam Ltd	Telicom
Sasken Communication Technologies Ltd	Telicom
Sterlite Technologies Ltd	Telicom
Tanla Solutions Ltd	Telicom
Tata Teleservices (Maharashtra) Ltd	Telicom
Tulip Telecom Ltd	Telicom
Alok Industries Ltd	Textile
Arvind Ltd	Textile
Bombay Dyeing & Manufacturing Company Ltd	Textile
Bombay Rayon Fashions Ltd	Textile
Century Enka Ltd	Textile
Grasim Industries Ltd	Textile
Raymond Ltd	Textile
S.Kumars Nationwide Ltd	Textile
SRF Ltd	Textile

Vardhman Textiles Ltd	Textile
Amara Raja Batteries Ltd	Transport Equipments
Amtek Auto Ltd	Transport Equipments
Amtek India Ltd	Transport Equipments
Apollo Tyres Ltd	Transport Equipments
Asahi India Glass Ltd	Transport Equipments
Ashok Leyland Ltd	Transport Equipments
Balkrishna Industries Ltd	Transport Equipments
Bosch Ltd	Transport Equipments
Cummins India Ltd	Transport Equipments
Eicher Motors Ltd	Transport Equipments
Escorts Ltd	Transport Equipments
Exide Industries Ltd	Transport Equipments
Hero MotoCorp Ltd	Transport Equipments
HMT Ltd	Transport Equipments
JK Tyre & Industries Ltd	Transport Equipments
Mahindra & Mahindra Ltd	Transport Equipments
Maruti Suzuki India Ltd	Transport Equipments
Motherson Sumi Systems Ltd	Transport Equipments
MRF Ltd	Transport Equipments
Sundram Fasteners Ltd	Transport Equipments
Tata Motors Ltd	Transport Equipments
Tube Investments of India Ltd	Transport Equipments
TVS Motor Company Ltd	Transport Equipments

Appendix II

List of Publications in Peer Reviewed Journal

1. Raveesh Krishankutty and Kiran Sankar Chakraborty. 2014. The Determinants of Corporate debt maturity: a study on listed companies of Bombay Stock Exchange 500 index. *Romanian Economic Journal*, Vol. 51(1), PP 67-90.
2. Kiran Sankar Chakraborty, and Raveesh Krishnakutty. 2013. Determinants of current ratio: a study with reference to large listed companies in India. *Journal of International Business Management & Research (jibmr)*, Vol.4(12).
3. K.S.Chakraborty, Raveesh Krishnankutty and Bhushan Chandra Das, 2012. Liquidity aspects of large corporate business: a study with reference to listed companies in India, *AFBE journal* Special Issue of Selected Papers from AFBE UNITEN Conference, 2012. Vol. 5 (3), PP 319-334.

Paper Communicated for Publications

1. Raveesh Krishankutty and Kiran Sankar Chakraborty. 2014. Determinants of debt capital in Indian corporate sector: a sectoral analysis.
2. Raveesh Krishankutty and Kiran Sankar Chakraborty. 2014. The determinants of growth and its dependence on long-term debt capital: A Study with Reference to Indian Companies.

Appendix III

List of Conference Attended

1. Presented a paper titled determinants of debt capital in Indian corporate sector: a quantile regression analysis in the in the 6th Doctoral Theses Conference", held in the IBS Hyderabad, organized by the IBS Hyderabad in collaboration with Broad College of Business, Michigan State University, East Lansing, USA, during April 26-27, 2013
2. Presented a paper titled liquidity aspects of large corporate business: a study with reference to listed companies in India in the Asian Forum of Business Education (AFBE) Conference 2012 at Malaysia Kuala - Lumpur.
3. Presented a paper titled, Determinants of Current Ratio: A Study with Reference to Companies listed with Bombay Stock Exchange in the 9th International Conference on Business and Finance (ICBF), January 2012, at IBS Hyderabad.