Chapter 3: Literature review and theoretical background

In this chapter we provide a critical review of a few important studies from which we formulate and test our hypotheses. We first review the studies which examine the impact of financial liberalization on the capital structure issues then we review studies in the domain of capital structure, debt maturity structure, debt specialization and lastly, some corporate finance studies in Indian context are reviewed.

3.1 Literature on Deregulations and Capital structure

In this section we review briefly some important studies which examine the issue of impact of financial regulations/deregulations on firm behavior in general and capital structure and investment decisions in particular. This section provides broad theoretical assumptions behind hypotheses that we formulate in the subsequent sections. Also, previous evidence of changes in capital structure in different ecological settings is discussed and their implications for our study are mentioned. We organize the studies chronologically.

Harries et al., (1994) examine the impact of banking deregulation of 1983 on credit allocation and investment decisions of 523 Indonesian manufacturing firms over the period 1981-1988. They adopted accelerator methodology to model the investment behavior of firms and used ordinary least squares (OLS) and GMM\(^1\) procedure to estimate the parameters. Their variables include cash flow and debt to capital ratio. Controlling for firm fixed effects, they observe that

-\(^1\) Generalized methods of moments
financial liberalization increases the cost of borrowing for small firms but at the same time the accessibility of small firms to financial system also increases.

Jaramillo et al., (1996) examine the investment decisions of 420 Ecuadorian manufacturing firms over the period 1983-1988 to check whether or not the financing constraints are eased following the financial liberalization of 1980s. Using the dynamic Euler investment model which accounted for increasing interest rates for corporate borrowings and GMM estimation procedure, they find the existence of financial constraints for small firms in the pre reform period and what is more interesting is that these constraints did not relax even after the liberalization. In both the periods large firms did not face any constraints for their investment.

Henry (2000) studies the effect of stock market liberalization in 12 emerging countries on the cost of equity. Using event study methodology, they test the hypothesis that stock market liberalization would decrease the cost of equity on the assumption that stock market liberalization allows risk sharing between foreign and domestic investors. They use International finance corporation’s (IFC) stock market liberalization dates for the occurring of the event and their study (regressing the returns on a liberalization dummy over a period of 8 months) shows that on average, stock market liberalization yields cumulative abnormal returns (CAR) of 4.7% per month over an eight month event window (T-7 to T). But when controlled for other macro-economic effects, the CAR was reduced to 3.3% per month with a model fit (R²) of 15%. This 3.3% CAR during the event window, they argue, would reduce the discount rate by 15%.
Maghyereh (2004) studies the impact of financial liberalization of 1990s on the capital structure of 36 non-listed manufacturing Jordanian firms over the period 1984-2000. Using the dynamic adjustment model and generalized methods of moments estimation procedure, they find that there was a decrease in the mean leverage for Jordanian firms in the post reforms period. Also, they tested the speed of adjustment (SOA) of firm leverage towards the target leverage using a partial adjustment model and they found that the speed of adjustment\(^2\) towards the target leverage decreased in the post reform period. They also find that the traditional determinants of the capital structure\(^3\) become significant and account for more variation in leverage in the post reform period than in the pre-reform period. Their study essentially is an event study which compared the pre and post leverage ratios by assuming that financial liberalization is a single short period phenomenon which is not so in reality.

Agca et al., (2007) study the impact of financial liberalization and financial openness, using the financial reforms index of Abiad et al., (2005)\(^4\), on leverage and debt maturity in a cross-country examination involving 38 countries consists of both developed and emerging countries. Using panel data fixed effects estimation procedure they find that an increase in leverage and the proportion of long-term debt in response to financial liberalization. In the case of emerging countries, the leverage actually declines whereas debt maturity shows mixed results. Also, they find that bank privatization is associated with the decline in long term debt proportion in the total debt while the development of capital markets is associated with an increase in long term debt proportion. They argue that financial deepening (increase in the accessibility of financial services

\(^2\)Speed with which the actual leverage move towards the target leverage

\(^3\)size, performance, tangibility and growth opportunities

\(^4\)The earlier version of Abiad et al., (2008) database on financial liberalization
already available) in developed countries increases the availability of debt to constrained firms and hence leverage increases in those countries while in emerging economies, poor governance and weak legal environment prevents the reforms to achieve their full potential. The main problem with this study is that it provides no theoretical basis for the observed changes in the leverage and leverage and debt maturity, it is simply an observational study.

Bertrand et al., (2007) study the impact of French banking deregulations of 1985 on industry structure and capital structure of French firms. They use panel regression fixed effects estimation procedure by adding a dummy variable to represent the pre reform period in their analysis. Their leverage measure is the ratio of bank debt to the total debt and their results show a decreasing trend in the long term debt following the bank deregulation and this decrease is compensated by a corresponding increase in trade credit while equity proportion has remained almost the same. The decrease in the leverage ratio was mainly due to an increase in the cost of debt. They find that the decline in leverage is especially pronounced in those industries which were under government subsidy programme in the pre-reform period. These firms exhibit poor performance in the post reform period and had significantly higher cost of debt than for better performing firms.

Rice and Strahan (2010) evaluate the impact of branching deregulation on credit supply to the small and constrained firms in the US context. Using the setting provided by the branching deregulation in the US over a period of 1985 to 1996 they examine whether or not it reduces the supply constraints for small firms. They first investigate the impact of bank competition on loan rates using the event study methodology that is comparison of pre and post interest rates, and
find that loan rates for small firms were 80 to 100 basis points lower in states where branching regulations took effect. They then relate this issue to capital structure at the firm level. Their analysis shows that while more firms started using bank debt in deregulated states but it did not affect the volume of borrowings, debt maturity or the rate of credit approval for small firms.

Boyle and Eckhold (1997) examine the impact of financial liberalization on debt choices of firms in New Zealand. They also compare the explanatory powers of various capital structure theories in the pre (1982-1985) and post (1986-1989) reforms. Using two book measures of leverage (long term and short term leverage) as the dependent variables and analyzes the data using pooled regression method and generalized least square estimation procedure with a dummy variable representing the pre and post liberalization period. Their results show that leverage, in both the cases, decreases following the liberalization. Comparison of the capital structure models for long term debt reveals little as the explanatory powers ($R^2$) of their models do not show any changes (from 0.22 to 0.25 with insignificant F) while for short term debt the explanatory power has actually decreases to 0.09 from 0.15 with significant F in the post liberalization period. Applicability of their study is limited by the small number of firms included in the analysis (548 observations for 8 years).

The above studies show that financial liberalization generally associated with a fall in leverage ratios (Maghyereh (2004), Agca et al., (2007), Bertrand et al., (2007)). But in the case of developed countries Agca et al., (2007) find that financial liberalization results in an increase in leverage. With respect to debt maturity issue, Bertrand et al., (2007) notice a decreasing trend in the long term debt because of banking deregulation and this result is supported by Agca et al.,
(2007) in the context of developed countries. It is also observed that entry of firms has increased considerably when financial systems are liberalized (Bertrand et al., (2007)). The study of Rice and Strahan (2010) shows that cost of borrowings decreases following the deregulation in US whereas Bertrand et al., (2007) find an increase in the cost of debt following French banking deregulations in 1985. Stock market liberalization in various emerging countries resulted in the lower cost of equity (Henry (2000)).

3.2 Literature on capital Structure

In this section we review briefly, some of the important theories and related empirical evidences on corporate determinants of capital structure. This literature is important in as much as financial reforms impact on capital structure is going to be through its impact on the determinants of capital structure. For example; the literature documents that growth opportunity is an important determinant of leverage ratio. Previously discussed literatures on financial reforms argue that liberalization results in the decrease of resource constraints of firms for financing their growth options thus, firms will have higher probability of utilizing their growth opportunities in a liberalized economy than they would in a regulated economy. Therefore, financial liberalization should affect the sensitivity of leverage ratio to the growth variables as financing of growth is now affected by the market forces of demand and supply in the financial system whereas in a regulated system it was determined by the government policies.

Modigliani and Miller (1958) proposed irrelevance hypothesis according to which the value of a firm depends on the investments projects and expected distribution of future earnings. In their framework, capital structure does not really matter. Their hypothesis is based on several critical
assumptions; complete and perfect capital markets, no tax or, no imperfections in the capital markets. The subsequent models developed after the irrelevance hypothesis relaxed the assumptions of Modigliani and Miller (1958) to explain the observed variation in the capital structure. These models generally referred to as Static Trade-Off theory (STO), its main point is that observed capital structure of a firm is the result of a trade-off between benefits of debt and the costs of debt. Benefits are mainly the tax shield of interest expenses on debt while the costs are related to the associated probability of bankruptcy. Thus this theory predicts that tax measures (Marginal tax rate, marginal tax benefit, tax shield) to be positive and associated with leverage ratios while variables that proxy bankruptcy costs (Proportion of tangible assets and the size of a firm) to be having negative association with leverage ratios.

Jensen and Meckling (1976) propose the agency theory which views manager as the imperfect agent of shareholders and assumes that he engages in self-serving behavior which may not be value maximizing for the shareholders. This theory argues that by varying debt level the degree of agency problem can be reduced. The essence of STO and Agency framework is that they imply there exists an optimum capital structure and firms strive towards it.

Myers and Majluf (1984) propose an alternative to the STO and the agency theories known as the pecking order hypothesis, to explain the observed variation in the capital structure. Their main hypothesis is that under the circumstances of information asymmetry between the managers and the investors, the manager acts in the interest of existing shareholders and such behavioral orientation of managers cause a firm first to use internally generated capital then debt and finally external equity. This pecking order explanation assumes no target leverage for the firms.
Bradley et al., (1984) present a synthesis of the tax and agency models and derive several testable hypotheses. Using data on 851 firms belonging to 25 industries, they regress debt ratio on several determinants, all averaged over a 20 year penal (1962-1981) Their empirical analysis confirms the predictions about the relationships between debt and R&D expenditure and volatility of firm value after controlling for industry effects and regulation. But, contrary to their prediction, they find a positive relationship between non-debt tax shield and debt. They reason that this positive relationship reflects support for the secured debt hypothesis, which says that tangibility results in the increase of debt capacity, since depreciation is a function of tangible assets. The positive relationship between depreciation of assets and leverage is a manifestation of the collateral effect of tangible assets on leverage.

Frank and Goyal (2009) examine the relative importance of many factors in the capital structure decisions of publicly traded American firms over the period from 1950 to 2003. Using Bayesian Information Criteria to extract the information, they show that the strongest single factor is median industry leverage and that the significant six determinants of capital structure are Median industry leverage (+), Market-to-book assets ratio (-), Tangibility (+), Profits (-), Log of assets (+), Expected inflation (+). The importance of this study lies in the fact that these variables have remained significant in the determination of capital structure for over five decades.

Rajan & Zingales (1995) test the robustness of capital structure theory evidence from US cross-sectional studies using international data. Their sample consists of 4,557 firms from G-7 countries over the period 1987-1991. In their model, they include four determinants of capital structure which are size (log sales), profitability measure (ROA), growth measure (M/B) and

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5 ‘+’ is positive and significant association, ‘-’ is negative and significant association
tangibility measure (Net Fixed Assets/Total Assets). Their main hypothesis is that the institutional difference in these countries should yield different results for the capital structure model formed based on the US experience. Their evidence suggests that factors identified by previous cross-sectional studies in the US carry over to other countries as well.

Booth et al. (2001) study the capital structure patterns in ten developing countries. Their main hypothesis is that the institutional differences in the developing countries compared to developed countries should give rise to different capital structure patterns. To conduct their analysis, they essentially test the mobility of capital structure models developed in the western countries. They use IFC’s database on emerging countries, which consists of data for the largest 100 publically traded firms in those countries for the period 1980 to 1990. Their data shows that developing countries had substantially lower ratio of debt than developed countries and the proportion of long term debt in the overall debt is also lower for developing countries. Their main analysis shows that models developed in the western countries are equally applicable in the developing countries despite of vast differences in the institutional settings.

From the above literature, we find that firm level characteristics such as size, profitability and tangibility are positively related to leverage measures whereas growth opportunity (Asset growth rate, market to book asset ratio and R&D expenditure) is negatively related. Institutional differences in legal status, tax rates and regulation of financial systems, across countries would affect the relationship between the leverage and its determinants, speed of adjustment towards the target leverage and the pecking order coefficient. In our study, institutional differences
across time periods (due to financial liberalization) should result in the change in the capital structure patterns.

**3.3 Literature on debt maturity structure and Debt specialization**

In the following section we review the literature related to debt maturity and debt specialization issues. This section provides us the theories and the factors involved in determining the debt maturity and debt specialization at firm level. The knowledge of these factors is essential to analyze the effect of financial liberalization on these issues. As discussed earlier, financial liberalization would act on these determinants and their supposed relationships with maturity and specialization and thus, effecting the changes. First, we review the studies on debt maturity and then we review debt specialization issues.

Myers (1977) suggests that investment projects for a firm are just like options and exercise of which depends on a number of factors at the maturity time (time zero of project implementation). Considering that the profits from a project will be split between the stakeholders and bondholders, he argues that under certain circumstances this sharing will make firms to forgo some positive NPV projects. This underinvestment problem can be reduced by using more short term debt which matures at the time of project onset. Thus, he argues that firms with more growth opportunities will subscribe to short term debt while mature firms prefer longer term debt.

Barclay and Smith (1995) test various corporate debt maturity hypotheses using US firms for the period 1974 through 1992. The hypotheses that they tested in their study are 1) contracting cost
hypothesis; which basically argues that higher growth opportunities will make a firm to go for short term debt. 2) Signaling hypothesis; which assumes that long term debt is more sensitive to signaling effect than the short term debt and hence firms prefer short term debt and 3) Tax hypothesis; based on the shape of term structure curve of the interest rates, the firms will take a call on the debt maturity. Their results show that growth opportunities have a significant and negative effect on long term debt that is firms with strong growth opportunities prefer short term debt in accordance to the contracting cost hypothesis. Signaling and tax hypotheses are not significant in explaining the variation in debt maturity. In addition to the main results, they also test the effect of industry regulations on maturity choices consistent with regulation decreasing the degree of uncertainty that a manager faces, they find that firms in a regulated industry tend to have long term debt.

Stohs and Mauer (1996) analyze the determinants of debt maturity structure for a panel data of 328 US firms over the period 1980-1989. They find support for tax, signaling and maturity matching considerations in determining the structure of debt maturity. Firm quality has a non-monotonic association with the debt maturity thus confirming liquidity hypothesis of Diamond (1991) while effective tax rate is positively related with the long term debt maturity ratio. They find weak support for smaller firms having high proportion of short-term maturity and the result is mixed for expected negative relation between debt maturity and growth opportunities.

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6 For example; if the term structure is decreasing then firms prefer longer term debt.

7 Both very high and very low quality firms had a higher proportion of short term debt and medium quality firms have long term debt.
Rauh and Sufi (2010) argue that existing capital structure studies do not consider the differences in debt heterogeneity including different types, sources, and priorities of debt. At the descriptive level, the authors find that 70% of the firms have more than one type of debt and that 25% of the firms experience no significant change in total debt but adjust their underlying composition of debt. More importantly, they find that low credit quality firms spread their debt across different types compared to high credit quality firms who mainly use two types of debt. That is, lower-credit-quality firms use a substantially higher fraction of secured and subordinated debt in their capital structure. Similar results are found for the sample of fallen angel investors.

Colla, Ippolito and Li (2011) using capital IQ database study the debt specialization patterns of 3332 US firms over the period 2001-2007. Using cluster analysis technique they classify firms into seven different groups based on the type of debt predominantly used. Out of the seven, six groups largely used one type of debt while the last one used two major sources of debt simultaneously. They extend their analysis further to study the impact of quality\(^8\) on debt specialization and their results show that larger and high quality firms tend to use multiple sources of debt while smaller firms use only a single debt source.

In summary, various hypotheses are put forward to explain the debt maturity structure. They are Underinvestment hypothesis by Myers (1977) which argues an inverse relationship between growth opportunity and debt maturity. Tax hypothesis which says that firm’s debt maturity choice is dependent on the shape of the term structure of interest rates and lastly signaling hypothesis which says that sensitiveness of the valuation problem to long term debt is higher and

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\(^8\) Measured by credit ratings
thus quality firms would opt for short term debt. Empirical evidences listed about largely support the underinvestment and tax hypothesis and very weak support is seen for signaling hypothesis. With regard to debt specialization no theoretical framework has been proposed so far, the two studies that we have listed above make empirical observations of the trend and patterns in the usage of different debt sources in the US context.

3.4 Literature related to India

In this last section of the literature review part, we examine some of the Indian corporate finance studies. This section provides us the information about the issues, related to corporate finance, that have been analyzed using Indian data.

Rao and Lukose (2003) compare the sign and significance of capital structure determinants between pre and post liberalization periods. Their data was limited to 498 firms in the pre liberalization period and 1411 firms in the post liberalization period. They consider 1997 as the year of liberalization following some significant policy reforms in that year. Their regression results using OLS estimation procedure show that post-liberalization, the static trade-off theory explains the variation found in the leverage ratios across firms.

Shirai (2004) analyzes the impact of financial reforms on capital markets and banking sector. He argues that despite the reforms, banking as well as capital markets remain shallow, they concentrate mostly on the high quality firms and low quality firms still remain outside these markets. Also, he observes a trend among larger firms towards substituting bank debt with bond
debt over the period 1990-2001 and there was not significant substitution of bank debt with equity though equity market reforms implemented during that period.

Love and Peria (2005) analyze the trends and patterns of debt financing in India for the time period 1994 to 2003. Covering 6000 firms they find that ratios of debt to assets have remained constant while debt growth rate has declined during the study period. Bank debt increased steadily throughout the study period while borrowings from non-bank sources decreased. Their analysis shows that the share of foreign debt, bank debt and public borrowings increased consistently during 1994-2003 while the share of borrowings from other corporations decreased. The share of trade payables in the overall debt structure has remained almost constant.

Monos et al., (2007) using a sample of 1652 listed non-financial firms which includes both group owned and standalone firms, find that group owned firms had different capital structure than standalone firms and that internal (virtual) capital sources played an important role in the capital structure decisions of the former. They also find that group firms had a higher proportion of foreign and government loans in their debt structure. Differences in group affiliated and non-affiliated firms is consistent with the market failure theory which argues that group affiliated firms are a result of market imperfections and information asymmetry. In order to avoid these problems, firms will be organized around the group so the movement of internal capital is relatively free and the information asymmetry is reduced considerably.

Pathak (2010) studies the determinants of capital structure in the listed Indian firms. His study was limited to 135 firms over the period from 1990 to 2009. Using the limited Indian data
present in the COMPUSTAT database and using fixed effects estimation procedure of panel data
they find that tangibility, firm size, growth are positively related to leverage whereas
profitability, liquidity and business risk are negatively related to leverage. R&D expenditure has
a positive sign but was not significant.

3.5 Gaps in the literature

This section elaborates the following gaps in the literature which this study tries to fill up:

i. With regard to firms’ corporate finance (leverage, debt maturity structure and
dividend policy) responses to financial policy changes, all the studies in the literature
are in the context of the developed world. To the best of our knowledge, no single
country level study has been conducted in the developing world context. Given the
differences in institutional settings, do responses of firms in a developing economy
like India follow the pattern observed in the developed world for financial reforms?
This remains to be examined.

ii. Even in the developed world context, only capital structure changes have been
studied. As far as we know, no study has evaluated the changes in the debt
specialization. Ours is the first study to consider these changes in response to
financial reforms.

iii. No study has evaluated the influence of type of ownership on the response of firms
for financial reforms. Business group affiliation is very common in India comprising
of about 400 business groups and playing a very major role in the Indian economy.
We will evaluate the influence of group affiliation on firm responses, in terms of their
leverage ratio, debt maturity structure and debt specialization, to the changes in the financial system.

iv. Most of the cross-country studies which evaluate the response of firms for financial policy changes consider only larger and listed firms for their analysis. These results may not be generalizable to an average firm in a given country as the analysis is done on a very narrow sample. In our study we consider a large sample consisting of 2834 firms which has both listed and non-listed firms in it and thus the results are more generalizable.

v. There is no study which has considered firms’ response to a series of stepwise reforms as has happened in India since 1992. Most of the existing studies consider financial liberalization as a single event and compare the pre and post leverage changes to draw inferences. But, financial liberalization is rarely a single event phenomenon; it is normally a gradual process where in many reforms are implemented at different time periods. Our study is an improvement over other studies in that we measure firm response to this gradual liberalization process by measuring the liberalization using a modified liberalization index of Abiad et al. (2008).

vi. There is no comprehensive study, in the Indian context, which has evaluated the responses of corporate firms in terms of their leverage, debt structure and specialization patterns, to the changes in the financial system.