Chapter 4: Objectives and Hypotheses

4.1 Objectives

After the critical examination of exhaustive literature and finding out the gaps, we formulate the following two broad objectives for our study:

1. To study the capital structure changes in response to financial liberalization and the influence of various firm level characters on these changes.
2. To study the debt maturity and specialization changes in response to financial liberalization and the influence of various firm level characters on these changes.

4.2 Hypotheses

4.2.1 Financial liberalization and capital structure

At the economy level, financial liberalization causes two broad institutional changes which would have an impact on firm leverage decisions. They are

1) As many researchers have considered, India had an underdeveloped banking system dominated financial system in the pre-reform period (Demirguc-Kunt and Meskimovic (1994, 1999), Aivazian et al., (2003), Booth et al., (2001)). We could expect two important changes to this system once financial liberalization is undertaken. First, the relative importance of stock markets would grow in the post reform period and the second, underdeveloped banking system would develop gradually.

2) There would be a change in the effectiveness of the legal system and its enforcement.
These two institutional changes would have very important implications for firm level corporate leverage decisions.

We use the above two arguments for making predictions about the likely changes in the leverage ratios of firms. The liberalization process is expected to have differential influence over the priority (firms which benefited from the financial regulation in the pre-reform period therefore, accumulated higher proportion of debts in their capital structure compared to other firms) and non-priority sector firms since they were subjected to different treatments in the pre-reform period. Consequently, leverage ratio is expected to change in opposite direction for these two groups. First, because of the reforms, many distortions (especially government sponsored debt schemes) in the financial system are removed and this should result in a decrease in the leverage ratio of priority sector firms (as they were over levered in the pre-reform period). Second, for firms which were outside the priority sector, the liberalization process would open up the financial system and afford them an opportunity to raise debt capital at relatively attractive rates. Thus, for this subset of firms, leverage is expected to increase as has been documented in developed countries (Agca et al., 2007). The net effect at the country level as a whole would then depend on the proportions of firms under the priority and the non-priority sectors.

We formulate separate hypotheses to test for these changes. First, to analyze broad economy level changes in the leverage trends we consider both the priority and the non-priority sector firms together and then separately evaluate the changes in the leverage ratios of the priority sector and the non-priority sector firms due to financial reforms. Firms will be classified as the
priority sector and non-priority sector based on the average institutional (Bank + other institutional debt) debt for the period 1988-1992\textsuperscript{1}.

\textbf{H1: The leverage ratios of firms decrease due to financial liberalization.}

\textbf{H1A: The leverage ratio of priority sector (non-priority sector) firms decreases (increases) due to financial liberalization.}

After examining the broad changes in the leverage ratios, we examine the other side of this change i.e., what compensate the decrease/increase in leverage? As discussed earlier, the relative importance of stock market is expected to increase following financial liberalization. This makes equity an effective alternative source of financing for firms that chose to reduce debt level in the advent of financial reforms (Varma, 1998 Khanna, 1999). We expect that for the aggregate and priority sector firm analysis, decline in leverage would be compensated by an increase in the external equity proportion. What is more interesting is to evaluate what compensates if non-priority sector firms choose to increase their debt. Based on these observations we test the following hypotheses:

\textbf{H2: The Equity ratio of firms increases due to financial liberalization.}

\textbf{H2A: The equity ratio of priority sector (non-priority sector) firms increases (decreases) due to financial liberalization.}

Next, we study how firm level factors affect the leverage adjustment process. We consider the effect of firm performance, size, growth and firm ownership on the leverage adjustment due to reforms. First we consider the effect of firm profitability on leverage adjustment. The static

\textsuperscript{1} 1992 represents the year of liberalization for India according to IFC.
trade-off theory and the pecking order theory predict a negative association between the leverage ratio and the profitability of a firm. Implication is that there will be decrease in the leverage ratios of high performing firms at a faster rate than low performing firms in response to financial reforms. Contrastingly, the agency theory predicts a positive association between leverage and performance which implies that there will be increase in the leverage ratios of high performing firms at a slower rate than low performing firms due to financial liberalization. Which of these hypotheses is true is an empirical question which we try to answer.

**H3: The rate of decrease of leverage ratio for high performing firms is greater than the rate of decrease for poor performing firms due to financial liberalization.**

Our next hypothesis examines the differential response of firms with varying size to financial reforms. Rajan and Zingales (1995) and Love (2001) mention that, given the higher degrees of information asymmetry, smaller firms are more likely to be financially constrained than larger firms. Financial deepening\(^2\) and greater competition in the financial markets, which is expected from a financial liberalization process, then should have a more positive impact on small firms compared to large firms.

**H4: The rate of decrease of Leverage ratio for large firms is greater than the rate of decrease of leverage for small firms due to financial liberalization.**

The growth theory predicts a negative association between firm growth opportunities and the leverage ratio under the assumption that stock markets are the better evaluators of future growth options. As we have discussed, both banking system and stock markets develop due to financial

\(^2\) Increase in the reach of the financial system in its geographical spread and accessibility to hitherto not covered firms.
liberalization, these developing stock markets should become a major source for firms to finance their growth options. Thus for a given level of profitability, the leverage ratio for growth firms should decrease at a faster rate than non-growth firms. The pecking order hypothesis proposes an opposite view. When firms have more growth opportunities, assuming that they have a need to decrease (increase) their leverage because of liberalization, then for a given level of profitability, firms should decrease their leverage at a slower (faster) rate because firms would use their internally generated capital for financing their new projects thus less (more) is available for repurchasing of debt. We test for these possibilities through our hypothesis five.

**H5:** The rate of decrease of leverage ratio for growth oriented firms is greater than the rate of decrease of leverage ratio for non-growth oriented firms in response to financial liberalization process.

Monos et al., (2007) argue that in the Indian context business group affiliation creates a virtual capital market and hence leverage decisions are different for business group affiliated firms. Confirming this view Molen (2005) observes substantial within business group capital transfers in Indian business groups. These findings establish that business group affiliated firms have a different financial institutional setting and given this setting how these firms respond to financial liberalization is another empirical question to be answered. If financial market imperfections are the cause of business group affiliation then financial liberalization, which aims to correct market imperfections, should cause business group firms to respond differently from others. The response of business group affiliate firms depends mainly on how the resources used to be shared among the business group firms\(^3\).

---

\(^3\)the most common methods were cross-holding of shares and debt
H6: Business Group affiliated firms show different leverage response to financial liberalization process compared to stand-alone firms.

4.2.2 Financial liberalization and debt structure/specialization

Demirguc-Kunt and Meskimovic (1999) argue that firms’ choice of debt instruments depend on the degree of information asymmetry, the agency costs and the effectiveness of legal enforcement of contracts. As discussed in previous sections, financial liberalization affects these forces. Moreover, we expect debt maturity pattern to change following financial liberalization for many specific reasons. First, it is observed empirically that the regulation of financial systems encourages firms to have more long term debt while deregulation increases the share of short term debt (Demirguc-Kunt and Meskimovic (1999)). Second, financial liberalization opens up growth opportunities for firms and as noted in the literature review, equating growth opportunities with options, Mayer (1977) and Barclay and Smith (1995) argue that firms with more growth options would opt for short term debt as that will reduce the underinvestment problem associated with long term debt. Third, the agency theory predicts that in a liberalized system, with more discretion at their hands, banks have an incentive to issue more short term debt as it allows them to monitor managers’ actions more effectively. Lastly, the signaling framework hypothesizes that in the presence of information asymmetry, high value/quality firm would issue short term debt as the sensitivity to mispricing is lower for short term debt and financial liberalization decreases the degree of information asymmetry in the system.

We first evaluate how firms, existed under financial regulation, change their debt maturity patterns once those economies deregulated their financial system. As Demirguc-Kunt and
Meskimovic (1999) note that the government debt schemes likely to favor the accumulation of long-term debt, we presume that firms had higher proportion of long term debt in their debt structure at the beginning of liberalization and they reduce it gradually with reforms as government sponsored debt schemes are removed in the course of reforms.

**H7: The proportion of long term debt in the total debt decreases due to financial liberalization.**

In a regulated financial system, banks would not have discretions in structuring financial instruments especially with government sponsored debt schemes. When regulated banking system is liberalized banks will have more power in structuring the financial instruments. The agency theory predicts that banks issue more short term debt since it increases the effectiveness of monitoring firms’ action in the light of the moral hazard problem. Thus, firms with higher bank debt should also have higher short-term debt. Based on these observations we have the following hypothesis:

**H8: The share of long-term debt to total assets decreases at a faster rate for the firms with higher ratio of bank debt to total assets compared to the firms with lower ratio of bank debt to total assets in response to financial liberalization.**

Small firms experience higher degrees of information asymmetry compared to larger firms and hence they are financially more constrained. Leverage and debt maturity decision are, therefore, different for small firms. It is observed that when financial system is liberalized, small firms benefit more from banking development which reduces their financial constraints (Leaven, (2000)). Given the degree of information asymmetry banks favor issuing short term debt to small
firms since it facilitates better monitoring. Large firms on the other hand will be able to secure long term debt because of two reasons:

1) They have a higher probability of being listed on the stock market and their listing status reduces the degree of information asymmetry and

2) In the presence of agency costs, stock markets act as efficient monitoring mechanisms (Easterbrook, (1984)) therefore banks incentive to monitor manager’s action is diminished.

In a situation where both stock markets as well as banking system develop simultaneously (as happened in India), it is expected that large firms increases their long term debt in response to developments in the stock markets while short term debt in small firms increases in response to banking development. Thus, financial liberalization should affect debt maturity patterns of small firms differently. Based on these observations, we have the following hypothesis:

**H9: The ratio of long term debt to total debt decreases (increases) for small (large) firms due to financial liberalization.**

In the next hypothesis we test Myer’s (1977) argument that firms with more growth opportunities should have more short term debt because of underinvestment problem hidden in the long-term debt. The question of sharing of rents with old debt holders do not arise at all if the financial system is relationship (banking) dominated and hence underinvestment problem does not arise. When banking based financial system move towards arms-length based financial system then the problem of underinvestment arises slowly depending on how fast the movement is. Underinvestment problem hidden in growth hypothesis pre-supposes two important financial market conditions:

1) Existence of a well-developed arms-length debt market and
2) Strong enforcement mechanisms of debt contracts.

To the extent that financial liberalization is able to develop these conditions to that extent we should observe that growth firms start using short term debt. As discussed earlier, arms-length debt market in India was virtually dead for private corporate firms in the pre-reform period and financial liberalization is expected to develop arms-length debt markets. Hence conditions favorable for the growth hypothesis should start operating in the new environment. Therefore, we should observe higher proportions of short term debt in the total debt for growth firms compared to non-growth oriented firms.

However, in the initial phase of liberalization this growth trend should be visible only among bigger firms because of two strong conditions which prevent small firms from accessing debt markets
1) Higher degree of information asymmetry and non-availability of credit ratings
2) High fixed cost involved in issuing debt instruments make bonds relatively costlier for small firms.

So, in order to test whether or not growth hypothesis has become relevant in India, we conduct our analysis consisting only of listed firms since these have higher probability of accessing debt markets.

**H10: The decrease in the ratio of long term debt to total debt due to financial liberalization is higher for the listed firms with higher growth opportunities compared to the listed firms with low growth opportunities.**
Generally, regulated financial systems lack many financial instruments because of heavy regulation of financial innovations; financial liberalization increases the rate of financial innovations in financial systems (Blundell and Browne (1991)). In absence of diversified financial instruments, firms are forced to use available instruments irrespective of the suitability of those instruments to meet their needs. Thus, a high degree of debt specialization is expected (using a dominant type of debt source to meet all their requirements) in a regulated financial system. The effect of financial liberalization on debt specialization patterns is ambiguous. Availability of more financial instruments, because of enhanced financial innovation, favor the view that financial liberalization decreases debt specialization while patterns observed in the developed countries (with developed financial markets) suggests the contrary possibility. Firms in developed financial markets have high degree of debt specialization because firms choose that type of debt which suits its need best (Rauh and Sufi (2010)). We formulate the following null hypothesis to test debt specialization patterns following financial liberalization:

**H1: The degree of debt specialization at firm level does not change following financial liberalization.**

Allen et al., (2012) find that alternative sources of debt (funds raised from friends and relatives, loans given by group associated firms, trade credits and debt contribution by the founders and the promoter) were the primary sources of external finance for Indian firms. We argue that these alternative sources were important given the poor development of financial system in the pre-reform period. Financial liberalization changes the relative importance of these sources of debt for firm financing. It is expected that financial liberalization reduces the importance of alternative sources of debt for firm financing while increasing the importance of formal sources
of debt which consists of bank debt, bond and debentures. Moreover, given the expectation that financial liberalization deepens the formal financial system and thus increasing the access of financial systems to small firms, the substitution of alternative sources of debt will be more robust for small firms. Following these arguments, we have the following two hypotheses:

**H12: The ratio of formal debt to total assets increases following financial liberalization.**

**H13: The increase in the ratio of formal debt to total assets is higher for small firms compared to larger firms due to financial liberalization.**

Khanna and Rivkin (2001) argue that group membership helps a firm to fill the void created by market imperfections in the labor, product and capital markets. Khanna and Palepu (2000) argue that high level of market imperfections in the emerging countries leads to resource sharing among group companies. The main channels of Resource sharing are cross-shareholding, direct debts and trade credits. Rectifying the capital market imperfections through reforms should change the group financing preferences. Consequently, we assume that internal capital market that existed between group affiliated firms through sharing of resources in the form of debt (both direct debt and trade credits) should decline following the liberalization. Thus, we have the following hypothesis,

**H14: Group affiliated firms do not show any change in their ratio of group component of debt\(^4\) to the total assets following financial liberalization.**

---

\(^4\) It includes trade credits, inter-corporate loans and promoters debt