Synopsis

1. Introduction

Financial systems affect the leverage and debt maturity decisions of firms. The impact of differences in the financial environment on the capital structure and debt maturity decisions of firms has been examined in the financial literature, in a cross-country approach by Booth et al., (2001), Demirguc-Kunt and Meskimovic (1994), Demirguc-Kunt and Meskimovic (1999) among others. We make use of a unique setting in which gradual financial reforms change the financial environment of firms’ working, temporally, within a country. Specifically, we examine the changes in firm behavior with respect to capital structure and debt maturity decisions in the context of a series of gradual financial reforms that resulted in

1) Banking dominated financial system to move towards a stock market dominated financial system in relative terms
2) Gradual development of an underdeveloped banking system in its size, efficiency and geographical spread and
3) Removal of regulation induced imperfections in a capital market like credit rationing, administered interest rates, interest subsidy…etc.

To capture the gradualist nature of financial liberalization, we have used the modified form of financial liberalization index of Abiad et al., (2008).

2. Contribution to the literature

Our contribution to the body of literature is through the comparison of the effect of temporal differences in financial institutional setting on leverage, debt maturity and debt specialization decisions of firms. Hitherto these questions were examined, across space, in a cross-country
approach (Booth et al., 2001), Demirguc-Kunt and Meskimovic (1994) Demirguc-Kunt and Meskimovic (1999)). We examine these questions for temporal changes in the institutional settings within a given country i.e. India. If the findings of the earlier studies are true because of differences in the institutional setting across countries then finding positive results for a temporal study like ours should shed more light on the mechanism of influence of institutional setting on firm leverage and debt maturity structure decisions. Secondly most of the studies in this domain treat financial liberalization as a single event phenomenon and conduct an event study comparing the pre-reform period decisions with the post-reform period decisions in a defined event window (Bertrand et al., 2007, Henry (2002)). Rarely financial liberalization is a single event phenomenon; it is, normally, a gradual phenomenon with each measure built over the previous one. Previous studies overlooked this feature of financial liberalization; we consider this ‘gradualist’ nature of financial liberalization by using the financial liberalization index constructed by Abiad et al., (2008) in its modified form. Thirdly, our study will shed light on how reforms work in a developing country like India. Responses to reforms in a developed financial system would be different from those responses in an underdeveloped financial system. Many studies have already been conducted in the developed world context e.g. Jayaratne and Strahan (1996) examine the impact of bank branching deregulation on the availability of credit and Bertrand et al., (2007) examine the impact of banking deregulation on firm capital structure on French firms. But there is no major study in the context of a developing world. Lastly, unlike other cross-country level studies, our study concentrates on a single country that is India, thus eliminating confounding effects due to inherent differences across countries not related to financial reforms/liberalization.

3. Methodology and Data:
3.1 Methodology

In this section we present the basic model which we use in our analysis. Modeling the impact of financial liberalization on corporate finance decisions requires controlling for the influence of other variables on the phenomenon of interest so that the marginal impact of the financial liberalization could be gauged. The base model for estimation is presented in equation (1). We have used the fixed effects with robust estimation technique

\[ Y_{jit} = \alpha_j + \beta_1 Size_{jit} + \beta_2 ROA_{jit-1} + \beta_3 Growth_{jit} + \beta_4 Tangibility_{jit} + \beta_5 Index_i + \varepsilon_{jit} \]  

(1)

where

- \( Y_{jit} \) is the corporate finance measure (CFM) of \( j^{th} \) firm of \( i^{th} \) industry at time “\( t \).”
- \( \alpha_j \) is the coefficient for firm fixed effects,
- \( \varepsilon_{jit} \) is a random error term with mean zero and a constant variance.

We use five measures of CFM in our study. They are leverage ratio, debt specialization ratio, long term maturity ratio, formal debt ratio and group debt ratio depending on the hypothesis to be examined. Our analysis involves mainly studying the influence of financial liberalization on the these CFM measures, index is the main liberalization variable adopted in the modified form from Abiad et al., (2008). Various firm level characteristics such as size, performance, growth opportunities and tangibility also influence leverage decisions and hence included in the model as control variables. For analyzing the mediating effect of firm specific variables on the adjustment process, we multiply (interact or product) the interested firm specific variable with the financial liberalization variable (i.e. product term involving the interested variable and the financial liberalization index). The sign and significance of the interaction term would indicate
the influence of firm variable on the adjustment process. We use one year lagged value of ROA as one of the control variable for two reasons:

1) To adjust for the endogeneity problem which arises because the variables size and performance are causally related and
2) The leverage decisions of a firm depend on the previous years’ performance not on the current year’s performance.

3.2 Data

The firm level data for non-financial firms will be derived from the Center for Monitoring Indian Economy (CMIE) Prowess database. The CMIE database contains information for both listed as well as unlisted firms from 1988 onwards and hence our data spans the period from 1988 through 2005. The end point for our data was dictated by our measure for liberalization, reforms index, which ended in 2005. In total, our data has 33,873 firm year observations.

4. Research findings

In this study we examined the impact of financial reforms on the corporate financing decisions of Indian firms particularly capital structure and debt maturity structure decisions. We assume that financial liberalization would change the structural elements of the financial system and thus affecting firm behavior. Two important structural changes on which our hypotheses were built are:

1) Improvement in the relative importance of stock markets vis-à-vis banking market and
2) The development of underdeveloped banking system in its size, efficiency and geographical spread.

Our results show, as predicted, a decrease in the leverage ratio of Indian firms due to financial liberalization and the decrease was mainly observed in the long term component of the leverage.
Moreover, as expected, the observed decrease in the leverage ratio at the aggregate level is mainly because of a decrease in the leverage ratio of those firms who were the beneficiaries of the government programme in the pre-liberalization period (priority sector firms). For other firms, i.e. those which were outside the government subsidy programme in the pre-liberalization period, the long term leverage ratio actually increased in response to financial reforms thus confirming the findings of Bertrand et al., (2007).

We find that the decrease in the leverage ratio was offset by a corresponding increase in the external equity ratio. The rate at which the external equity ratio increases is lower for non-priority sector firms compared to priority sector firms, which confirms our prediction that stock market liberalization/reforms would provide a new avenue for firms to raise new resources required to fund their projects in the liberalized regime.

We find that firm size, performance and firm growth opportunities all affect the firms adjustment behavior for financial liberalization. Also, we find that financial liberalization has a negative impact on the proportion of long term debt in the total debt. This result supports the findings of Demirguc-Kunt and Meskimovic (1999) who find that firms in a regulated regime normally have a larger proportion of long term debt in the total debt. This might be due to the fact that government’s aid/support for firms in a regulated regime would take the form of long term loans and hence, when those aids are withdrawn, the proportion of long term debt in the total debt would decline. The result of our analysis support this argument as we find Long Term Maturity ratio (LTM) of priority sector firms declines while for non-priority sector firms it increases.

With regard to debt specialization, our results show that firms became more specialized in the usage of type of debt in their debt structure due to financial liberalization. The most common
form of debt specialization is bank debt specialization, the concentration of which increased during 1988 to 2005 period due to financial reforms.

With respect to size effect, we observe that small and large firms behave differently for financial reforms. The observed decrease in the overall leverage ratio at the aggregate level is actually due to a decrease in the leverage ratio for larger firms while for small firms no significant change was observed. In the case of long term leverage analysis, we find there is decrease in the long term leverage ratio for both the small and large firms but the decrease is faster for large firms compared to small firms. With respect to debt maturity structure changes, a decrease in the long term debt maturity ratio is observed for both the groups but for large firms the rate of decrease is higher. Combining these two results would help us understand the actual process of leverage reduction; i.e. The long term leverage ratio and long term maturity ratio were decreased for both small and large firms. However, total leverage decreased at a faster rate in large firms compared to small firms but the decrease in the LTM is slower than that of small firms. Interpretation is that for large firms both the short term and long term debt were decreased and hence the proportion remains almost the same whereas for small firms only long term debt decreased and thus, the proportion of long term debt in total debt decreases at a faster rate.

Group affiliated firms also show differential response to financial liberalization. Overall, there is a decrease in the leverage ratio of group firms but interestingly, this decrease in the total leverage ratio is not from a decrease in long term debt component but from a decrease in their short term debt component. Whereas for stand-alone firms both the short term and long term leverage ratios were decreased due to financial reforms. For group affiliated small firms, the proportion of debt
from formal financial institutions decreases because of reforms and this decrease is compensated by a corresponding increase in the internal debt of the group. For large group affiliated firms, the reverse trend is observed because of reforms.

Other important findings of this thesis are:

i. There is a decrease (increase) in the proportion of debt from formal institutional sources for priority (non-priority) sector firms due to financial liberalization.

ii. The size group wise, the rate of decrease in the proportion of institutional debt is significantly higher for small firms compared to large firms due to financial liberalization.

iii. Financial liberalization results in the decrease (increase) of leverage ratio of high performing (low performing) firms.

5. Conclusions

The results of our study support the findings of earlier cross-country studies which have shown that firms in a stock markets dominated financial systems had a significantly lower leverage ratios. When the relative importance of stock markets develops, as happened in the Indian case, a decreasing trend in the leverage ratio is expected and that is what we have observed exactly in our study. We find an increasing external equity proportion both for priority and non-priority sector firms thus, stock market development helped firms to increase their external equity ratio in their capital structure or conversely to bring down their leverage levels. Also, we find an increase in the proportion of bank debt in the total debt due to reforms. If we consider these two findings jointly i.e. decrease in overall debt ratio together with increasing bank debt ratio, it is clear that the proportion of debt from other sources was decreased and a part of this decrease was
compensated by an increasing bank debt. Thus, the development of an underdeveloped banking sector helped firms to have a better access to banking debt. Finally, our study provides supporting evidences for earlier researches which argue that firms in stock market dominated financial system will have significantly lesser debt compared to firms in banking dominated financial system and the development of an underdeveloped banking system helps firms to decrease their dependencies on other sources of debt funding.

*Keywords: Financial liberalization, corporate finance, capital structure, debt maturity structure and debt specialization*