Financial Liberalization and Capital Structure Dynamics in developing countries: Evidence from Emerging Markets of South East Asia

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1. Introduction
1.1 Research motivation

The motivation behind this paper is to provide a dynamic view of the capital structures of non financial firms in developing countries. More specifically, I will argue that a firm’s financing policy is not only influenced by trade off between the tax advantage of debt financing, re capitalization and financial distress costs (Mauer and Triantis, 1994) but also by exogenous financial sector development shocks. These exogenous shocks represent continuous events of deregulation in financial markets activities. Firms did not anticipate the sequencing of liberalization programme. It can be argued that firm level response to these events was not optimal until full liberalization took place. The experiment of liberalization provides an opportunity to study capital structure as function of orthodox firm level characteristics and unique liberalization indices. I believe that financial deregulation reinstate market mechanism and enforce evolutionary argument that most efficient firm stays in market. These firms are able to access capital market (Zingales, 1998) and less efficient firm exit from industry. This optimization approach towards understanding capital structure within industry after incidence of liberalization has not yet been applied in empirical research. It is methodological improvement over commonly used empirical methodology because it explains cumulative effect of financing decision on firm value during natural experiment of liberalization.

A careful review of previous empirical studies in developing countries reveals that these studies have focused on explaining relative use of debt, equity or internal finance using aggregate financial ratios (Mayer, 1988, 1989, and 1990; Glen and Pinto, 1994; IFC,
1991). These studies conceal rather explore considerable changes in firm’s financing behaviour which has occurred because of financial reform in these countries (Green and Mutenheri, 2002) with some exceptions (Demirguc-Kunt and Maksimovic, 1996, 1997, and 1998). In addition, using standard empirical methods (Singh and Hameed, 1992; Rajan and Zingales, 1995) to reconcile determinants of leverage in developing countries and developed countries (Booth et al, 2001; Cobham and Subramaniam, 1998) studies have also missed capital market development factor in developing countries. Since 1980, firm level financing behaviour in developing countries has evolved in response to financial and economic reforms. Therefore, an essential next step in understanding corporate finance in developing countries is to examine how dynamics of capital structure have been influenced by financial reform programmes (Green and Mutenheri, 2002) and developing countries are ideal testing ground for this alternate argument of dynamic capital structure.

1.2 Research Background

Firms in developing countries face higher costs of adjustment due to financial sector regulations. In developing countries, government subsidizes credit to certain priority sectors. In addition, government restricts foreign investment in securities markets, and restricts debt to equity ratio of listed firms. Such regulations in financial sector do not allow firms to match cost of capital of other priority sector firms and reap similar tax and soft budget benefits. This situation is further aggravated when multinational firms are allowed to enter country and they crowd out local firms from domestic credit market (Harrison and McMillan, 2002). It happens because foreign firms with favourable characteristics wish to be identified (Pyle and Leyland, 1977) and would deal with informationally efficient intermediary (foreign banks) rather than an uninformed set of local lenders offering average value of risk. Therefore, there is a reason to believe that private credit markets are more supply constrained for local firms due to government restrictions. In such a context, a local independent firm with weak signal may adopt different route to external finance depending upon exogenous constraints imposed on its capital structure e.g. no dividends (Green and Mutenheri, 2002).
However, when a country moves away from this controlled regime to a more liberalized financial regime, it experiences unexpected exogenous financial markets development shocks. Its benefits spread over production and financial activities. The ‘real’ sector dynamics appear as firms can signal about their true value directly and indirectly. Entrepreneurs may seek external equity finance and retain certain block of ownership. Similarly, a significant ownership of high quality investors in firm can send positive signals to market. Indirectly, an independent evaluation of company through market monitoring via. Credit rating agency can ease its access to credit and enhance its value. Thus, instead of focusing on firm specific static characteristics, continuous market monitoring of firm can provide better explanation of its speed of adjustment to its target capital structure. In a liberalized regime, firms will be able to adjust their capital accumulation behaviour depending upon business risk and investment opportunities observed by capital market. However, liberalization has sometimes unexpected outcomes like banking and currency crises that undermine ‘real’ effect of liberalization. Studies on political economy of liberalization have illustrated other problematic, undesirable, and uncontrollable effects of liberalization (Zhang, 2002; Li and Smith, 2002 and Perez, 2000). The critics of liberalization blame the outcomes on inadequate macro economic management and micro level monitoring of firms’ capital structure. So far in liberalization literature, very limited work has been done to delineate ‘real’ effect of liberalization on firm level capital structure (Schmukler and Vesperoni, 2001). Therefore, there is a need to establish this link between conscious promotion of financial sector liberalization and its influence on firm level dynamics of capital structure in developing countries. More specifically, to explore capital structure adjustment behavior of local, foreign and state owned firms for the reasons as mentioned above. This research will not only build on current research in the discipline of development and financial economics but also integrate development and financial economics literature.

1.3 Research Strategy

The multi facet nature of financial reform – involving deregulation, liberalization, globalization, and privatization complicates the measurement of its effects (Bandiera et
al. 2000). I will adopt the convention of dating deregulation in financial sector, and then construct two distinct indices: bank liberalization and securities market liberalization index that will allow me to evaluate their direct impact on capital structure decisions. The dating convention was first used by in empirical work by Ross (1987) in evaluating the incidence of regulatory rents in the motor carrier industry. More recent studies have employed this technique in financial liberalization research, either using discrete or continuous measures of liberalization (Vlachos and Waldenstron, 2002; Bekaert et al. 2002; Henry, 2000; Eichengreen, 2001). For example, capital account liberalization indices - IMF Index and Quinn (1997); equity market liberalization index (Kaminsky and Schmukler, 2001) and financial intermediation liberalization index (Bandiera et al. 2000). I believe that regression of leverage ratio on liberalization index can capture the independent effect of liberalization controlling for development of bank and stock markets.

I will focus on independent effect of bank and securities market liberalization on corporate finance using firm level panel data of South East Asian countries- India, Indonesia, Malaysia, Pakistan, Korea, and Thailand. These countries are of interest for several reasons. First, these countries have experienced shifts in financial regimes since 1980, in some cases it started an earlier e.g. Indonesia, Malaysia, and Korea. Second, all of these countries have been included in the sample of countries in capital structure empirical studies like - Booth et al (2001) sample period 1980-1990 and Schmukler and Vesperoni (2001) sample period 1990-1999. Also in empirical financial liberalization studies like - Laeven (2003) sample period 1988- 1999, and Bandiera et al (2000) sample period 1970- 1994. Therefore, results from this study can be compared with these studies. Third, all of these countries have significantly liberalized their financial sector policies, but differ in nature and phasing of financial liberalization. This variety will allow exploring the degree to which the firm level capital structure dynamics vary from country to country when similar policies have been followed. For instance: bank sector liberalization measures interest rate deregulation, removal of priority credit, bank ownership, increase in scope of banking sector activities and prudential regulations (Bandiera et al. 2000).
1.4 Research Contribution

My research contribution will be threefold. First, I will shed new light on capital structure dynamics in developing countries. If firms were constrained in their access to financial market, then pre liberalization leverage might be sub optimal or high. Stock market listing would have helped these firms to balance their debt and equity portfolio. This argument is similar to whether liberalization eased financing constraints faced by firms as addressed in recent research, but I will rather investigate response of firm during partial and full liberalization. This natural experiment of liberalization will allow me to test validity of capital structure theories in dynamic setting. I will achieve this goal by using convention of dating liberalization events, orthodox firm specific characteristics and endogenising adjustment cost. By fine tuning the distinction between firms – as local, foreign and government owned like Harrison and McMillan (2002), a clear picture of capital structure dynamics will appear across different types of firms. Second, financial liberalization is an area of growing interest as number of transition economies in Central Europe and Asia are now striving to liberalize their financial system to allow market forces to determine size and activity of financial system. In this regard, evidence from a sample of developing countries’ conscious efforts to promote liberalization will act as benchmark. Third, by establishing a framework to discuss role of institutional building measures in developing countries, I will be able to make policy recommendation on how to sustain a nexus of global finance, corporate finance and national sovereignty.

1.5 Research Hypotheses

I will evaluate the impact of financial sector deregulation on capital structure adjustment behaviour at firm level, using panel data of South Eastern Asian developing economies. The incidence of financial liberalization is a natural experiment to test theories of capital structure. The literature review provides incidence of very few studies (Zingales, 1998, Rose, 1985, Schipper et al. 1987) that explore effect of deregulations on firm survival and industry competition. Liberalization that has been an exogenous shock to financial
environment has not been investigated in similar spirit. The access to firm level panel data makes it possible to investigate micro effects of financial reform on the allocation of credit and changes in sources of funds, which varies according to national origin, size, age, market orientation and other firm level characteristics.

This research will focus on three hypotheses:

1) **Size and activity of both equity and banking markets are individually influenced by financial liberalization bringing about changes at firm level capital structure** (*H1*).

If banking sector liberalization reduces differential between international and domestic interest rates on loans (Kincaid, 1988) and equity market liberalization reduces the cost of equity capital (Henry, 2000), then, there is a reason to believe that financial liberalization will have effect on capital structure at firm level. There is a reason to believe that banking sector reforms may hurt the politically connected firm (Chui et al, 2000) relative to the independent firm in liberalized financial system, which has been shielded from competition in capital markets due to government’s lax lending rates.

2) **Firm level capital structure moves closer to target level leading to optimum market value realization in liberalized financial system** (*H2*).

Empirical evidence on determinants of capital structure in developing countries argue that factors that influence capital structure choice are similar between developed and developing countries (Booth et al, 2000). These results have been verified across countries by invoking capital structure theories. However, empirical results has fallen short in explaining exogenous shock to capital structure adjustment for of local, foreign and government owned firms. More specifically, we do not know how local firms compete with foreign firms for funds available. What is the short and long run implication of exogenous financial development shocks and its influence on value of firm? If financial liberalization increases supply of external finance and integrates
financial markets, then, observed difference between foreign, local and government firm capital structure would reflect their true value.

3) Development of policies, processes, and institutions similar to those existing in developed economies may lead to reducing foreign debt, higher economic efficiency and societal development (H3).

Global trends in democracy and changing beliefs about the appropriateness of international capitalism has influenced democratization and financial liberalization in many developing countries (Quinn, 2000). It has been assumed that financial liberalization removes the barriers to free flow of capital and encourages domestic investment. The successful financial reform improves the matching between entrepreneurs with good projects and capital. This leads to establishment and monitoring of economy by independent regulations that reduces moral hazard and adverse selection. However, dark side of liberalization is crises, Malaysia, Indonesia, Thailand, and S.Korea were hit by financial crises in 1997. Financial liberalization was considered to be main cause of twin crises- banks and currency crises. This hypothesis can test the validity of these claims by exploring institutional weakness and its impact on debt dependence. The institutional development as a result of liberalization can be evaluated by linking institutional development measures undertaken with gross capital formation, foreign debt dependence and societal development. If these institutional building measures were absent and could not insulate economies from crises, then we can verify the validity of claims. But if it has reduce foreign debt dependence and increase social welfare then there is evidence of financial sector convergence (Busche, 2002).

2. Literature Review

2.1 Introduction

The relative recent drive for financial reform in most countries has been spurred by the belief that the existing financial structure was not adequate to promote and assist growth in real economy (Schiantarelli et al, 1994). Therefore many developing countries moved away, in different degrees, from this structure labeled as repressive financial structure and
introduced liberalization to leave to the market greater role in the determination of interest rates and allocation of financial resources.

### 2.2 Financial Repression Theory

Theory of financial repression has been a noteworthy contribution to development finance literature. Financial repression refers to a set of policies, laws, formal regulations, and informal controls, imposed by governments on the financial sector that distort financial prices-interest rates and foreign exchange rates- and inhibits the operation of financial intermediation at their full potential (Denizer et al, 1988). According to this monetarist argument, financial repression can correct market failures in financial market, lower cost of capital for companies, and improve the quality of loan applicants by selecting out high risk-projects. In addition, if used in conjunction with export-promotion schemes, or preferential credit schemes, financial repression could encourage the flow of capital to sectors with beneficial technological spillovers (Stiglitz, 1989, 1994). The empirical evidence on credit controls in Japan, South Korea and Taiwan has indicated that financial repression contributed to the high performance of those economies. But more systematic cross-national empirical evidence suggests that there are negative correlation between low real interest rates, high reserve requirements, and low degree of financial intermediation on one hand, and investment, growth on other (Roubini and Sala-I-Martin, 1992; Easterly, 1993; Levine, 1993, King and Levine, 1993a, 1993b).

Many development economists dismiss this monetarist argument in favour of financial repression on the ground that government repressed the financial system to smooth out its fluctuations in revenues not for economic development (Denizer et al, 1988). According to this public finance argument, a repressed financial sector is potential source of easy money for the public budget. The high statutory reserve requirements imposed on banks to hold government debt securities increase government seignorage. In developing countries governments rely on indirect taxes on the financial sector through interest rate ceilings or high reserve requirements due to sustained deficits, and weak systems of revenue collection (Roubini and Sala-I-Martin, 1995). However, this public finance approach to explain financial repression falls short in explaining why different
governments facing similar budgetary constraints might choose to regulate their financial system differently (Denizer et al, 1998).

Given these monetary and fiscal policy arguments, underlying financial repression, it is useful to examine impact of financial restrictions on financial intermediation and bank and stock market indicators as a test of the monetary and fiscal policy argument. Since this research aims to establish link between macro economic monetary influence (transmitted through banks and stock markets) with corporate finance behaviour, therefore, fiscal policy argument is out of research scope. The next section explores financial sector dysfunction and its impact on banking sector and securities market development in developing economies. The exposition of financial sector dysfunction set the stage for later explaining how financial liberalization has affected financial sector development.

2.3 Financial sector dysfunction

The financial intermediation channel e.g. banks and development finance institutions play a major role in providing private credit in developing countries. In repressed financial system, commercial banks provided short term loans, whereas, development finance institutions provided long term loans. The development finance institutions provided mostly policy directed loans to selected sectors of economy e.g. agriculture, capital goods industries, transport and housing. The source of funding for development finance institutions was foreign multilateral loans. Governments have used these banks to channel credit to favored groups (in Post war Europe) and provided ‘soft credit’ (in Central and Eastern European countries). Commercial banks were restrained from lending long term because of maximum credit limits coupled with branching restrictions. Restrictions on banking behavior imposed by the government often resulted in credit rationing (Pill and Pradhan, 1997). Entry restriction on foreign banks led to monopolistic banking market with state owned banks controlling a higher percentage of total banking assets. In some countries, government went as far as to appoint head of banks (Schiatteralli et al, 1994). The cost of this financial repression was negative real interest rates, capital flight, and
national dependence on foreign funding for balance of payment deficit. Low deposit rates reduced the supply of loan able funds, increased inflationary pressure, and over valuation of exchange rates put pressure on the balance of payments.

The securities markets of under developed countries were characterised by a limited number, volume and variety of stocks traded; and by a narrow range of participants, with government often dominant (Drake, 1977). The existence of securities market has relatively little effect on the aggregate rate of private savings because there were sufficiently close financial substitutes, e.g. government prize bonds. The attractive feature of securities i.e. the possibility of capital gain or the protection of savings against inflation failed to attract those disposed to risk taking in economy. As, many such risk takers participated in direct business investment of their own or relatives. Only those who were willing to accept illiquidity of investment in private business took initiative to invest in securities (Wai and Patrick, 1973). However, this percentage was low because there was scarcity of accurate information and the costs of obtaining it was inordinately high due to poor disclosure and irregular market monitoring and regulations. Due to high budget deficit, inflation was higher in these countries. According to Maniatis (1971), there are a number of reasons for expecting the demand for securities to be limited in developing countries. The individual savings accrue to unsophisticated people, who are financially inexperienced and have conservative attitudes towards money. Share ownership by individuals tends to be confined to those with high incomes that may spread their risks through diverse portfolios (Drake, 1977).

Price uncertainty reinforces the traditional preference for money over financial assets, which fluctuate in value. In many countries, government is also the major buyer of securities either directly or through its sinking funds, pension funds, or agencies, such as public corporations, government banks, insurance companies and investment funds. Of private sector buyers, commercial banks are the most important due to statutory liquidity requirements, other financial institutions, businesses and lastly, individuals (Drake, 1977).
The composition of real sector also influences the supply of securities issue in developing countries. Agriculture sector dominates economies of many developing countries, public utilities commonly provide power, transport and communication service, while the industrial sector is small and weak. Industrial, commercial and extractive businesses are in commonly owned and controlled by foreign firms. Foreign firms do not prefer to raise capital locally unless persuaded or obliged to do so by local authorities (Drake, 1977). Multinationals substitute internal capital for external capital in systematic way across different borrowing environments to overcome shortcomings associated with external credit market conditions. These firms substitute parent provided debt for external debt in countries where creditor’s rights are weak, locally provided debt is scarce and expensive. For example, US multinationals exhibit high leverage ratios in countries such as Japan and Switzerland, which have very deep credit markets, and considerably lower ratios in countries such as Peru, Panama, where domestic credit is scarce. Multinationals use more debt in high tax environment countries. However, to hedge inflation and political risks in developing countries, these firms increase external borrowing in local currency (Desai, Foley and Hines, 2003). Family owned companies are common and reluctant to admit outside capital, and risk dilution of control (Wai and Patrick, 1973; Claessens et al, 2000). The turnover of securities is typically low in under developed countries. New issues are bought for holding rather than trading (Wai and Patrick, 1973). Occasional and intermittent sharp accelerations of turnover are associated with speculation, which produces wide price fluctuations. These conditions make equity market unattractive to investors in developing countries.

Goldsmith (1969) and later McKinnon and Shaw (1973) persuasively challenged financial repression. Goldsmith (1969) presented a case of higher marginal productivity of capital due to financial liberalization. Whereas, McKinnon and Shaw (1973) explicitly focused on important financial intermediation elements like deregulation of interest rates, reduction in reserve requirements, directed credit programmes, and interest rate ceilings. According to McKinnon, high rates of interest for both lenders and borrowers introduce the dynamism that one wants in development, calling forth new net savings and diverting investment from inferior uses so as to encourage technical improvement. High interest
rate would encourage mature borrowers to seek equity finance instead of bank loans. Liberalization of interest rates will bolster up savings and encourage new private investment.

Similar arguments were put forward to influence supply and demand of securities in economy. On supply side, some emphasized on concessions should be given to firms to promote supply of securities which may encourage companies to issue shares and debentures (Ness, 1974). On the demand side, some have argued that securities can be made attractive by tax concessions in favor of shareholders. Indexation of the principal and income of nominal value securities will enhance the demand for such securities. The demand for securities may be greatly augmented by the imposition of portfolio rules upon banks and other financial institutions. The demand for securities will also be stronger the greater their liquidity, which will be improved by willingness of central banks to rediscount them, and commercial banks acceptance of securities as collateral for overdrafts. Finally, official supervision of trading in the securities markets is imperative if shares and bonds are to become attractive assets. The objective of official regulation should be to provide for the full disclosure and wide dissemination of accurate information about companies whose stocks and bonds are traded to prevent various forms of market rigging to protect the interest of minority shareholders, and to encourage development of specialized services and techniques. These measures should be taken to in a spirit to promote capital markets (Wai and Patrick, 1973) a regulatory overkill may actually inhibit capital market development.

The liberalization proponents also argued that the benefits of the conscious promotion of securities market and banking sector deregulation should be compared to costs associated with this promotion. Government might have to spend a lot on building market infrastructure e.g., building, technology and staff training etc. a much more important consideration is that government budget would suffer a fall in revenue as a result of allowing any of tax concessions. The opportunity cost of subsidising the development of securities markets in this manner is assumed to be high (Wai and Patrick, 1973). It is also difficult to reach a judgment in this matter, as only society can decide whether the trade
off was worthwhile. The social costs of government assistance to those who participate in the securities market should be viewed in relation to those costs of government interventions elsewhere in economy. When compared with massive, and often, fruitless, government assistance given by tariff protection and subsidy to agriculture and manufacturing industry in so many developed countries. The cost of promoting a securities market may not look so great and well be a good gamble on generating savings and enterprise in the longer run.

2.4 Financial Liberalization

These theoretical arguments put forward a strong case of liberalization in countries with repressed and underdeveloped financial structure. During the last three decades, domestic financial markets in developing countries have become less segmented and more integrated with world financial centers (Kincaid, 1988). Financial liberalization has diminished the segmentation of domestic financial markets, promoted greater efficiency in domestic financial markets and increased the access of domestic institutions to international sources of finance. Liberalization has proceeded along two basic lines: relaxation of price and quantity restrictions and easing of limitations on certain types of financial activities. Liberalization measures have either eased relaxation on the right of establishment (such as entry of new foreign banks, new domestic banks and finance companies). It has allowed financial interaction with certain sectors of economy and diversification of the portfolios held by financial institutions. However, there are different opinions and remarks about the success and failures of internal and external liberalizationiii, as research interest in this area has advanced and continues to grow.

The notion of financial liberalization has also been under criticism from Neo-structuralist (Buffis, 1984; Khosaka, 1984; Lim, 1987; Morisset, 1993) as well as modern economists because it has implicit assumptions about perfect information, perfect markets and institution free analysis. Neither of these perquisites existed in developing countries at the time of liberalization. Neo-structuralist argues that curb market has informational advantage over banks in monitoring and lending. The informal market thrives on
exploiting information in small segments and achieves economies of scale. Liberalization proponents argue that informal market suffers from local shocks and it is not clear, how it can distribute credit efficiently at firm level. This controversy can be only solved through empirical results. According to modern economists, liberalization is cause of recent wave of currency and banking crises. Liberalization made local economies vulnerable to global contagion shocks.

Another facet of this criticism is related to financial liberalization and globalization of finance has been unexpected volatile financial markets in developing countries\(^1\). Financial institutions and markets have become principal channels through which national sovereignty is being challenged. Corporate finance system have been vulnerable to speculative investments creating huge problems of non-performing loans and vanishing of listed companies from stock markets. Moreover, many developing countries are increasingly under surveillance of international financial institutions that is creating impediments to their national and societal development goals.

Do the expected benefits of the conscious promotion of securities market and banking sector have translated into wider financing choices at firm level? What is the influence of exogenous financial sector development on capital structure? It requires an empirical investigation. Next section reviews empirical evidence on the effects of liberalization based on aggregate country and firm level data.

2.5 Effects of Liberalization: Empirical Evidence

Empirical evidence discussed in this section includes both macro and micro economic effects of liberalization. At macro level, empirical evidence exists on positive effect of liberalization on aggregate growth rates and investment (King and Levine, 1993, 1997). The effect of financial liberalization on the savings has been less consistent across different studies. For example, Some studies have found reduction in savings after

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\(^1\) Tomas and Sundararajan (1994); Demirguc-Kunt and Detragiache (1997, 1998); Rudiger, Goldfajin and Valdes (1996)
financial liberalization (Bandiera et al 2001; Rossi, 1988), whereas, Fry (1988) found a significant positive effect of the interest rate in a traditional savings equation, using panel data for Asian Countries. The reason given for this contradictory result, according to Reynoso (1989) is non-linear relationship between savings and interest rates. Similarly, to investigate impact of financial reform by looking at economy wide measures of efficiency, Gelb (1989) found that increased interest rates are associated with greater efficiency, as measured by incremental capital output ratio.

Instead of looking at effect of financial liberalization on savings, another set of papers has directly analyzed its effects on allocation of credit and reducing severity of credit constraints faced by firms (Gelos and Werner, 2000; Sancak, 2002; Habibullah, 1999; Ozatay, 2002; Laeven, 2003, Jaramilo et al , 1992, 1993). These studies have used different investment models ranging from classical accelerator, Production function to Euler equation approach. Using production function approach, studies have estimated the distance of each firm from the production possibility frontier referred. It has been referred to as technical efficiency of firm. Using this terminology, these studies have estimated whether efficient firms get greater or smaller share of investment after liberalization (Jaramilo et al, 1992). In a similar vein, other studies have looked at whether liberalization reduces financing constraints for firms using Euler equation approach (Jaramilo et al, 1993; Siregar, 1992, 1993). The econometric evidences have been surprising across countries. Financial liberalization has been associated with shift of resources from smaller firms to larger firms, which are both efficient and more profitable after liberalization in Ecuador. There is a decrease in leverage for all firms and substantial decrease in case of smaller firms (Jaramilo et al, 1992). In case of Indonesia, degree of leverage increased for small firms after liberalization, contrary to previous case of Ecuador. Leverage also increased for larger firms and firms were successful in obtaining foreign credit.

The available evidence also indicates that financial system development is associated with increase in investment in growing industries and decrease in investment in declining industries (Wurgler, 2000). Rajan and Zingales (1998) found that industry dependent on
external finance grows faster in economies with higher level of financial development. Financial liberalization increases the efficiency of allocation of investment, measured in terms of higher marginal return on capital. It follows from this finding that financial development appears to create market more efficient and complete.

According to liberalization hypothesis, banks are more efficient in monitoring and screening of loan applicants than curb market, therefore, there will be decrease in premium for external finance after liberalization for a given level of borrowing and collaterizable wealth. Thus, liberalization will reduce credit constraints. In this regard, there has been little consensus on defining financial constrained firms as different measures have been leading to different results. These studies categorise firms according to their characteristics (such as dividend pay outs, size, age, group affiliation, or debt ratings) that are designed to measure the level of financial constraints faced by firms (Fazzari et al, 1988; Kaplan and Zingales, 1997; Hoshi et al, 1991; Rudebusch, 1992; Cleary, 1999). The empirical evidence whether liberalization has reduced financial constraints and credit rationing has been less consistent. In empirical model, regressing investment on output growth, $q$ ratio, cash flow and the degree of leverage, Atiyas (1992) confirmed significant effect of liberalization by splitting the sample of Korean companies according to size before and after liberalization. The sign on cash flow and debt coefficients has been negative for smaller firms before liberalization but the negative impact was greatly reduced after liberalization. While the effect of liquidity and indebtedness was less significant for larger firms before liberalization it became significant after liberalization suggesting that financial reform reduced the access of this group to external finance. The result can be associated with change in directed credit policy during reform period. However, in similar study, in Ecuador, results were quite contrary.

A crucial micro level empirical evidence of the financial liberalization relates to study of firm level cost of capital, as a measure of efficiency in resource allocation. Cost of capital is good proxy of Goldsmith’s unobserved marginal productivity of capital. In a study of Korean firms, Cho (1988) concluded that after financial liberalization, variance of average cost of capital across industries was reduced. However, a strict interpretation of
this result is not durable because even if the cost of capital is reduced it may not be able to induce firm to increase external finance. This argument brings closer importance of understanding firm level real characteristics that influence choice of debt vs. equity.

2.6 Theories of Capital Structure

Capital structure theories provide theoretical underpinning to observed financing decision at firm level relating financial policy to real characteristic of firms. A careful review of capital structure theories can explain that why there can be different capital structure as opposed to predicted by financial liberalization hypothesis. In order to understand, choice of debt or equity, it is important to look at how a non-financial firm has been defined to understand various influences on firm decision making.

**Firm as a Production Function:**

According to this classical economics view, firm is a collection of four factors of production: land, labor, capital and organization. Land and organization are constant factors; whereas, units of labor and capital are increased over time to increase output. With every increase in these two inputs, there is an increase in marginal product. At certain, stage the marginal revenue produced start to fall i.e. decreasing returns to scale. At this point, firm achieves the maximum output and minimizes its costs. The classical view suggests that cost of capital varies and it should be minimized.

**Firm as a Resource based entity:**

According to resource-based theory of firm, asset structure of a firm has influence on firm’s financing decisions (Klein et al, 1978; Alchian, 1984; Klien and Leffler, 1981; Teece, 1980 and Joskow, 1985, Williamson, 1988). Asset specificity is an important dimension in transaction cost literature. External financing either debt or equity in
transaction cost framework emerges as governance mechanism conditional on degree of asset specificity.

**Firm as a Nexus of relationships:**
According to the classical agency theory (Berle and Gardiner, 1932) there is separation of ownership and control in modern corporations. The firm is viewed as nexus of relationship among principal (shareholders), employees, suppliers, customers, governments and agents (managers). This concept was originally developed by Alchain and Demsetz (1972) and later developed by Jensen and Meckling (1976). In principal agent relationship, each party is aware of prospective distortions and of the needs to realign incentives and design governance structure.

**Firm as an institutional legacy:**
According to institutional legacy argument, institutional and political set up of a country has substantial influence on economic agent’s behaviour. It involves quality of accounting standards, protection to shareholders and creditors, enforcement of laws, and bankruptcy procedure among many others (Demirguc-Kunt and Maksimovic, 1998). It can be argued that different bankruptcy codes, shareholder’s and creditors rights protection will impinge upon supply of external finance and that will have impact on capital structure.

The above conceptualizations of firm focus on either a single unit of analysis or multiple unit of analysis. Firm as a resource based entity and as a production function have single
unit of analysis: capital, and asset specificity, whereas, firm as nexus of relationship and as an institutional legacy have multiple unit of analysis: contracts and regulations.

Classical theory of external financing suggests minimizing $WACC$, weighted average cost of capital. However, as the risk in firm investment increases, $WACC$ behaves like a u-shaped curve. Agency theory explains why $WACC$ increases after certain stage. When shareholders ask higher rate of return ($K_e$) on investment due to parallel increase in financial risk.

Another reason is misalignment of objectives because of incomplete contracting with shareholders and creditors. Managers are envisaged as pursuing negative value projects where marginal rate of return is below the level that would maximize stockholder welfare; in other words, managers are perceived to indulge in over investment or opportunism. This give rise to what Jensen and Meckling (1976) has referred to as “agency costs”. These costs are increasing function of misalignment of managers and shareholder’s objectives of wealth maximization (Smith and Warner, 1979). Various control mechanisms like board of directors appear endogenously in this framework ex ante to monitor and control managerial decision-making. In addition, market for corporate control and large shareholders may limit this moral hazard problem. Jensen (1986) argues that since debt commits firm to pay out cash, it can reduce the moral hazard or free cash flow. Aligning incentive and reward system of managers is also one possibility in this regard.
Manager can often fail to experience discipline from the full range of corporate governance and control mechanism due to their entrenchment (Berger et al. 1997). Managers may prefer less leverage than optimal because of a desire to reduce firm risk to protect their under diversified human capital (Fama, 1980; Zwiebel, 1996). The entrenchment motive may cause managers to increase leverage beyond the optimal level, in order to inflate the voting power of their equity stakes and reduce the possibility of take over attempt. But Berger et al (1997) found that in the aftermath of events that represent negative shocks to CEO Job security, including attempts to acquire firm, the involuntary departure of the prior CEO, and the arrival of a major stock holder director, firm’s subsequent capital structure exhibit greater leverage. They argue that firms have less leverage in their capital structure than optimal, and those managers who sense threats to their job security increase leverage permanently as a value enhancing action that they would otherwise prefer to avoid. Thus, agency theory (Fama, 1980, Jensen and Meckling, 1976) and managerial entrenchment theory (Berger et al, 1997; Zwiebel, 1996) predict that equity is a source of ‘managerial discretion’ and threat to managerial security is a strong predictor of increased leverage.

While Jensen and Meckling (1976) stressed on incentive problem driving the capital structure decisions, Myers and Majluf (1984) argue existence of information problems. It happens because the outsiders do not have manager’s immediate knowledge about investment opportunities. In game theory language, it is incomplete information game. Due to non-disclosure of manager private information, securities are under-priced and result in higher cost of equity capital. If managers are interested in maximizing current shareholder’s wealth, they will not issue the equity, and pass over investment opportunity, leading to under-investment and asset-substitution. To mitigate this problem, manager should rely more on retained earnings, and then issue securitised debt, and as a last resort equity finance, commonly referred to as ‘Pecking order’ of corporate finance. The information asymmetry theory predicts an adjustment or restructuring of relationship given degree of information asymmetry and there is pecking order: internal finance, debt and equity as a last resort.
Agency theory, information asymmetry theory, and transaction cost approach work in conjunction to explain relative agency cost of debt, equity and managerial discretion. Agency theory and information asymmetry theory relies on existence of investment opportunities to explain agency costs, whereas, transaction cost approach just relies on asset specificity.

This figure shows optimal leverage as a function of the marginal agency costs of debt (DD) and the marginal agency cost of managerial discretion (MM) for a given investment opportunity set. An improvement in investment opportunities shifts the marginal agency costs of debt curve to (DD’) and the marginal agency cost of managerial discretion to (MM’) curve, so the optimal leverage falls. Increase in investment opportunities increases the marginal agency cost of debt because the firm has more to lose from financial distress and decreases the marginal agency costs of managerial discretion because the objective of management and shareholders become more congruent when investment opportunity become better.

On the other hand, transaction cost theory interacts with information asymmetry theory to describe agency costs. If $K_i$ denotes asset specificity, then, transparent assets have $k>1$ and specific asset have $k<1$. For capital expenditure where ($k>1$), there is less information asymmetry, and for research and development expenditure where ($k<1$), there is more information asymmetry. It argues that agency cost of debt is low when $k>1$ and vice versa.
Another dimension of resource based view of firm is its business environment. In this regard, competitive dynamics of business environment can explain choice of financial leverage (Brander and Lewis, 1986; Allen, 1990; Chevalier, 1995). In strategic management literature, some argue application of strategy may be the most useful in understanding intra industry variations in capital structure. If competitive strategy guides the firm’s investment decision (Chandler, 1962), and the choice of the investment influence choice of financing (Williamson, 1988), then, it appears that different capital structures best serves the needs of different strategies. While other, indicate that even government intervention in product markets can produce different capital structure. Baggs (2002) investigated the impact of trade liberalization on U.S. and Canadian firm level leverage. He contends that local firms can enter foreign markets due to declining foreign tariffs. It will decrease the chances of local firm bankruptcy. On contrary, foreign firm entry into local market due to low tariffs can make market more competitive and will increase chances of home firm’s bankruptcy. It can be conjectured that governments protect their local industries from foreign competition and will be hesitant to allow foreign direct investment. In many developing countries, this has been a case. It has been pointed out that regional trade in South Asia is hampered by India’s projectionist policies.

So far, in literature review, I have explored capital structure choice of firm in normal business time. But when a firm renegotiates its debt contracts in financial distress, new capital structure choice emerges, and it depends upon severity of transaction costs that might be different from its pre financial distress situation. Gilson (1997) provide capital structure evidence of financially distressed companies, which have filed for bankruptcy under Chapter 11 and out of court. The leverage ratios of financially distressed companies that restructure their debt out of court are significantly affected by transaction costs compared with financial distressed companies that filed under Chapter 11. These results are difficult to reconcile with most models of corporate debt policy that predict that expected costs of financial distress deter firms from using too much debt. Higher leverage in financial distress and after renegotiations of debt contract is outcome of a ‘lock in’ effect of complex capital structure (Gilson, 1997), therefore, ex ante firm should have less complex capital structure that can be adjusted without further leverage pile up.
The concept of ‘governance’ in Williamson (1988), Jensen and Meckling (1976) and economic efficiency of reorganization practices (Gilson, 1997) has relevance to institutional and political set up of a country. Institutional set up includes disclosure quality, protection to shareholders from expropriation by managers and priority rights of creditors in bankruptcy. These institutional features of a country have significant influence on firm financing activities. La Porta et al (1997, 1998, 1999, and 2000) has demonstrated that, across countries, corporate governance is an important factor in financial market development and firm value. La Porta (1998) argue that accounting standards play a critical role in corporate governance by informing investors and by making contracts more verifiable. While La Porta et al (1998) and Johnson et al. (2000a) use country specific legal factors. In countries, where common law dominates, there are higher creditor’s rights and shareholder rights. In contrast, in countries with French civil law creditor and shareholder’s right are inadequate. The priority of claims during bankruptcy also varies across countries. Malaysia, Pakistan, Korea and Thailand provide higher rights to creditors followed by employees and then government. In contrast, employees’s claim is first settled before settling creditor’s claims (Stomberg, 2000; Thorburn, 2000). These differences can explain why in some countries creditors are more secured and feel less risk in lending. In some countries, firms even do not see any incentive to declare bankruptcy, for example, when rehabilitation procedure does not exist or when management is not retained. Formal bankruptcy is avoided through out of court settlement in Indonesia, Malaysia and Pakistan. Out of court settlement is assumed to be faster, cheaper and with predictable outcomes (Modigliani and Perotti, 2000). If this is case then we can expect Gilson (1997) ‘lock in’ effect of high leverage in these countries firms. Leverage will have positive relationship with financial distress.

Mitton (2002) has recently used firm specific measure of disclosure quality instead of country specific factors used in La Port et al. And Johnson et al. He argues that firm may quality high disclosure if it has a listed American Depository Receipt (ADR), and firm may high disclosure quality if its auditor is one of the big Six International accounting firms. He undermines the importance of country specific legal factors. These factors are
very slow to adjust to financial system requirement and have well-enforced minority shareholder rights. Instead, he argues that improving minority shareholder protection lies at the firm level. Companies that offered higher disclosure quality, greater transparency, a more forward looking ownership structure and more focused organization appear to have provided greater protection to shareholders during Asian Crises.

These capital structure theories provide a conceptual framework for prediction of capital structure. Resource-based theory predicts positive relationship between asset tangibility and debt. Higher tangibility of assets also reduces the bankruptcy costs. According to financial liberalization theory, high quality assets and high borrower net worth leads to reduction in external debt premium. Therefore, if size of company is measured in terms of assets, then, there will be a positive relationship between assets and debt. Information asymmetry theory predicts negative relationship between debt, investment opportunities and profitability. Agency theory makes prediction about choice and timing of debt vs. equity given managerial discretion, investment opportunities and control of shareholders over management decisions. Managers may or may not be able to finance investment as they wish given internal and external constraints on them. Legal and institutional theory predicts that developing countries with old bankruptcy laws, costly and lengthy procedures and lack of judicial expertise will have out of court settlements and high managerial discretion. Trade liberalization argument predicts a negative relationship between leverage and trade openness.

2.7 Capital Structures in Developing Countries

The empirical capital structure research results confirm liberalization theory. More specifically, earlier studies\(^2\) have found that non-financial firms in developed countries use more internal finance and retentions are less important for firms in developing countries. These findings suggest liberalization effect on financial intermediation in developing countries through banking channel. Comparing financial intermediation effect

\(^2\) (Mayer, 1988, 1989, and 1990; Corbett and Jenkinson 1994; IFC, 1991) that investigated the financing patterns in developing and developed countries to determine use of debt or equity finance.
with stock market development effect, Demirguc-Kunt and Maksimovic (1992, 1994, 1995, and 1996) in series of papers found stock market development does not lead to lesser leverage. Using several measures of financial system development (stock markets and banking sector), summarizing activity and size indicators in the index form for every country, they argued that development of stock market leads to risk sharing and better aggregation of information for the firms. This allows firms to increase their borrowings. Stock market development is not an obstacle on the way of obtaining debt; on the contrary, it promotes the increase of debt in the capital structure of the firms. These findings again confirm the liberalization effect through banking channel.

More recent research has focused on globalization of finance and firm level financing choices (Schmukler and Vesperoni, 2001) and found that liberalization has uneven advantages for developing countries firms. Financial liberalization leads to reduction in debt maturity and increase use of foreign debt markets. Countries with better accounting and legal protection to shareholders and creditors have accessed foreign equity and bond markets (Domowitz, Glen, Madhavan, 2000).

On the other hand, looking at relationship between firm specific characteristics and capital structure choice, Booth et al (2001) have found that firms in less developing countries use less long term debt and country specific normative factors are significant determinants of capital structure. There is a significant positive relationship between long-term debt and asset tangibility confirming liberalization theory prediction in developing countries. This implies a firm with more tangible assets will use more long-term debt. Similarly, a positive relationship between company size and debt ratio (Booth et al, 2001, and Schmukler and Vesperoni, 2000). A negative relationship between profitability and debt ratio proves pecking order hypotheses in developing countries (Booth et al, 2001). Despite, the explanatory power of capital structure models, country-specific factors have also been found useful in prediction. “To predict the total debt and sometimes the long term book debt ratios, it seems that knowing the values of financial variables is less informative than knowing the firm’s country (Booth et al.2001)”. These country-specific factors are: legal origin, regulations of banks and stock markets and
existence of accounting standards and shareholders/creditors right protection. These normative concepts have been in Demirguc-Kunt and Maksimovic (1998) to investigate relationship of efficiency of legal system and firm growth.

Currently use of liberalization indices derived from reform component/dimension has started to appear in empirical work in developing countries capital structure research. For example, Capital account liberalization index (IMF Index and Quinn, 1997); equity market liberalization index (Kaminsky and Schmukler, 2001); banking market liberalization index (Bandiera et al, 2000), and actual capital market integration as measured by flows and stocks of foreign direct and portfolio investments (Lane and Milesi-Feretti, 2001).

Studies that are more recent have either used discrete or continuous overall financial liberalization indices in investment and growth models (Vlachos and Waldenstron, 2002; Bekaert et al, 2000; Henry, 2000; Eichengreen, 2001). Using liberalization index is methodological improvement over imperfect proxy for liberalization effects. Using liberalization indices to investigate independent effect of bank and stock market liberalization is useful to attribute changes in financing choice of firms after a specific date. It is a better empirical strategy because it allows comparing results before and after liberalization. Such a strategy will not only capture common reaction of firms to increased availability of external finance but also increase understanding of linkages between macroeconomics and real sector. I believe that regression of external debt ratio on liberalization index can capture the independent time specific effect of liberalization controlling for size and activity of bank and stock markets.

2.8 Proposed Research Strategy

In the previous section, I have established that financial sector development affects capital structure. The greater and easy availability of credit brings about changes in debt level and increase promotion of stock market decreases cost of equity capital. So far, the empirical results confirm more use of debt after liberalization and effect of stock market
development on private investment. The empirical work has fallen short in explaining why equity finance still appears to under utilized in developing countries. Put another way, which type of firms prefers debt finance to equity finance in developing countries? In addition, what is speed of adjustment across countries, firms and industries? What are firm level characteristics that facilitate or inhibit a firm from getting access to external finance that can maximize its value in partial and full liberalization?

I will use convention of dating deregulation in banking and stock markets in sample countries. On the basis of this information year by year, I will construct three distinct indexes - $LIB_t^J$, $BLIB_t^J$, $SLIB_t^J$. Whenever, value of liberalization index $BLIB_t^J$ or $SLIB_t^J$ will be less than 3 in any year for a country, I will consider it less liberalized financial sector, and $SLIBd_t^J$ will take the value of one and zero otherwise and similarly for $BLIBd_t^J$. I will differentiate local, foreign and government owned firms in developing countries to explain dynamics of capital structure during less liberalized and full liberalized financial sector. The rationale for choosing this classification of firms is recent literature on internal capital markets (Blanchard et al, 1994; Lamont, 1997; Hubbard and Palia, 1999; Deloof, 1998). It stresses that although firms in developing countries face similar tax, institutional and regulatory and product demands but there is wedge between internal and external costs of funds due to existence of internal capital markets within global multinationals groups and holding companies. By establishing capital structure equilibrium for different type of firms respectively, I will be able to explain which class of firm is better off, able to adjust to optimum capital structure in partial and full liberalization. By using firm level characteristics: non-debt tax shield, financial distress, investment, cash flow, and market to book ratio in dynamic setting, I will test hypothesis of optimal capital structure theory. The experiment will put capital structure theories discussed above to real experiment. This chapter concludes with a research strategy that will allow differentiating capital structure dynamics before and after full liberalization, interaction of firm level characteristics with financing choices and its effect on firm value. Next chapter provides necessary technical details of this research strategy.
3. Methodology
3.1 Introduction

This chapter provides methodological and technical details from data collection to data analyses. In section 3.2, I will identify two important dimensions of liberalization: banks and equity markets. I will develop index of overall financial liberalization $LIB^I_T$, bank and equity market liberalization $BLIB^I_T$, and $SLIB^I_T$ using dating convention in section 3.4 after review of similar indices used in earlier studies in section 3.3. In section, 3.5 and 3.6, I will list down data sources and sample chosen for this research. In section 3.7 – 3.9, I will explain details of variables and their expected relationship also illustrating use of a log-linear model; a partial adjustment model and ordinary least square model have been developed to test hypotheses stated in chapter one.

3.2 Dimensions of Financial Liberalization

Financial liberalization is a process rather than a one shot event. It has two distinct dimensions: internal and external liberalization respectively (Bandiera et al. 2000; Schianteralli, 1994).

<table>
<thead>
<tr>
<th>Internal</th>
<th>Stock Markets</th>
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<tbody>
<tr>
<td>Banks</td>
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<tr>
<td>Foreign banks entry into domestic banking market</td>
<td>Opening of market to foreigners</td>
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<tr>
<td>Removal of interest rates ceilings</td>
<td>Trading systems</td>
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<tr>
<td>▪ Deposits rate</td>
<td>Incentives to foreign investors</td>
</tr>
<tr>
<td>▪ Lending rates</td>
<td>Banks/NBFIs Investment in securities</td>
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<tr>
<td>Reduction in reserve requirement</td>
<td>Issue of capital</td>
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<tr>
<td>▪ Cash reserve requirements</td>
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<td>▪ Statutory liquidity requirements</td>
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<td>Reduction in policy directed loans</td>
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<td>Privatization of state owned banks</td>
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<td>Prudential regulations for banks</td>
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<td>Scope of financial services</td>
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<td>External</td>
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Internal liberalization measures are aimed at reducing government intervention from financial intermediation and increasing depth of stock markets by relaxing regulations. The un-shaded cells refer to capital account liberalization, which is not subject of research.

3.3 Measurement of Financial Liberalization:

There are two widely used measures of liberalization: the stock or flow measure of some macroeconomic variable and liberalization date. The first approaches is more objective and do not rely on convention of dating. Second approach relies on country reports that provides an up date on the status of reforms programs either voluntarily or under requirement of International Financial Institutions (Laeven, 2003). The timing methodology has been more often used to identify a year with distinct liberalization component respectively, and then frequency of components in one year is aggregated and defined as liberalization index for that year. Table below gives year of financial liberalization in six countries.
<table>
<thead>
<tr>
<th>Liberalization Component</th>
<th>India</th>
<th>Indonesia</th>
<th>Malaysia</th>
<th>Pakistan</th>
<th>Thailand</th>
<th>S.Korea</th>
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</table>

*Sources: Laeven (2003)*

The years in the table above indicate liberalization year for six countries. It is very clear from above table that there are early and late liberalizers in sample. Indonesia, Korea, and Thailand are early the liberalizers. Pakistan, Malaysia and India are the late liberalizers. Government intervention in financial intermediation process in many developing countries reduced after phases of reforms starting with interest rate liberalization in many of my sample countries. It was followed up by reduction in reserve requirements and opening banking sector for foreign competition. These measures must have revived supply of credit and better allocation of it in sample countries. Similarly, stock market was opened to foreigners in almost all sample countries but incentives to increase foreign

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3 According to Kaminsky and Schmukler (2001) comparison between developed and developing countries, and between the developing countries in striking. G7 and European countries 63% and 80% respectively liberalized their stock markets and only 25% liberalized their banking sector. Contrary to the developed countries, Asian and Latin American countries 57% and 77% respectively liberalised their banking sector. Within these developing countries, Asian countries 43% compared to only 8% Latin American countries liberalised their stock markets. This comparison reveals relative development of bank vs. stock markets across developed and developing countries and political inertia driving liberalization efforts (Quinn, 2000).
shareholding as well as installation of modern financial technology were initiated quite late in many sample countries.

3.4 Financial liberalization index construction ($LIB_T^J$):

The liberalization indicators belong to four classes. Rule-based indicators are: capital account liberalization (IMF Index and Quinn, 1997); equity market liberalization (Kaminsky and Schmukler, 2001); banking market liberalization (Bandiera et al, 2000), and actual capital market integration as measured by flows and stocks of foreign direct and portfolio investments (Lane and Milesi-Feretti, 2001). Rule based indicators use timing methodology, whereas, actual capital market integration approach uses macroeconomic variable.

The empirical power or support for these indices varies as Rodrik (1998), using the IMF index, and Edwards (2001), using the Quinn indices, actually reach different conclusions. They key message from this brief review of liberalization indices used in previous research is that quality and consistency of the indices depends upon dimensions or indicators of liberalization arbitrarily selected and time span covered. And also reliability of liberalization date matters.

Having looked at methodological issues associated with the construction of liberalization index and their obvious effect on results, it is important to identify those liberalization indicators or dimensions which will have theoretical implications and influence. For example, Kaminsky and Schmukler (2001) developed equity market index to investigate booms and crashes in stock market after liberalization, whereas, Laeven (2000) constructed index to explore the effect of liberalization on investment behaviour. It can be conjectured that inclusion of indicator of acquisition of shares in the domestic market by foreigners in Kaminsky and Schmukler (2001) equity market liberalization index, have theoretical link to stock market volatility due to herding behaviour of foreign investors. Therefore, reliability and validity of this indicator will be higher than using
broad dummy variables used in Bandiera et al (2000) capturing the deregulation and development of securities and stock markets.

The focus of my research is on those indicators of bank and stock market liberalization that reflect financial markets deepening like broader scope of banking sector, increase in credit availability and regulations of banking market. These indicators have better theoretical relationship at firm level external financing rather than Rajan and Zingales’s (1998) industry level approach. First, industry players are often local and foreign companies. This distinction at firm level can explain much better the different effects of banking market liberalization. It has been argued that entry of foreign banks in developing countries leads to crowding out of local borrowers, as banks prefer lending to foreign companies (Stiglitz, 1993). Another argument is that banks moves with clients across countries (Aliber, 1984). Therefore, dividing firms into foreign and local is useful approach to look at bank liberalization effect on financing behaviour of companies. Other measures like interest rate liberalization; reduction in reserve requirements and reduction in direct credit are supposed to increase savings and credit flow to growing sectors of economy.

Using this indicators have problems, as Bandiera et al (2000) concluded that liberalization does not increase savings and therefore interest rate liberalization may not be a useful indicator. And also empirical work on banking crises have shown that liberalization increases the gap between actual production and credit outstanding in economy a possible sign of upcoming banking crises. In order to control for these factors, I will use dummy variable, one when banking crises occurred in a country during liberalization and zero otherwise.
Banks- internal liberalization measures
1. Interest rate liberalization
2. Reduction in reserve requirements
3. Reduction in directed credit,
4. Foreign bank entry;
5. Privatization of domestic banks,
6. Scope of activities in banking sector
7. Increased prudential regulations

Internal Bank Liberalization $BLIB^I_t$

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<td>India</td>
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<td>Pakistan</td>
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<td>S. Korea</td>
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<td>Thailand</td>
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The above figures focus on changes in the degree of banking market liberalization for a country $j$ at time $t$. The figure is sum of the number of measures that has been implemented with respect to 7 components of banking sector financial liberalization indicated above. The index ranges from 0-7, with 7 indicating the highest level of banking sector financial liberalization in a particular.

Stock market- internal liberalization measures
1. Stock market opening to foreigners
2. Stock trading system
3. Incentives to foreign investors
4. NBFIs for investment in securities
5. Issue of share capital

On the other hand, indicators in equity market liberalization are combination of Kaminsky and Schmukler (2001) and Bekaert et al. (2000), i.e. components, 8 and 10. Trading system is market microstructure indicator and issue of capital is indicator of relaxation in listing rules, e.g. paid up capital requirements, public vs. private issue percentage. Component 11 is included because if non-banking financial institution’s
investment portfolio restrictions are relaxed, then new firms can also place their debt privately.

### Internal – Stock market liberalization $SLIB^J_T$

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<tr>
<td>S. Korea</td>
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The above figures focus on changes in the degree of equity market liberalization index for country $j$ at time $t$. The figure is sum of measures that has been implemented with respect to 5 components of stock market liberalization as indicated above. The index ranges from 0-5, with 5 indicating the highest level of stock market financial liberalization in a particular year.

### 3.5 Data base

The data collection procedure will follow tradition in corporate finance and liberalization research using panel data at country, and firm level. The country level macro-economic data will be taken from IMF, Asian Development Banks, World Bank, country specific publications and other sources likewise. The data set in stock level will cover period from 1990-2002. I believe that most profound changes in financial sector developments have taken during this time as available research evidence also corroborates this assertion.

The sample will include indebted low-income countries: India, Indonesia, Pakistan and middle-income countries, Malaysia, S.Korea, Thailand and non-financial listed companies. There are two principle sources of information: World Scope and company’s financial statements. The data set will cover all listed firms from 1990-2002. It is foreseeable that there might be unbalanced panel data for some firms and countries.
3.6 Data Descriptive Statistics

This section will explore the data in terms of useful statistical measures and graphical representation. I will summarise relevant facts about the level of economic and financial intermediation and stock market development. The financial intermediation data will be broken into banking and non-banking sectors. In many countries, there is more than one stock market, but I will include only main stock exchange as representative of country\(^4\).

3.7 Model Specification

Capital structure research has been a model building and testing affair, very few studies have used survey questionnaire methodology. These survey studies have brought unique country perspective into light. For example, Ang et al (1997) - survey of capital structure and dividend policies for Indonesian firms; Kjellman and Hansen (1995) – survey of Finish firms, and more recently Bakeart et al (2000) – survey on corporate finance policy in U.S. These results obtained from surveys support results from sophisticated state of art econometrics models. A starting point to distinguish these models it to see how leverage has been treated. In the capital structure empirical research, leverage has been treated as endogenous (Smith and Watts, 1992), as well as exogenous (McConnel and Servaes, 1995, Rajan and Zingales, 1995; Booth et al, 2000; Schmukler and Vesperoni, 2001). The endogenous model requires sufficient number of independent variables to be used in 2SLS or 3SLS models (see Jong, 2002; Fukuda, 1996; and Kochhar and Hitt, 1998). Besides ordinary least square methodology – Logit/ Probit discrete models predict probability of debt and equity issuance given firm level characteristics. LISERAL factor analytic model (Titman and Wessels, 1988, Bhaduri, 2000) has been used to de construct firm level attribute to fine tune relationship between financing choice and firm specific factors. A major criticism of these models is that they assume leverage at optimal level and determine its relationship with firm specific, country specific and other factors (Banerjee, Heshmati, and Wihlborg, 2000). They argue that theory of capital structure does not propose to explain the observed difference in debt ratios, but rather the

\(^4\) See appendix
difference in the optimal debt equity ratios across firms. Firms that face high costs of leverage should have lower optimal debt levels than firms with lower corresponding costs. By distinguishing between the observed ratios and estimates of the implied optimal levels, we can get rid of this epistemological deficiency, and determine the factors that affect the optimal debt and equity levels. This dynamic approach to study capital structure is not new. It has been used in earlier studies - Fischer, Heinkel, and Zechner (1989), Jalilvand and Harris (1984), Tucker (1995) and Rajbhandary (1997). I am taking this adjustment approach to developing countries setting not yet done before.

As a starting point for specification of model, I will first highlight those factors again, which have contributed to the explanation of capital structure. More specifically, macroeconomic country level factors as determinants of firm level capital structure, firm level characteristics as determinants of capital structure and effect of liberalization on capital structure. In section 3.8, I will concentrate on impact of macroeconomic country level factors as determinants of firm level capital structure explain using log-linear model. I will enumerate relationship between aggregate leverage as an indicator of shift in choice of debt over equity and overall liberalization controlling for parallel developments in bank and equity markets. In section 3.9, I will consider firm level characteristics as determinants of capital structure by using Partial adjustment model at firm level. I will classify firms into foreign, local, and state owned as explained above in section 2.8. It will help me to analyze change in capital structure of these firms before and after liberalization by using liberalization dummy. This experiment will be useful to test theoretical hypotheses explored in liberalization literature in section 1.2.

3.8. Determinants of capital structure: Macroeconomic factors

Macroeconomic environment has significant effect on firm level activities. These macro economic effects can influence demand and supply dynamics faced by firms in product and factor markets. Economic growth and inflation rate reflects degree of stability in economy and level of protection provided by government determines competition. According to Booth et al (2001) high real economic growth rate causes firm level
leverage to increase and higher inflation causes them to decrease. This means that companies borrows against real investment opportunities in economy but not inflationary growth prospects. Trade openness variable captures product market competition faced by domestic firms from foreign firms. A higher ratio of total imports plus export will mean a more open economy with competitive product markets and less government restriction and trade liberalization. Higher competitive intensity will affect domestic firms straining profit margin and increasing cash flow investment sensitivity. In open economies, firms will be less protected by government and will face threat of bankruptcy under dismal performance. Thus, there is a reason to believe that there will be negative relationship between trade openness and aggregate leverage.

According to Demirguc-Kunt and Maksimovic (1996) development of stock markets in developing countries has promoted the increase of debt in the capital structure of the firms. Therefore, there will be positive relationship between debt and equity market development. Financial liberalization enhances scope, size and activity of financial intermediaries and arms length markets. Liberalization index can capture an independent, time specific effect of liberalization, controlling for size and activity of bank and stock markets. It will isolate partial and independent contemporaneous effect of development in banking and stock markets. The set of explanatory variables consists of exogenous liberalization index, size and activity indicators of banks, non banking sector and stock markets, GDP growth rate, inflation, and trade openness.

\[ \ln D_{it} = \beta_1 + \sum_{k=2}^{9} \ln \beta_{k,t} + \beta_{16} \text{LIB}^T_f + \varepsilon \]  
\[ \beta_2 = \text{PRIVATEC}_i; \quad \beta_3 = \text{BANKC}_i; \quad \beta_4 = \text{NBFIC}_i; \]
\[ \beta_5 = \text{STKZ}_i; \quad \beta_6 = \text{STKA}_i; \]
\[ \beta_7 = \text{GDP growth}_i; \quad \beta_8 = \text{Inflation}_i; \quad \beta_9 = \text{TOP}_i \]

3.8.1 Variable Definition

Average debt ratio, \( D_t \), is book value of debt of more than one year maturity divided by total debt. Banking market size is denoted as \( \text{PRIVATEC} \), and activity as \( \text{BANKC} \) and \( \text{NBFIC} \). \( \text{PRIVATEC} \) is measured as total domestic credit divided by GDP as size of credit market including banks and non-banks financial institutions. \( \text{BANKC} \) is measured
as total claims on private sector by commercial banks divided by domestic credit. $NBFIC$ is measured as total claims on private sector by non-banking financial institutions divided by domestic credit. Similarly, stock market size, $STKZ$, is calculated as total market capitalization divided by GDP. $STKA$, stock market activity is measured as total value traded divided by GDP. I will refer to log-linear model as “aggregate approach”. The natural log of debt ratio will facilitate establishing elasticity measure. Lag difference in size, activity, and macro economic variables is helpful to avoid simultaneity bias. Real growth rate, $G$, inflation, $\pi$ and trade openness, $TOP$ are all macroeconomics variables to capture parallel effect of economic environment on firm level capital structure. Trade openness is calculated as sum of exports and imports divided by GDP.

3.9. Capital structure determinants: firm level characteristics

The literature suggests that many factors, including taxes, bankruptcy costs; agency costs, proxy effects, and asymmetric information play a role in the relation between firm value and financing decisions. Apart from taxes, the factors linking financing decisions all operate through pretax profitability (Fama and French, 1998). Therefore, I will first explain tax effect on capital structure and then other factors one by one.

3.9.1 Taxes

The sensitivity of capital structure to tax incentives has been difficult to prove. Some studies (Mayer, 1990) offer evidence that taxes have no effect on leverage. Literature on this subjective has concentrated on the competition between tax deductibility of debt and the other non-debt tax shields (Miguel and Pindado, 2001) and relative differences in tax environments across countries (Desai, 2003). Using average tax rate, Booth et al (2001) reported sign on average tax variable is not stable. Instead of using debt tax shield, studies on determinants of capital structure (Titman and Wessels, 1988) have used $NDTS$. Non debt tax shields substitute for debt to reduce firm’s tax burden (Barton et al. 1989; Prowse, 1990).
3.9.2 Bankruptcy

Debt finance force firms to make periodical interest payments and under continuous monitoring of creditors. Increase in business risk can hurt firm interest paying ability and increase chances of going bankrupt. In such a situation, firm faces high financial distress costs as it is turned down by capital markets and has to pay higher premium for extra debt. FDC, financial distress costs will be, therefore, negatively related to debt because of chances of going into bankruptcy. However, a high proportion of tangible assets can increase debt capacity of firm and it may have positive relationship. Similarly institutional factors like bankruptcy law also effects debt level. Since local bankruptcy law treats foreign owned firms and local firms similarly, therefore, local creditor rights and cost of bankruptcy will have similar effect on borrowing decisions of both types of firms. Expected bankruptcy costs of leverage lower value by lowering expected profits.

3.9.3 Agency costs

In agency cost models, financing decisions affect value because they produce behaviour that affects profitability. Jensen (1986) argues that leverage also enhances value by forcing firm to pay out resources that managers might otherwise waste on bad investments. At the same time, Jensen and Meckling (1976) suggest that leverage increases the incentives of shareholders to make risky investment that shift wealth from bondholders but do not maximize the combined wealth of security holders. Agency theory interacts with investment opportunities. Firms look for funds when they have investment opportunities (Azorfa and Miguel, 1990). If market to book value proxies for growth options, then high market to book ratio will create high agency costs of debt due to perceived under investment and asset substitution by shareholders. Therefore, firms with higher market to book value may face high debt premium ex ante To avoid this high premium firm may either chose private debt (Krishnaswami et al, 1999) or use internal capital market (Desai, 2003). The use of private debt reduces agency cost of debt as well as mitigates moral hazard problems. From a resource-based perspective, there is also a possibility of interaction between market to book ratio and tangible assets on balance sheet. Sometimes even at low market to book ratio, financial intermediaries are willing to lend due to available to high value collateral assets. Firms with more tangible assets face
less information asymmetry costs and can increase debt level. Therefore, there will be a negative relationship between market to book ratio and new equity issue.

3.9.4 Information Asymmetry

According to this theory, capital structure choice depends on the firm’s investment opportunities and profitability given managers have more knowledge about investment opportunities than outsiders. If cash flow proxy for current level of profitability, then according to this theory, there will be a negative relationship between cash flow and debt because firms with the capacity to generate internal funds use these funds before calling back on debt (Myers and Majluf, 1984). In developing countries, firms may be more profitable due to monopolistic position or government protection. Smaller firms face higher adverse selection and information asymmetry problems (Myers and Majluf, 1984). According to resource based theory, information asymmetry is function of assets specificity. If firms have more transparent and less specific assets, then, information asymmetry will be low and vice versa. The existence of tangible assets reveals minor problems of information asymmetry. Therefore, existence of a negative relationship between cash flow and debt is due to existence of asymmetric information.

3.9.5 Corporate Governance

Governance systems exert either internal or external constraints on managerial discretion (Gedajlovic and Shapiro, 1998). Emerging market corporate governance model is markedly different from that which prevails in the U.S. and U.K. (McKinsey & Company, 2001). It has been found that many developing countries have more family controlled firms like Korea, Indonesia, India and Pakistan. Top fifteen families in Indonesia, Thailand and Malaysia owned 62%, 53% and 28% respectively of all domestic listed equities in their countries (Claessens, Djankov, and Lang, 2000). Other than significant family ownership, governments also have higher shareholdings in firms due to privatisation, and banks may also have equity stakes in many firms due to private commercial bank debt. The governance model in these countries is control oriented with insider boards, incentives aligned to core shareholders, limited disclosure and inadequate
minority protection. Institutional context of governance is less developed due to limited
take over market and under-developed new issue market.

Given this corporate governance context and ownership concentration, there will be
higher internal control on managerial discretion on external financing choices. Therefore,
there can also be a positive relationship with equity issue. But this argument strictly relies
on shareholders ‘opinion about managerial discretion in spending money. If shareholders’
see managerial spending as cost augmenting or self-strategizing⁵ then there will be a
negative relationship. This argument also test managerial over-investment hypothesis.
The largest ownership variable and institutional ownership proxy for shareholder’s power
over management decision. Given the power of institutional shareholders derived from
corporate governance system, and their perception about managerial discretion, they may
or may not allow managers to issue shares, thus limiting managerial discretion and
discipline managers by insisting on more debt.

Nerlove’s partial adjustment or stock adjustment hypothesis is illustrated below to
specify capital structure adjustment model at firm level (Miguel and Pindado, 2001) and
to test explanatory power of country level and firm level characteristics about prediction
of capital structure as explained in section 3.9, and 3.10.

⁵ Mangers engage in cost augmenting activities that are designed to enhance their non-salary income, or to
provide forms of on-the-job consumption (Williamson, 1964; Jensen and Meckling, 1976). Another
manifestation of managerial discretion occurs when mangers indulge their needs for power, prestige and
growth (Baumol, 1959) by making long run strategic choices designed to maximize corporate profits.
\[ M_{i,t} = \Delta D_{i,t} + \Delta C_{i,t} \]

\[ \Delta D_{i,t} = D_{i,t} - D_{i,t-1} = \delta_1 (D_{i,t}^* - D_{i,t-1}) \]

\[ \Delta C_{i,t} = C_{i,t} - C_{i,t-1} = \delta'_2 (C_{i,t}^* - C_{i,t-1}) \]

\[ D_{i,t}^* = \beta_1 + \beta_2 \left( \frac{NTDS}{K} \right)_{i,t} + \beta_3 \left( \frac{FDC}{K} \right)_{i,t} + \beta_4 \left( \frac{I}{K} \right)_{i,t} + \beta_5 \left( \frac{CF}{K} \right)_{i,t} + \omega \]

\[ C_{i,t}^* = \gamma_1 + \gamma_2 \left( \frac{MV}{BV} \right)_{i,t} + \gamma_3 \left( \frac{DIV}{Shares} \right)_{i,t} + \gamma_4 \left( \frac{LShare}{Shares} \right)_{i,t} + \omega \]

3.9.6 Variable Definition

The dependent variable, \( M_{i,t} \), market value of a firm at end of year \( t \). \( D_{t-1} \) and \( C_{t-1} \) are lagged book value of long term debt to total debt, and total common equity to total asset. \( D_{i,t}^* \) and \( C_{i,t}^* \) are target level of debt and common equity. In the model, \( \delta \) and \( \delta' \) are adjustment coefficients, in a perfect market world, \( \delta_1 \) and \( \delta_2' \), both would be equal to one. But in imperfect market with costly adjustment, \( \delta_1 \) and \( \delta_2 \) would not be 1. Target value of debt and equity are approximated by their long-term average. In this way, it is assumed that the target ratio is relatively stable over time. Another way is to use the long-term average debt or equity in the same industry instead of in the same firm (Jong and Veld, 2001). The variables on the right hand side in equations (6) are scaled by total capital, \( K \), in year \( t \), where \( K \) is measured as replacement value of fixed assets plus the replacement value of inventories plus book value of the rest of assets. \( NDTS \), non-debt tax shield, is measured as total depreciation to total assets. Financial distress cost, \( FDC \), is calculated as the sum of the difference between the standard deviation and the expected value of EBIT and a measure of asset specificity. Investment, \( I \), is calculated as the difference between the net fixed assets of the current and previous period. Cash Flow, \( CF \), is calculated as EBIT plus all non-cash deductions from earnings. Market to book ratio is measured as ratio of market value of equity to book value of equity. \( Lshare \), is measure of ownership concentration. In a cross-section sample, it is difficult to find a threshold measure to establish this distinction between manager-owned and owner-
controlled firms. In stead of using discrete measure, a continuous measure will be useful for calculation i.e. percentage of shares held in 5% block or more as well as Herfindahl Index of stock concentration (Demsetz and Lehn, 1985).

I will use liberalization index $BLIB_T^I$ and $SLIB_T^I$ in equation (6) to test second hypothesis. When the value of liberalization index $BLIB_T^I$ or $SLIB_T^I$ will be less than 3 in any year for a country, I will consider it less liberalized financial sector, and $SLIBd_T^I$ will take the value of one and zero otherwise and similarly for $BLIBd_T^I$.

According to Banerjee et al. (2000), the speed of adjustment towards the optimal capital structure is endogenous. The speed of adjustment depends upon fixed and variable costs. Fixed costs consist of legal fees, investment bank fees, and other securities printing charges. These costs can be reduced if there is a shelf registration scheme for securities. Firms do not have to incur these floatation charges again for any seasoned or right offering. Firms at sub optimal level may incur fixed costs if they sufficiently away from the optimal structure. Thus, likelihood of adjustment should be a positive function of the absolute difference between optimal leverage in time $t$ and observed leverage at the end of previous period $t-1$. Furthermore, if costs of adjustment are prohibitively high, then, most of adjustment may occur without transactions in external markets. Instead, dividend policy can be used with objective of changing leverage. In this case, cost of adjustment is expected to be increasing in the distance from optimal leverage, because there are costs associated with dividend policy deviating from the firm’s optimal policy. Banerjee et al. (2000) argue that in this case relationship between speed of adjustment and distance from optimal leverage may be either positive, indicating that firms adjust leverage in external markets when deviations are large, or negative indicating that leverage is adjusted internally.

Indirect costs consist of quality of signal sent to market when a firm changes its capital structure. Better signaling reduces the costs. According to McConnel and Muscaralla (1985) issuance of incremental equity for an unspecified project will have a negative
value effect compared with an equity issue for a capital expenditure. Managers can reduce this negative value impact by placing private debt. Although it will lead to closer monitoring of firm but it will send positive signal. Other variables expected to influence speed of adjustment are size of the firm, industry specific regulations, and general economic conditions. Larger and mature firms may find it easier to access both domestic and foreign debt and equity markets due to more information being available about them. The nature, size, source and structure of adjustment costs vary across business cycle. During normal times, source, structure and size of these costs is determined by firm’s operating and investment activities, but during financial distress, there are discrete sources of adjustment costs and their size vary upon debt exposure of company. The structure of adjustment costs depends upon number of creditors in financial distress.

In the light of above arguments, it can be conjectured that speed of adjustment to optimal capital structure depends upon nature, size, source and structure of adjustment costs. Theoretically, adjustment depends on size of distance variable $|D_{it}^* - D_{it-1}|$, but speed of adjustment to optimal will be asymmetric among firms given their unique financial position within industry. For example, a firm may be far away from optimal capital structure and cannot increase leverage due to lack of tangible assets. Asset structure of firm will determine speed of adjustment to optimal equity. In addition, indivisibility and irreversibility of investment choice may require external equity to achieve competitiveness in industry. Local firms compete with foreign firms in several industries like fast moving consumer goods. Foreign firms spend more on marketing, research and development of new products and put strain on local firm’s cash flow. Thus, competition in industry will increase investment cash flow sensitivity for local firms. Empirical evidence in investment literature corroborates this view by arguing that firm level investment does not follow a smooth pattern thereby reflecting business environment dynamics. Capital structure adjustment can be less smooth and can be lumpy due to non-convex adjustment cost (Carlsson, and Laseen. 2002).

The argument of endogenity of adjustment cost creates a problem of identification because the variables that affect adjustment costs also affect optimal leverage or equity.
Banerjee et al. (2000) used functional relationship between adjustment costs and difference $/D_{i,t}^* - D_{i,t-1}/$, size, firm growth, and year dummies. Only the coefficient for size was positive and significant.

$$\delta_1 = \alpha_0 + \alpha_1 \left| D_{i,t}^* - D_{i,t-1} \right| + \alpha_2 \text{Asset}_{i,t} + \alpha_3 \text{LIB}_j + \alpha_4 \text{IND} \quad (8)$$

$$\delta_2 = \beta_0 + \beta_1 \left| C_{i,t}^* - C_{i,t-1} \right| + \beta_2 \text{Size}_{i,t} + \beta_3 \text{LIB}_j + \beta_4 \text{IND} \quad (9)$$

$$\Delta D_{i,t} = \left( \sum_{k=0}^{4} \alpha_{i,k} \right) \left( D_{i,t}^* - D_{i,t-1} \right) + \psi \quad (10)$$

$$\Delta C_{i,t} = \left( \sum_{j=0}^{4} \beta_{i,j} \right) \left( C_{i,t}^* - C_{i,t-1} \right) + \nu \quad (11)$$

$$\alpha_{i,0} = \beta_{i,0} = 1$$

$$\alpha_{i,3} = \beta_{i,3} = 1$$

$$\alpha_{i,4} = \beta_{i,4} = 1$$

Putting (10) and (11) in eq.(3) and simplifying gives (12)

$$M_{i,t} = \left( \sum_{k=0}^{4} \alpha_{i,k} \right) \left( D_{i,t}^* - D_{i,t-1} \right) + \left( \sum_{j=0}^{4} \beta_{i,j} \right) \left( C_{i,t}^* - C_{i,t-1} \right) + \nu \quad (12)$$

Where LIB and IND are time specific dummies and industry dummy based on SIC.
Appendix A.

Private Credit = \left( \frac{\text{Domestic credit}}{\text{GDP}} \right)

Bank Credit = \left( \frac{\text{Claims on private sector by commercial banks}}{\text{GDP}} \right)

stock market size = \left( \frac{\text{Market capitalization}}{\text{GDP}} \right)

stock market activity = \left( \frac{\text{Total value traded}}{\text{GDP}} \right)
\[ D_{o} = \left( \frac{\text{BV of total debt}}{\text{BV equity} + \text{BV of total debt}} \right) \]
\[ NTDS_{o} = \left( \frac{\text{total depreciation expenses}}{\text{bookvalue of assets}} \right) \]
\[ FDC_{o} = \left[ \sigma (EBIT_{o}) - E(EBIT_{o}) \right] + INT_{o} \]
\[ I_{o} = NF_{o} - NF_{o-1} + DEP_{o} \]
\[ FCF_{o} = CF_{o} \left( \frac{1}{q_{o}} \right) \]

where \[ q_{o} = \left( \frac{\text{BV assets}_{o}}{K_{o}} \right) \]

\[ K_{o} = RF_{o} + RI_{o} + (TA_{o} - BF_{o} - BI_{o}) \]

where:
\[ TA_{o} = \text{bookvalue of total assets} \]
\[ BF_{o} = \text{bookvalue of tangible fixed asset} \]
\[ BI_{o} = \text{bookvalue of inventory} \]

\[ RF_{o} = \text{replacement value of tangible fixed asset} = RF_{o-1} \left[ \frac{1 + \Psi_{o}}{1 + \Omega_{o}} \right] + I_{o} \]

\[ RI_{o} = \text{replacement value of inventory} = BI_{o} \left[ \frac{2P_{o}}{P_{o} + P_{o-1}} \right] \]

\[ P_{o} = \text{wholesales price index} \]
\[ \Psi_{o} = \text{industrial price index} = \left( \frac{IPRI_{o} - IPRI_{o-1}}{IPRI_{o-1}} \right) \]
\[ \Omega_{o} = \left( \frac{DEP_{o}}{\text{BV of fixed assets}_{o}} \right) \]

\[ RISS = \text{right issue} \]
\[ Lshare = \text{largest shareownership} \]
### Stock Market Indexes and their sources

<table>
<thead>
<tr>
<th>Country</th>
<th>Stock market index</th>
<th>Base Period</th>
</tr>
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<tbody>
<tr>
<td>India</td>
<td>BSE</td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>JSE Composite Index</td>
<td>1993=100</td>
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<tr>
<td>Malaysia</td>
<td>KLSE Composite</td>
<td>1993=100</td>
</tr>
<tr>
<td>Pakistan</td>
<td>KSE 100 Index</td>
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<tr>
<td>Thailand</td>
<td>SET Index</td>
<td>1993=100</td>
</tr>
<tr>
<td>S.Korea</td>
<td>KSE Composite</td>
<td>1993=100</td>
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</tbody>
</table>

*Source: Kaminsky and Schmukler (2000)*
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End Notes

1 In the post war Europe, most European countries have been very slow to liberalise their financial markets. Belgium, France, and Italy have long operated with repressive banking and financial system. Belgium’s banking system consisted of deposits and merchant banks with tight quantitative controls on interest rates; high reserve requirements ‘structural ratios’ of 65% for large banks, and 50% for small banks; ceilings on deposits rates; no foreign banks until 1950s. France had selective credit programmes under Banque de France to capital goods industry, exports and housing; zero rate on sight deposits and lending rates ceilings. Italy, credit ceilings were imposed in 1973 and only public owned institutions specialising in mortgage were largely exempt from ceilings; ceilings were imposed per credit amount.

ii In Central and Eastern European countries like Hungary, Poland, and countries of former Yugoslavia there was less deep financial system as measured by ratio of broad money to GDP; under sized banking structure as measured by magnitude of loans to non-govt sectors as proportion of GDP. In Commonwealth Independent States, there was low level of monetization that was result of barter system e.g. 50% industrial sales were barter transactions in Russia and Ukraine, in voluntary credit and inter-enterprise arrears were also high.

iii Events following implementation of financial liberalization prescription in 1970s and 1980s tell sad stories, Financial Crises. Early 1970s Columbia, Uruguay, and Venezuela; Middle 1970s Argentina, Brazil, Chile and Mexico; early 1980s Turkey, Israel, Philippines, and Mexico and in 1990s Thailand, Malaysia, Indonesia, Philippines, S. Korea and Singapore excluding more recent Russian and Mexico crises.